

# [frozen <sup>dossier</sup> food]

ISSUE 1/2023



## STATE OF THE 2023 FROZEN FOOD INDUSTRY

# FROZEN FOOD EUROPE

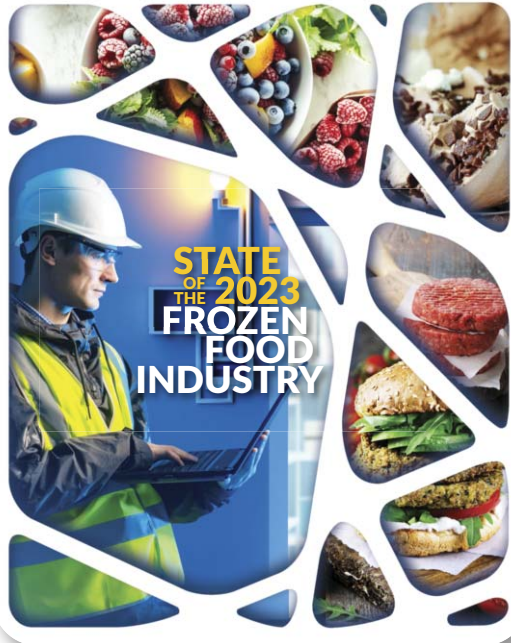


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# STILL SOME HURDLES AHEAD

**BOGDAN ANGHELUTA**  
editor in chief

**Y**

ou might find it surprising that I've decided to tackle the topic of foodservice since the topic isn't addressed head-on

in this issue of the Dossier. But worry not, as each and every article you'll read going forward is related to the abovementioned industry and the challenges it faces. So, while foodservice rebounded from the lows of 2020, is still faced with some hurdles. Let's take Belgium for example consumer foodservice experienced double-digit growth in 2021 in terms of current value sales and transactions, and another strong year followed in 2022. But the segment has been affected by a labor shortage, particularly in full-service restaurants and cafés/bars. In addition to a general scarcity of staff, 2022 was also notable for staff retention and the recruiting of competent professionals. As Belgian consumers grow accustomed to casual dining, big brands like McDonald's and Quick have benefited to some extent from Belgium's transition from full-service restaurants to limited-service

restaurants. As a result, owners of full-service restaurants are now attempting to incorporate some of the traits of limited-service eateries, according to a report by Euromonitor. Additionally, 2022 saw substantial inflation, forcing the proprietors of a lot of independent pubs, restaurants, and cafés to utilize their own resources to keep their companies afloat. While there is a generally good outlook for consumer foodservice in Belgium throughout the forecast period, by 2027 it will likely still be difficult to return to pre-pandemic levels across all indices. This image can be seen in other parts of Europe, as well. There are also some trends that might affect footfall, such as 'fakeaways' – a sort of remanence of the 'cooking at home' period of 2020. Working remote and some atypical schedules for employees in certain countries, such as the UK, might also play a role. So, while it's difficult to assess what the future holds, it's clear that foodservice as an industry must find ways to attract more customers. How it will do that remains a question, at least for now. Let me know what you think at [bogdan.angheluta@trade.media](mailto:bogdan.angheluta@trade.media). ●



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# MULTIPLE FACTORS DRIVE THE MARKET FORWARD

Growing fast-paced lives that call for more convenience, as well as improvements in food processing and packaging techniques, are driving the demand for frozen fruits & vegetables. These developments have given consumers additional alternatives by enabling a wider variety of fruits & vegetables to be frozen without compromising on the texture or flavor.

*By Marketsandmarkets*

# T

The US Department of Agriculture (USDA) reports that over the previous ten years, frozen fruits & vegetables have become more widely available.

Compared to little over

1,000 items in 2009, the USDA claimed that there were over 1,600 different frozen fruit & vegetable products available in the US market in 2019.

The past couple of years have demonstrated a change in consumer behavior, with a notable shift toward frozen and ready-to-eat products. With more full-time working individuals and less cooking time, there has been an increase in the need for convenience, which can be ascribed to this shift. In addition to being used in these ready-to-eat goods, these frozen fruits & vegetables are also consumed by end users. Convenience is of paramount importance; pre-cut frozen fruits & vegetables assist to cut down on cooking time. A fast-paced lifestyle and increasing affluence have triggered on-the-go consumption. Moreover, the younger generation is driving the demand for frozen vegetables and fruits coupled with the growing demand for exotic and seasonal fruits & veggies that can be made available with the help of freezing technology. Also, increased focus on vegan and organic diets contributes to the market growth.

Apart from fruits & vegetables, herbs have also witnessed a sharp rise in popularity due to health and wellness reasons. Apart from being stable in many cuisines around the world, these herbs are incorporated in many food & beverage items due to their perceived health benefits. In 2023, Bigelow Tea (US) and Stony Creek Brewery (US) collaborated to produce two tea-infused beers. No Comment and Carpe Tea-em are the names of the new brew. The goal of this launch was to take advantage of the rising demand for unique flavors. Exotic herbs are projected to be in high demand due to the rising wellness culture among younger people and their increased propensity for health and fitness. Moreover, spices and herbs are crucial ingredients for the worldwide food & beverage business. Plant-derived medicines have long been used in Asian countries for a variety of purposes. The frozen herbs market has gained commercial traction globally in the last 10 to 15 years, owing to an increase in diseases caused by synthetic and chemical-based products such as irritable bowel syndrome (IBS), Attention Deficit Hyperactivity Disorder (ADHD), or autism spectrum disorder. Furthermore, significant investment in plant-derived nutritional and health products is expected to bring promising opportunities for the market.

## INCREASING POPULARITY OF CONVENIENCE FOOD & BEVERAGE PRODUCTS

When convenience foods were first introduced, consumers were willing to adopt these products as they required a short preparation time. However, they demand a standard flavor and quality today, with balanced nutrition and health benefits. Busy schedules of people have led to the high consumption of ready-made food & beverages, which has led to the rise in demand for frozen fruits & vegetables. Consumers in developing countries are increasingly influenced by Western lifestyles. This has resulted in changes in their product preferences for new and exotic fruit & vegetable flavors even if the price is comparatively high, which is expected to fuel the growth of the market. The growth in consumer preference for convenience food indirectly favors the demand for fruit & vegetable ingredients required as base ingredients and as coloring, flavoring, and decorating agents in convenience food products. The health & wellness trend among consumers and rise in income levels have boosted the sales of frozen produce as inclusions in bakery and confectionery products like snacks, and savory flavor enhancers.

As the processing industry grows, the demand for frozen products is increasing. For example, frozen herbs can be used in food & beverages and nutraceutical products. Besides, frozen vegetables are used in many ready-to-eat and make products. For example, MTR Foods (India) offers a range of ready-to-make food products containing various frozen vegetables like peas and peppers. Further, the growing demand for confectionery, bakery, and dairy products is expected to propel the revenue generation in the frozen fruits, vegetables, and herbs





segment due to an increase in the inclusion of exotic fruits such as kiwis and apricots, which remain the most viable in their frozen forms. According to MarketsandMarkets, approximately 17.4% of the global frozen food market was occupied by the frozen vegetables, fruits, and herbs segment in 2019. The market is expected to witness a single-digit growth rate of 5% to 7% during 2020–2025.

