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> Appetizers, Snacks and Pies

> Technology for Frozen Vegetables

> Frozen Food in the UK

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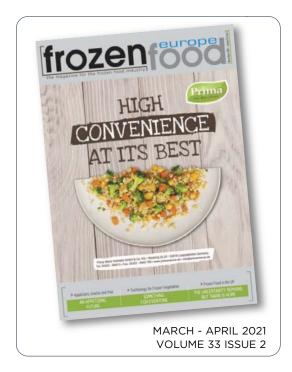
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Comment



By Dan Orehov, Managing Editor

PARADOX: **MEAT-EATERS** ARE MO TO BUY M **ALTERNATI**

ccording to Nielsen, 98% of plant-based meat buyers in America also purchase meat products. Impossible Foods and Beyond Meat have also reported that more than 90% of the consumers eating their products also consume or purchase animal products. Moreover, 21% of meat-eaters purchase plant-based meat,

indicating that, while meat-eaters are already the largest market segment for plant-based products, there remains ample room for growth. Omnivore consumers' desire for plant-based meat has implications for retail shelving

strategies -76% of consumers want to find plant-based meat in the meat aisle and frozen area where they already shop. Data also shows that increasing consumer demand for plant-based options is driving restaurants and retailers to offer more plant-based selections. Of all consumers who have tried plant-based meat, 80% plan to replace some or all animal-based meat with plant-based meat in the next year. They are interested in plant-based products that deliver the

To encourage shoppers to try plantbased meat, food manufacturers should focus on creating plantbased products with the taste that will win over consumers and keep them coming back for more.

sensory qualities of animal-based meat. In fact, 73% of consumers agree that plant-based meat should mimic the taste of meat. However, not all companies have so far managed to achieve this most crucial attribute 100%.

Considering the above, there is a market opportunity in developing more diverse taste profiles and product types as 47% of consumers say they desire more variety in plant-based meats, and 51% want more variety of protein sources in plant-based meat, from chickpeas and lentils to navy beans and fava beans. Therefore, to encourage shoppers to try plant-based meat, food manufacturers should focus on creating plant-based products with the taste that will win over consumers and keep them coming back for more.

What's your favorite meat-free burger?

Stay safe! ■



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TI COLD OPENS NEW FACILITY

Ti Cold Development announces a new state-of-the-art 254,330-square-foot cold storage dacility located in Reno, NV. Situated within the heart of the infrastructure-invested Tahoe Reno Industrial Center and home to a diverse mix of industries and businesses including world-class brand names in Google and Tesla. This new Reno location offers convenient access to the I-80 corridor and Union Pacific Intercontinental rail line, which is the central logistics corridor to and from the east coast, according to a company statement. Upon completion, this facility will boast nearly 255,000 sq. ft. of storage space, 40,000 pallet positions, and a 41,000 sq. ft. refrigerated dock. This facility is immediately available to take advantage of both leasing and build-to-suit opportunities.

Germany

ISM SELECTS NEW PRODUCTS

The New Product Showcase has been the central platform for the industry's new products since 2009 and has established itself as an appealing attraction for all decision-makers at ISM, the largest trade fair for sweets and snacks in the world. Although it usually presents the new products to visitors in a high-caliber special exhibition during the trade fair, this year ISM opted for a digital edition of the New Product Showcase. The top 3 innovations of ISM in 2021 are Confiserie Burg Lauenstein GmbH with the Lauensteiner tea leaf tin from Germany; Selected GmbH with the Paddie's Cheesetastic from Austria; and Francois Doucet with KARA Fruity from France.

GERMANY

FROSTKRONE ACQUIRES ABERGAVENNY FINE FOODS

The Frostkrone Food Group has expanded its business