### ORGANIC AND PLANT-BASED FOOD GAINING TRACTION

Consumer aspiration for health and well-being, authenticity, and clean label products are changing the food & beverage industry dynamics. New product developments, reformulations, and market strategies revolve around natural and organic food ingredients. Transparency and clean labeling are the key to product development. Companies are introducing a greater variety of organic foods into their portfolio due to the rising awareness about the health benefits of these products, especially during the COVID-19 era, when consumers prefer to spend extra for organically produced food. The return of 'home-made' healthy food has also contributed to consumption growth. There has been a responsible shift in consumption patterns from non-organic to organic and has been an opportunity for many startups to enter the organic food space. In India, according to the APEDA, in 2020/2021, organic crop production reached 3.2 million metric tons (MMT), up 36% compared to 2019/2020.

Veganism is the new "it" trend. Post-COVID-19, the industry dynamics have reformed, and there is an increased level of environmental and health consciousness among consumers. Plant-based products produced and processed sustainably, as well as those with health-promoting benefits, have become the focus. With time, there has been a distinct increase in the vegan population, especially in Western Europe. According to The Vegan Society, the number of vegans in Great Britain quadrupled

between 2014 and 2019, increasing from 150,000 in 2014 to 600,000 in 2019. An increase in demand for sustainable products has led to a substantial rise in plant-based food. Besides, the focus on health is also promoting the frozen fruits & vegetables domain. Vegan products are moving from niche to mainstream, a movement strengthened by the Millennials and Generation Z, who prioritize nutrition and accountability in the food consumed.

### COMPETITIVE LANDSCAPE

Large players are vying for a significant share in the frozen fruits, vegetables, and herbs market. The market, despite being mature, is highly fragmented, primarily because of several established retailers as well as local players operating in the region. Key market players operating in the sector are BRF S.A. (Switzerland), Astral Foods (India), Hormel Foods (Hungary), 2 Sisters Food (France), Waitrose (UK), Wm. Morrison Supermarkets (UK), Samworth Brothers, and General Mills Inc (UK).

The players in the category are increasingly looking at strategic expansion and product launch to help strengthen their market position or even sustain in the market hold as new entrants strive for a position within the industry. For instance, the French Bonduelle group's Bonduelle-Belgorod LLC opened its first factory for the manufacturing of frozen goods in Russia in 2019. Similarly, Mother Dairy (India) introduced 2 new frozen vegetables in 2021: drumsticks and cut okra. A Belgian business called Greenyard offers a variety of fresh, frozen, and prepared fruits & vegetables to consumers worldwide. To diversify its product offerings in the frozen and prepared vegetable market and strengthen its position in North America, the firm announced the acquisition of the vegetable division of Dole Food Company in 2021.

### TECHNOLOGICAL ADVANCEMENTS

Equipment manufacturers are also a part of the value chain in the frozen fruits, vegetables, and herbs domain. They have contributed toward the advancement of the industry, making it possible to freeze several types of products. These recent developments demonstrate how the market for frozen fruits, vegetables, mushrooms, and green herbs is still expanding and innovating as businesses work to meet the rising demand for quick-to-prepare, wholesome, and environmentally friendly food options. ●



# 17.4%

of the global frozen food market was occupied by the frozen vegetables, fruits, and herbs segment (2019).



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# A CONSTANT NEED FOR IMPROVEMENT

Manufacturers active in the frozen food industry strive to upgrade their machines as new technologies emerge and new requirements are brought forward by producers. It's a race against the clock which never ends, as improvements need to be made each year, whether it's in sorting, cutting, slicing, or any other area.

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nnovations in the **Urschel** portfolio are designed, engineered, and manufactured under one roof to maintain the quality and support customers expect. A multi-million-

dollar inventory of common spares is kept on-hand for on-demand shipment. Spares are made to fit and function like the original with the same tight tolerances. "Urschel employs the best, most up-to-date manufacturing methods to deliver the highest standard to our customers. Machinery, components, and thousands of different types of knives all come together with optimal Urschel quality standards. Urschel goes to great lengths to study new cutting methods and refine existing ones. Knives and parts are invented to meet the needs of specific cutting applications," says Alan Major, chief sales officer of Urschel. "Urschel engineers and staff work with customers to determine the needs and expectations of today's and tomorrow's cutting requirements. We are a company built on invention and innovation since our founding in 1910," he adds. When making a capital purchase, processors need to identify the flow of their current system. If creating a new line, make sure each station will work seamlessly with the next. Safety and flow should be fully analyzed, explains Alan Major. "In analyzing a new purchase, such as cutting machinery, a test cut of the supplied customer product may be highly advantageous. The customer should make sure the machine fits their needs and any future flexibility that may be foreseen. If replacing an existing machine, weigh the benefits of different models. Urschel engineering specializes in assisting customers attain the right fit for their production objectives. In addition to choosing the proper cutting machine, ask about spare parts availability, maintenance, and determine the degree of support after the sale. Urschel offers support to every customer for the long life of their cutting machinery," Major says. The DiversaCut series, designed and manufactured by Urschel, remains the go-to for leading global potato processors. The series excels at crinkle and straight (flat) strips and dices for popular items such as french fries and diced potatoes O'Brien or hash brown dices. Other items, like popular veggie noodles and rice cuts may also be produced, according to him. Different models are available to meet small, medium, and mega processor goals. From the small footprint of the DiversaCut Sprint® Dicer (DCSPR) to the Sprint 2® Dicer (SPR) to finally the largest and highest capacity DiversaCut 2110A® Dicer (DCA). "Each DiversaCut model incorporates a similar operating principle to produce precision cutting in a compact cutting zone. Both the DCA and SPR2 may be manufactured with an optional discharge conveyor to facilitate dispensing into totes. Differences are found in the size of the infeed product accepted: DCSPR and SPR2 infeed size up to 6.5" (165 mm), DCA infeed size up to 10"

(254 mm), and motor sizes: DCSPR 1.5 HP (1.1 kW), SPR2 1.5 HP (1.1 kW) or 3 HP (2.2 kW), DCA 5 or 10 HP (3.7 or 7.5 kW)," Major says. For slicers/shredders, leading processors around the world rely on the Model CC. From shreds to 'V', flat, or crinkle slices, the CC remains at the pinnacle of the crisp/chipper market. In addition to the CC, the lattice waffle version, the CCL, has established an ever-growing niche market. Ongoing improvements to the newly developed 14-cutting-station MicroAdjustable® heads benefit the global market by increasing capacity compared to an 8-station standard head. In addition, patented technology in the new series of MicroAdjustable heads expedites knife changeovers and saves labor and cleaning times. The 14-station .212 V Slice head incorporates SlideLocc™ technology to quickly change knives in an easy 3-step process. A new top ring and cam design is available for all MicroAdjustable heads to increase the cam opening to 180° to facilitate cleaning without having to completely remove parts – time and labor savings. Flaking and milling potato processors turn to the Comitrol® line of reduction equipment. Differences between the models include motor sizes, feeding methods, and types of reduction heads. The Comitrol® Processor Model 1700 is the most versatile in the line accepting all three heads – slicing, cutting, or microcut. Cutting heads offer different blade and column spacing to offer a full spectrum of reduction possibilities. Microcut heads deliver the smallest particle size down to micro-dimensions for the ultimate in reduction. "Many watergun systems rely on Urschel blades. Urschel manufactures segment cutters, such as the Model VSC. Larger watergun systems depend on the blades manufactured by Urschel to deliver consistent quality at high capacities backed by Urschel support," according to Alan Major.

Photo: Urschel



Urschel employs the best, most up-to-date manufacturing methods to deliver the highest standard to our customers. Machinery, components, and thousands of different types of knives all come together with optimal Urschel quality standards.

Alan Major, chief sales officer at Urschel



The choice of the right blade is critical to the cutting process: at FAM STUMABO, blades are made in-house from the best food-grade stainless steel materials. Modern fully automated production lines guarantee that the same quality is produced blade after blade..

FAM STUMABO



Photo: FAM STUMABO

## FLEXIBILITY IN A VERY DIVERSE INDUSTRY

The **FAM STUMABO** machines offer great flexibility on a large variety of fruit and vegetable cutting solutions. “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 say. FAM Tridis™ 240 HD is the workhorse drum dicer in our range, designed for high volumes and continuous product flows, suitable for many different products, both hard and soft, such as carrots, turnip, celeriac, broccoli, onions, potatoes, mango, apples, pears, strawberries, and many more. It has a capacity of up to 15,000 kg per hour, depending on the type of product, cut size, and shape. A wide range of cut sizes is available between 3 mm and 25 mm in dices, strips, flat, or crinkle shapes. Its advanced design incorporates a quick change-over of cutting tools thanks to the 'set and forget' principle.” FAM Tridis 180 is the lower-capacity version of the Tridis 240. It has a smaller footprint yet offers equally reliable cut performance with the same proven technology. It has a capacity of up to 6,000 kg per hour, again depending on the type of product, cut size and shape, and similar cut sizes as the Tridis 240. Volantis is FAM's latest V-belt slicer designed for the precision transverse slicing of a wide variety of elongated and oblong products such as green beans, carrots, zucchini, etc. up to a diameter of 160 mm. Its 2-meter-long V-belt brings the product perfectly aligned and with optimal speed towards the slicing wheel. The machine accepts various cutting tools for more product differentiation, such as flat cut, crinkle cut, julienne cut, and halving of products. The highly efficient machine design results in low maintenance and easy accessibility for cleaning. Volantis is the preferred slicer for cross-cutting of green beans which is a seasonal product. The machine can also be used outside of this season for elongated products such as carrots, celery, zucchini, etc. FAM Yuran Hytec is a belt-fed dicer designed for dicing, strip-cutting, and shredding at high capacities. It comes with a hygienic

240 mm wide belt with guide strip and belt edge sealing. The cutting principle incorporates a feed roll that positively transfers towards the cutting spindles, making it suited for spinach, radish, peppers, etc. The machine allows a quick change-over between cut sizes due to the fast removable cutting spindle shafts. FAM Centris™ 400, with its revolutionary GapSet™ 16-station cutting head, offers all the latest innovations in centrifugal shredding and slicing. It is designed for consistent cut quality, flexibility, and speed at high capacity. It provides perfect cut quality on a wide range of round and elongated products at full length or pre-cut to determine the length of the shred. The Centris machine allows processors to slice or shred a wide variety of products, like carrots, celeriac, onions, cabbages, and many more. The cutting head assembly for Centris consists of sixteen individual, stationary cutting stations. The highest number of cutting stations in the market, offering higher capacities and improved yield. The quickly interchangeable cutting heads with simplified design minimize downtime and maximize operator-friendliness. “The choice of the right blade is critical to the cutting process: at FAM STUMABO, blades are made in-house from the best food-grade stainless steel materials. Modern fully automated production lines guarantee that the same quality is produced blade after blade. Expert selection of the proper blade will contribute to the blades' efficient cutting and longer lifetime. The latter impacts again the efficiency on the customer's side,” representatives point out. “The FAM STUMABO baseline is «Together we cut your product to perfection». Consistent cut quality is the first and most important element. Using state-of-the-art cutting equipment helps processors optimize their efficiency and yield. With typical mid- to high-capacity, continuous production environments, the frozen vegetables and fruit industry puts great importance on equipment performance and reliability.” The choice of the right blade is crucial: at FAM STUMABO, blades are made in-house from the best food-grade stainless steel materials. Modern fully automated production lines guarantee that the same quality is produced blade after blade. Expert selection of the proper blade will contribute to the blades' efficient cutting and longer lifetime. “It may seem easy, yet a thoroughly

scientific approach is key to getting the best results. Strict tolerances are set for producing all critical components of the cutting tools bearing in mind the high capacities at which the frozen food industry works. Seeing the importance of cutting equipment in a processing line, we at FAM STUMABO, are committed to driving innovation in the field of food cutting. We work closely with our customers to feel their pulse on new trends, needs and requirements. Our in-house engineering, design, and manufacturing of precision blades, cutting tools and machinery, combined with a highly qualified team of application experts of the Food R&D Team allowed us to launch a multitude of innovations that have set several new standards in industrial food cutting," FAM STUMABO representatives conclude.

## AN ERA OF DIGITAL TRANSFORMATION

When selecting a sorting machine for a frozen food processing plant, the first consideration is what unwanted materials or product defects you need the machine to detect and eject. Some of these might be difficult to detect, and sorting machines differ greatly in their 'seeing' ability, according to Jacob Hobbel, **TOMRA Food's** global category director for vegetables and fruit. Another consideration is the sorter's ability to minimize food waste and maximize yields, he explains. "Will the machine work with a low level of false rejects, removing unwanted materials without also removing too much that's saleable? Machine performance also differs in this respect. Yet another consideration is downtime. The sorter needs to be easy to operate, easy to set-up when switching from one type of food to another, easy to clean, and reliable. It must work well in the tough conditions found in IQF environments, in temperatures can be as cold as -30°C and as hot as 50°C. If a problem should occur, the machine user needs to know the manufacturer will quickly provide technical back-up, whether that's remotely or by getting a technician on site." One more factor to consider is futureproofing, Hobbel explains. "Selecting a sorting machine is not only about current needs, but also what it will take to stay competitive in the future. As we move into an era of digital transformation, sorting machines with Artificial Intelligence will deliver advantages, as will machines which produce usable data." For example, connectivity to the TOMRA Insight customer portal and cloud-based data platform can show operators live data which enables them to make line efficiencies almost instantly. This data can also ensure that when frozen vegetable products are mixed, each bag is packed with exactly the right mix. And by accessing data retrospectively it's possible to quantify the standards of raw materials from suppliers and to make better-informed business decisions. Sorting plays a vital role in ensuring the quality and consistency of frozen produce, he points out, as sorters are essential for ensuring the product consistently meets the required quality specifications. This is achieved by

removing foreign materials and defective products according to shape, color, and structure. Still, sorting frozen produce is particularly challenging, compared to fresh produce, because the production process requires multiple sorting interventions. Specifically: presorting to remove foreign materials when raw materials are accepted; sorting just before or after the freezing tunnel on color and shape; and sorting again at the packaging stage to remove any remaining foreign material. "Because profit margins with frozen produce are low, sorting must be very efficient and effective, to maximize yield and minimize food loss and downtime. Sorting solutions also need to be flexible and easy to set up for different types of products, because the same production and packing line will typically process multiple applications," Jacob Hobbel says. "To meet these challenges more effectively than any other solution available, last year we launched the TOMRA 5C premium sorting machine for frozen vegetables (mono and mixed). By using TOMRA Food's unique biometric signature identification (BSI) technology, this assesses every object passing down the line not only for its color and shape, but also biological characteristics. The TOMRA 5C is located on the processing line between the IQF tunnel and the packing station, to make final checks for food safety and product quality with unrivalled accuracy. The sorter recognizes and removes any remaining foreign material, extraneous vegetable matter (EVM), and hard-to-detect product defects such as stems and stalks with green beans and nightshade with peas." ●



Photo: TOMRA



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Jacob Hobbel, TOMRA Food's global category director for vegetables and fruit



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 conveyer 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*

# FINDING THE RIGHT BALANCE

The needs of producers vary greatly, from efficiency to lower power consumption or after-sales services. These must all be balanced with safety, cleaning requirements and overall reliability – and all of these must be addressed by manufacturers, as they aim to create the best machinery at the most affordable costs.

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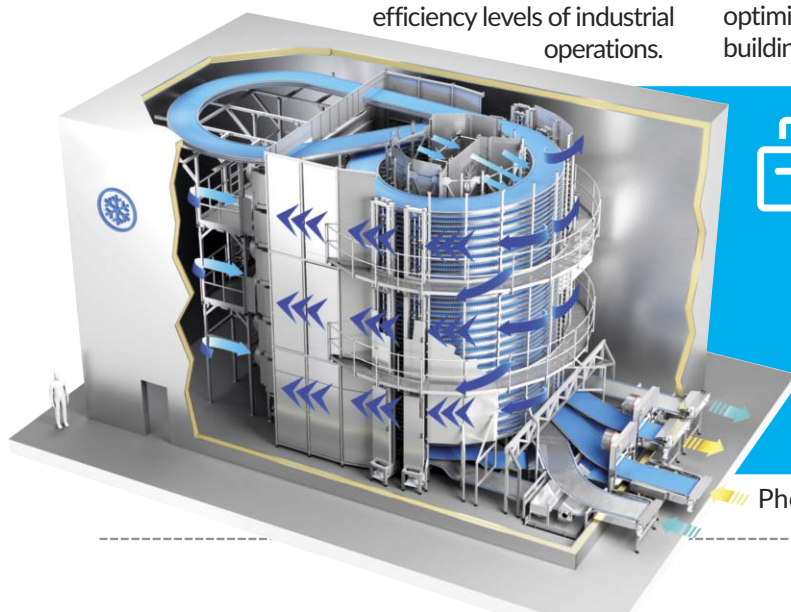
iscussing industrial freezing machinery with potential accounts requires addressing several issues, such as ensuring that End-Users are properly trained in all aspects regarding

operations, cleaning, and maintenance of a spiral freezer before it enters service, according to Tecnopool representatives. Another issue to manage is how to create and grow a relationship of trust with a potential account: a performing industrial food processing machinery is not enough on its own unless an OEM is capable of putting in place a dependable aftersales support. Speaking about difficulties, the market circumstances of today may occasionally cause changes to the levels and a mix in the demand for baked goods. Making sure that industrial bakers can adjust their production to the needs of the market they serve is one of the issues that Tecnopool must address while designing spiral freezers. The industrial process that is currently being used is a good place to start looking for in the short term. Optimizing processes to prevent production gaps, pursuing machine efficiency, and avoiding unneeded temperature fluctuations in machines that operate at low temperatures may be a good tactical approach. Additionally, it's imperative to follow the cleaning and maintenance schedules recommended by the OEMs. For instance, in spiral freezers, dirt can lower the thermodynamic efficiency of heat exchange batteries, and it's important to monitor the efficiency of drive transmission elements to prevent wasting energy. Bakers may search for equipment that consumes less energy if they are thinking about future investments. A spiral freezer can offer many ways to reduce its energy requirements. Airflow optimization, lower inertia of moving parts, smaller footprints, and improved designs of thermal exchange batteries are some examples of design features that can help bakers more effectively guard against fluctuations in energy prices. Regarding freezers, technology can surely be of help in maximizing efficiency and uptime, according to Tecnopool representatives. A spiral system can integrate a data link and a wide array of sensors to collect and share with the OEM motion and energy consumption data which can help maintaining high efficiency levels of industrial operations.

Furthermore, renewable energy production can be a benefit in offering a partial hedge against fluctuating energy prices that affect the operating costs of industrial freezers as a greener economy becomes more prevalent. In addition, from a fiscal point of view investments in renewable energy can generate savings anytime governments provide incentives to “green transitions”. But when it comes to preventing downtime, what technology is available for avoiding or preventing an unexpected event of such kind? “OEMs prescribe preventive maintenance checklists in their «use and maintenance» manuals. Such checklists focus, most of the time, on moving parts and sensors,” company representatives say. “Cleaning routines are also important. Users of spiral freezers should wash and sanitize their machines with the frequency the OEMs prescribe in their «use and maintenance manuals» which are tailored to the food product being processed. As previously mentioned, proper sensors to gather diverse «operations and consumption data» together with a policy of «data sharing» with the OEM, can surely be of help in supporting bakers maximizing freezer’s uptime,” they conclude.

## A NEW GENERATION OF CUSTOMER CARE SERVICES

Predicting maintenance, preventing downtime, and creating a more efficient food processing line is always challenging. But with OmniBlu, JBT’s new AI-powered subscription-based platform that combines Parts & Service, Maintenance manager, and Machine performance, providing customers with a powerful tool that creates more value, maximizes uptime, and improves yield should be easier than ever, according to Guilherme Goinhas, general manager of Customer Care Protein, EMEA at JBT. “OmniBlu will bring our customers unmatched visibility of their operation and help them improve it even in the smallest detail,” he points out. OmniBlu is JBT’s new generation customer care and a service designed around improving customer operations and includes services and parts supported by digital tools. This is intended for one single goal: optimizing customer results. Consequently, OmniBlu includes spares on stock, preventive maintenance activities, and a customer success manager to support the customer with operations and maintenance activities. JBT has optimized the monitoring to an expert level by building and continuously improving its digital tools.



Optimizing processes to prevent production gaps, pursuing machine efficiency, and avoiding unneeded temperature fluctuations in machines that operate at low temperatures may be a good tactical approach.

Tecnopool

Photo: Tecnopool



Photo: JBT



The information collected from the machines is merged with the customer's operation because food processing works differently for different customers. This is designed to generate more value for the customer on their operations.

Guilherme Goinhas, general manager of Customer Care Protein, EMEA at JBT

Therefore, joining the OmniBlu program is like having a specialist always next to your JBT machine, guiding you and your team, the company states. OmniBlu monitors the machine's performance, gets all the different data, and generates alerts and graphs depending on equipment and application. OmniBlu can also help predict the future based on the new algorithms that have been developed. The data presented in the monitoring tool is designed to control the most critical value levers that operations and maintenance can use to improve. "The information collected from the machines is merged with the customer's operation because food processing works differently for different customers. This is designed to generate more value for the customer on their operations by analyzing and optimizing their performance and more accurately predicting future maintenance needs", says Guilherme Goinhas. For years, JBT's PRoCARE® service contracts have effectively maximized the longevity of JBT machines through high-quality support and maintenance. At the same time, JBT's iOPS® offered machine performance monitoring and analytics to give customers insight into equipment performance data. Now with OmniBlu, JBT combines these different services, PRoCARE and iOPS, and takes this to a new level, providing smart insights and connected care designed around customer value. "OmniBlu has been field tested on various food production sites in US and Europe for almost a year. During this time, much information has been collected and used to finetune the tools and validate the data and what conclusions one can draw from it," says Auke Bouwense, global commercial director of JBT OmniBlu. "The testing guarantees that the tools will work as intended. We will keep learning while we keep implementing OmniBlu for more customers. Our customers are diverse and different, so we are never done learning and improving." When OmniBlu is implemented, data is collected from day one, but how much information is needed to analyze a trend depends significantly on the customer's conditions, like how many hours they work, how many shifts they have, or if they frequently change products. "If a customer has an inefficient process, we will see it immediately and get insights into what to adjust after a few weeks. But if a

customer has all their processes well under control, the improvements are more subtle and need enough data to improve the process, like avoiding micro stops, for instance", adds Guilherme Goinhas.

### CREATING AN INDUSTRY BENCHMARK

Subsequently, as more and more food processing plants use OmniBlu, the aggregated data creates a standard industry benchmark for individual food products. Even if the plants are different and located in separate regions, the processing of, for instance, poultry is done in the same way on the same JBT equipment. However, there can be minor differences depending on the chosen options. "Now we can support our customers in more ways than before. We have created a form of best practice regarding how the customers should run their process under certain conditions. Another benefit is that by analyzing aggregated data, we will be able to provide feedback on the development of our equipment and improve it in a way that will benefit our customers even more, says Auke Bouwense. OmniBlu is developed to work with all JBT food processing equipment, although it will be launched in different steps. "First connected was the JBT Frigoscandia GYRoCOMPACT® self-stacking spiral freezer, and we are now deploying ovens, fryers, and the DSI Waterjet portioners. OmniBlu can also be connected to older machines depending on age," says Auke Bouwense. "Machines up to ten years old are pretty easy to connect. If they are older, they need an upgrade that could be more or less expensive, depending on what kind of machine it is. All devices can be connected, but if it's too old, it's probably a good idea to invest in new equipment anyway", Guilherme Goinhas points out. OmniBlu offers a high degree of predictability, making it possible to anticipate problems and thus decrease downtime. "OmniBlu allows us to add more sensors on the equipment, which gives the customer a better understanding of their process by using specific parameters for specific operations and needs. It also makes it more convenient to plan maintenance by predicting it and making it easy to order spare parts through the Parts portal. With OmniBlu, we are a strategic partner to our customers, working with them to maximize performance," he concludes. ●



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# IT'S MORE THAN JUST THE MEAT

Burgers have been a staple food in many cultures for decades. However, with growing concerns over the environmental impact of meat consumption and the health risks associated with a high-meat diet, there has been a notable shift towards plant-based burgers. So, while beef remains the choice of protein for many consumers, plant-based options are now available at (almost) any grocery, not to mention online channels.



I

t's no wonder, as most of the food industry is turning towards healthier, environmentally friendly solutions. It's a change that seems permanent, also, as not just start-ups

but renowned manufacturers turn to plant-based.

## EU BEEF CONSUMPTION WILL DECREASE

Notwithstanding high beef prices, the EU is anticipated to see a further 1.6% decline in beef production in 2023 because of structural changes in the cattle and dairy industries, according to Eurostat's Spring 2023 Short-term outlook. While imports from the UK and South America could increase by 5% due to the present price environment, exports from the EU are expected to remain stable because global supply is relatively low, and demand is quite firm. Also, challenging EU exports are a result of high poultry prices in the EU. The suspension of taxes on Ukrainian goods favors chicken imports and expands domestic supply. Despite high domestic prices, the historically low EU sheep and goat

flock causes

slaughtering to decline by 1% in 2023. A rise in New Zealand

imports is anticipated

because of the

favorable lambing conditions and high EU pricing. On the other hand, EU beef production fell by 2.6% in 2022, more than was initially predicted (-0.6%).

Germany experienced the greatest decline (-8%) among the top producing nations, followed by France (-4.4%) and Poland (-2.6%). It is anticipated that EU beef

production will drop 1.6% further in 2023. As there is less beef available in the EU, prices may continue to rise, which could potentially have a detrimental effect on EU consumption and the competitiveness of EU exports. Nonetheless, the demand is robust, and the supply is still low globally, which may help keep shipments from the EU stable in 2023 despite rising prices. Nonetheless, the current price situation may encourage greater imports into the EU. They could increase by

another 5%, adding to the 25% growth seen last year, particularly from the UK and South America; this would counteract the brief decline brought on by the effects of COVID-19 with Brexit. This is envisaged notwithstanding the possibility that Asian markets, particularly China, would be more appealing to Americans while UK flows would return to levels like those before to COVID. EU live exports may also decrease in the same period, but at a slower pace than in previous years (-2%). According to projections, the apparent EU per capita beef consumption will continue to decrease over time and may fall below 10 kg in 2023 (-1.7%). Because beef is more expensive than other types of meat, consumers will likely search for less expensive animal proteins in an environment of high food inflation.

## PLANT-BASED BURGERS CONTINUE TO GAIN POPULARITY

According to a 2022 analysis by Future Market Insights, sales of plant-based chicken burgers are predicted to account for almost 33% of the demand in the global market for plant-based burgers, which is forecast to be worth USD16.689 billion in 2032. In wealthier countries, diets that focus exclusively on plant-based meals are swiftly gaining acceptance. The Plant-Based Food Association has claimed that the growth in retail sales of plant-based foods in the United States has outperformed the general growth in grocery store sales by a significant margin. Because of changing consumer preferences as well as increased interest in environmentally and health-conscious dining options, the market for plant-based burgers is expanding rapidly. More consumers are prepared to switch to plant-based meat substitutes, which should encourage more companies to create inventive menu items. As long as companies keep introducing a variety of products without sacrificing flavor, the market is expected to continue to be phenomenal. To penetrate the international market, their efforts to mimic the real consistency of hamburger patties should be a solid starting point. Since consumer demand for plant-based products continues to grow globally, certain plant-based food and beverage businesses are actively attracting investment, which is a positive sign for the market for plant-based goods globally. The rise of well-known restaurant chains that serve plant-based burgers on their menus is one of the main drivers driving the market's growth. Together with the product's rising market reach, more people are purchasing and recognizing various herbal products. As a result, the market will grow generally in the years to come. By forming



**10 kg**  
is the estimated per capita beef  
consumption in the EU in 2023.

strategic relationships with businesses that specialize in plant-based goods, several of the food and beverage industry's most prosperous companies are enlarging their markets. For instance, 17,000 different restaurants and fast-food outlets in the United States alone offer the popular plant-based burger brand Impossible Burgers on their menus. Among the well-known eateries on this list are Burger King, The Cheesecake Factory, and Little Caesars. The number of plant-based burger orders in quick-service restaurants increased noticeably over the past year. There is a likelihood that this pattern will continue. Additionally, well-known fast-food companies like McDonald's have joined the market for plant-based burgers by acquiring existing rivals in order to diversify the items they offer. The global market for plant-based burgers began as a niche area of the food industry that catered only to vegan and vegetarian communities.

#### **BURGERS AS A READY MEAL**

The market for packaged hamburgers is anticipated to increase at a CAGR of 6.75% from 2023 to 2028. Cooked patties of beef, ground meat, or vegetables are used to make packaged

burgers. These patties are then placed into cut buns with various condiments. Cheese, lettuce, tomato, onion, pickles, bacon, or chili can be added to these burgers. Compared to freshly made hamburgers, they have a longer shelf life since they are stored at moderate temperatures. Currently, the expanding food and beverage industry is having a beneficial impact on how packaged burgers are used in fast food restaurants and diners around the world. This is due to the growing consumer preference for eating out. Moreover, several businesses sell packed hamburgers in single-serve and environmentally friendly packaging. Also, they are launching novel goods that incorporate additives including salt, phosphates, spices, and taste enhancers. In addition to this, these businesses are starting their online operations, releasing frozen items that are gluten-free and high in protein, and growing their current customer base. This is having an impact on market growth together with the expanding e-commerce industry. The rise of numerous fast-food retailing locations and the simplicity of using packaged food goods are two additional elements that are fueling market expansion. Moreover, the market is predicted to be driven by the rising popularity of packed plant-based burgers that contain extracts of carrot, beetroot, bell pepper, and protein-rich components due to the growing vegan population. ●



**USD 16.68bn**  
is the projected market size of  
plant-based burgers in 2032.





**interpack**

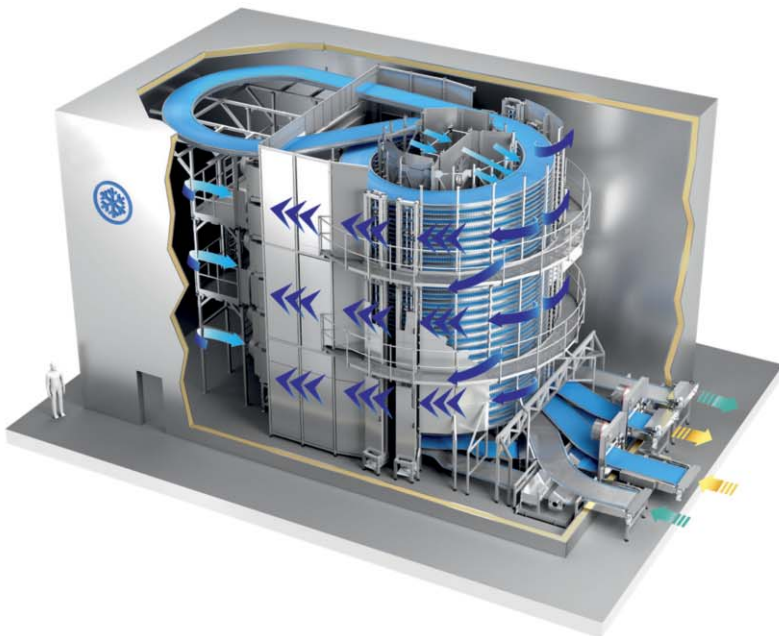
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# SOMETHING FOR THE SWEET TOOTH



When it comes to bakery, pastry, and mostly desserts, product development is paramount as the competition is probably stronger than in other frozen food segments. Manufacturers constantly come up with new flavors while trying to preserve aspects that have been successful throughout the years.

# T

he bakery and pastry industry is a dynamic sector that produces a variety of grain-based foods, such as bread, cakes, pies, pastries, cookies, frozen desserts, baked pet treats, and related

items. The sector is largely supported by bakeries, baking ingredients, equipment, and supplies. Consumers' purchase decisions are significantly influenced by baked goods' appearance, flavor, texture, aroma, shelf life, and fortification. While bakery item prices have a significant impact on older consumers, quality has a greater impact on younger consumers. In order to preserve the quality of baked goods and satisfy the expectations of the growing population, bakers primarily use baking ingredients. Due to the change in eating habits brought on by food crises, environmental concerns, and lifestyle problems, there is also a growing market for sustainable and natural bakery ingredients like fibers. Customers who were stuck at home because of the COVID-19 shutdown began baking more frequently, which increased demand for ingredients like baking soda, baking powder, cocoa powder, and other condiments. It is anticipated that the market for baking ingredients will reach USD22.3m by 2026, rising at a CAGR of 6.0% from 2021. The leading companies in the market for baking ingredients are Kerry Group Plc, AAK AB, Cargill, and Associated British Foods Plc (Ireland). Scales, mixers, industrial ovens, and refrigerators are examples of equipment. Automating bakeries can boost flexibility across various operations and lower labor and energy costs. Robotic automation is the most recent development in processing technology, and food producers are implementing it to increase productivity, lower costs, and increase throughput. Robotics in bakery processing decrease waste and improve product quality by roughly 20%. The proper handling of large-scale bakery manufacturing is made possible by automation. Also, it makes it possible to blend substances precisely and consistently throughout processing. Automating processes like depositing, baking, and handling is not too difficult. Robotic equipment is offered by businesses like Global Bakery Solutions (UK) and Erica Record (US) for panning and depinning bread and other bakery goods. Pans, utensils, and food-grade containers are examples of bakery supplies.

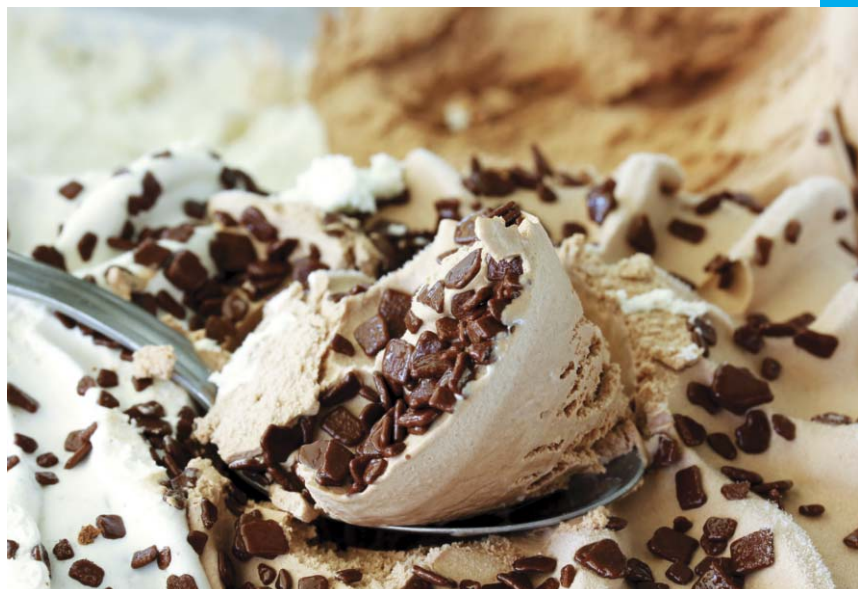
## TRENDS FOR THE FUTURE

All industrialized countries have four segments for the baking market: retail, wholesale, in-store, and foodservice. The wholesale bakeries are the foundation of this sector. A retail bakery is a small business where a variety of baked goods are produced and sold to clients all in one place. Although whole-grain and multigrain bread is now widely accessible in retail bakeries, flavor is still regarded by customers as being an essential element. The three parts of the wholesale baking sector include crackers and cookies,

frozen bakery items, cake, bread, and associated products. A wholesale bakery frequently has large production facilities and provides services to customers through retail businesses like grocers and restaurants. In-store bakeries, which are found in grocery stores and are relatively modest but provide a large assortment of freshly baked foods, are producing an increasing number of whole-grain breads. Most of the baked goods that are consumed in cafeterias and restaurants in the foodservice sector are produced by wholesale bakeries. Together with in-store bakeries and foodservice companies, retail bakeries have seen a decline in sales over the previous ten years. Convenience, enjoyment, and health are three major themes in bakery and pastry product advancements. Longer workdays, changed family dynamics, and shifting societal norms are all strongly connected with convenience. Consumers are now choosing foods that need less time to purchase, prepare, and clean up due to lengthy work hours, busy lifestyles, and a lack of time. To meet the rising demand for fresh and frozen bakery goods as well as a variety of baking ingredients, local bakery enterprises, cafes, and supermarkets have mushroomed in industrialized nations like the US and the UK in recent years. Pleasure was the dominant trend in the past and accounted for half of all new releases. There are three primary paths for new things in the "Pleasure" category: "novelty and fun," "ethnic and exotic," or "indulgent and premium." In fact, the bakery and pastry industries are significantly driven by innovation thanks to the health trend. Consumers tend to view many bakery products as healthy, while those that are viewed as luxurious, like cakes and pastries, are usually successful when given "low and light" qualities that allow for "guilt-free pleasure."

## A HIGHLY LUCRATIVE MARKET

According to a recent analysis by Future Market Insights, the global market for frozen desserts is projected to expand at a CAGR of 5.8% between 2018 and 2032. In 2021, the worldwide market for ready-to-eat foods was estimated to be worth





USD138bn. Rising global disposable income has stimulated demand for frozen desserts of all kinds, while the development of novel flavors has also contributed to the industry's expansion. The market for frozen desserts is expected to expand by about 5% each year between 2017 and 2021. A growing number of consumers are paying attention to the frozen dessert sector because of the proliferation of low-fat and gluten-free options available from a variety of vendors.

## NEW PRODUCTS ON THE ICE CREAM SEGMENT

**Häagen-Dazs** ice cream announced its newest innovation entering the U.S. market, the Butter Cookie Cone, as the brand looks to offer a new experience to the growing consumer demand for premium snacking. It delivers on a one-of-a-kind dessert experience wrapping its famously luxurious ice cream in butter cookie from top to bottom. The Butter Cookie Cone is a first-to-market frozen treat from Häagen-Dazs that is wrapped in unexpected moments of luxury. This is an original tasting sensation made of a thick, crunchy butter cookie rolled into a cone for the first time in brand history. It possesses all the characteristics of a traditional butter cookie made with butter, sugar, and flour, but with more personality, style and attitude. The cone is lined with rich chocolate inside and filled with four legendary top-selling Häagen-Dazs ice cream flavors including Vanilla, Strawberry, Chocolate and Coffee. From there, various combinations of decadent sauces such as raspberry, chocolate fudge, espresso or caramel are drizzled on the ice cream and generously sprinkled with indulgent toppings like cookie pieces and delicate chocolate curls, making each bite even more enticing than the next. **Halo Top**

recently introduced Frozen Yogurt Pops – a mix of creamy yogurt, crunchy granola, and real fruit. Halo Top Frozen Yogurt Pops are made with Icelandic Skyr-style yogurt and packed with real fruit and granola in every bite. They feature 110 calories per pop and 4g of protein. Halo Top Frozen Yogurt Pops is available in two tasty flavors: Triple Berry: creamy frozen yogurt, crunchy granola, and blue berries to satisfy your cravings and sweet tooth. It's like a smoothie bowl morphed into a frozen pop (110 calories); Strawberry: creamy frozen yogurt, crunchy granola, and real strawberries (110 calories). **Cold Stone Creamery** has showcased a chocolate and peanut butter combination with its REESE'S Peanut Butter Cup Ice Cream. The No Limit to REESE'S Creation features REESE'S Peanut Butter Cup Ice Cream, Brownie, REESE'S Peanut Butter Cup, and REESE'S Peanut Butter Sauce. REESE'S Take 5 Peanut Butter Ice Cream Cups are rich Chocolate Cups filled with layers of REESE'S Peanut Butter Sauce, Caramel, Pretzels & Chocolate Ice Cream topped with Pretzel, Peanuts & REESE'S Peanut Butter Cup. **GoodPop** has also presented its first line of fudgy oatmilk-based frozen dessert bars. This launch comes at a time when consumers are seeking more dairy free dessert options. According to SPINS data, total dollar sales of plant-based frozen novelties (any treat on a stick, cone, or sandwich) grew nearly 20% in 2022. The four new treats - Fudge n' Vanilla Crunch, Double Chocolate Fudge, Fudge n' Caramel Crunch and Mint n' Fudge Chip—are either dipped in chocolate fudge or include fudge chips. These bars are just like the classic ice cream truck favorites but are non-dairy and gluten-free, Non-GMO Project Verified, 130 calories or less and made with organic and fair-trade ingredients. The debut of **Cadbury** Caramilk in February 2023 included both sticks and tubs, ensuring that everyone may find their favorite ice cream. The Cadbury Caramilk ice cream line is the brand's most recent introduction; it already offers well-known flavors including Cadbury Dairy Milk chocolate sticks and Cadbury Dark Milk, which was just released. The iconic flavor, which debuted as a confection in the UK in June 2021, is now offered in ice cream form. It has a velvety smooth center that is coated with a wonderful golden mixture of caramelized white chocolate that is derived from actual Cadbury Caramilk. The recently introduced Cadbury Caramilk ice cream stick has been well received by customers; therefore, the UK launch is intended to generate incremental growth and draw more Cadbury ice cream fans, with a special focus on the millennial population. The Cadbury Caramilk tub can help with this; it has a golden caramel chocolate center and is the ideal treat to enjoy with the family. ●



# 5.8%

is the projected CAGR for the global frozen desserts market.



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## JANUARY/FEBRUARY

Ad closing 03.02  
Publishing 14.02

### Frozen Pasta for Catering and Foodservice

product innovation, manufacturers, suppliers

### Bakery and Pastry

key market players, producers, suppliers

### Bio and Organic Products for the Food Industry

trends and innovations

### Frozen Potato Market

innovative products and European overview

### Frozen Potato Technology

sorting, peeling, cutting, slicing, dicing

### Freezing Technology

conveyor belts, freezers and chillers, tunnel & spiral freezing systems

### Transport & Logistics

developments, distribution, and cold storage

### Artificial Intelligence

update on applications for automation & robotics

### Frozen Desserts & Ice Cream Market in Europe

market dynamics, new product development

### Nutrition & Ingredients

for frozen bakery and potato products

### Frozen Food in Germany

recent developments, review, estimates

**Trade fairs:** BIOFACH Nürnberg, GULFOOD Dubai, FOOD EX JAPAN, INTERNORGA Hamburg, CFIA Rennes, FOOD EXPO Greece, M.A.D.E. Paris, IFE London, CIBUS CONNECTING

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## MARCH/APRIL

Ad closing 24.03  
Publishing 07.04

### PLMA, TUTTOFOOD & INTERPACK SPECIAL EDITION

### Appetizers, Snacks and Pies

high convenience, filo pastry & pies, pizza & ready meals

### Frozen Vegetables, Fruit, Mushrooms, Green Herbs

trends and market overview

### Technology Innovation for Frozen Vegetables & Fruit

sorting, peeling, cutting, slicing, dicing

### Packaging Technology

state-of-the-art equipment and solutions

### BeNeLux Market Review

major players and new products

### Cooked & Pre-Cooked IQF products for the Food Industry

rice, pasta, sauces, cereals, noodles, vegetables

### Technology and Equipment

industrial freezing, freezers, coolers, proofers, ovens

### Plant-based & Vegetarian Products

meat-free and protein substitutes

### Digitalization & Networking

smart solutions for the food industry

### Frozen Fish & Seafood

sustainable practices, market overview, major processors

### Nutrition & Ingredients

vegetables, fruit and herbs

### Frozen Food in the UK

market overview

**Trade fairs:** PLMA Amsterdam, TUTTOFOOD Milano, INTERPACK Düsseldorf, SEAFOOD EXPO GLOBAL Barcelona, FOOD EX Birmingham



TUTTOFOOD MILANO

interpack

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## MAY/JUNE

Ad closing 26.05  
Publishing 09.06

### Frozen Food from Italy

market overview for retail and foodservice

### Frozen Pasta & Sauces Market

trends, new product development, producers, suppliers

### Frozen Pizza Market

major producers, suppliers, country breakdown

### Technology and Innovation for Frozen Pizza

processing machines, toppings, portioning and forming

### Ingredients for the Food Industry

herbs & mixed herbs, rice, noodles, vegetables, processed meat, and sauces

### Frozen Finger Food, Fried & Baked Products

trends and successful products

### Frozen Burgers

new products, producers and suppliers

### Frozen Snacks and Pastry

innovative products for retail and foodservice

### Optical Sorting Technology

innovation and latest equipment

### Deep Freezing Technologies, Proofing, Baking, Cooling

for bakery applications

### Multifunctional Cooking Devices

one device for different cooking processes

### Frozen Food in the US

evolution, challenges, opportunities & major players

**Trade fairs:** SUMMER FANCY FOOD SHOW NY

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## JULY/AUGUST

Ad closing 28.07  
Publishing 11.08

### ANUGA SPECIAL EDITION 1

### Coated/Breaded/Batter Foods

new products, market evolution

### Ethnic Foods - Greek, Mexican, Italian, German, French & Asian Food

product trends, producers, markets overview

### Potato Market Update

frozen fries market overview in retail & foodservice

### Potato Technology Innovation

new equipment for potato processing

### Vegetarian and Vegan Food

product trends, innovations

### Technology for the Frozen Food Industry

maintenance & after sales services

### Frozen Food in Spain and Portugal

latest market developments

### Industrial Freezing Systems

latest equipment and technologies

### Dishwashing Machines for Professional Kitchens

saving resources, networking of devices, hygiene optimization - what next?

### Nutrition & Ingredients

trends for coated and breaded products

**Trade fairs:** ANUGA Cologne, PACK EXPO Las Vegas



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## SEPTEMBER/OCTOBER

Ad closing 15.09  
Publishing 29.09

### ANUGA SPECIAL EDITION 2

### Key Exhibitors Road Map and Event Agenda

#### ANUGA Trends

special report

### Bread, Bakery, and Pastry

sweet & salty products

### Frozen Vegetables, Fruit, Mushrooms, Green Herbs

solutions for retail and foodservice

### Technology Innovation for Frozen Vegetables and Fruit

sorting, peeling, cutting, slicing, dicing

### Technology & Logistics

trends and solutions in packaging equipment

### Blast Chilling and Shock Freezing

versatile applications between shock freezing and pasteurizing

### Meat and Poultry Products

new technologies for product development

### Frozen Food in France

key players, product innovation, suppliers

### Global Retail Market

consumer behavior, new products, processors, suppliers

### Nutrition & Ingredients

for pre-baked and ready to bake foods

**Trade fairs:** ANUGA Cologne, IBA München, INTERPOM Kortrijk, PLANT BASED World Europe, PLMA Chicago, GULFOOD MANUFACTURING Dubai



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## NOVEMBER/DECEMBER

Ad closing 24.11  
Publishing 08.12

### Ready to bake & Pre-Baked Foods

market innovation, producers, new products

### Convenience Food for Retail & Foodservice

European market evolution, category breakdown

### Frozen Products for Catering & Foodservice

suppliers, producers, processors

### Meat and Veggie Burgers

product development & trends

### Freezing Technology

refrigerating and freezing equipment

### Quick Service Restaurants & Bar and Snack Channel

leading operators in Europe and market evolution

### Going Green

substantial contributions of equipment manufacturers

### Nutrition & Ingredients

ethnic food innovation

### Frozen Food in Scandinavia

producers, suppliers, consumer trends

### European Retail Market

suppliers, major retail categories, food trends

**Trade fairs:** SIRHA Lyon 2024, MARCA Bologna 2024, FRUIT LOGISTICA Berlin 2024, Gulfood Dubai 2024

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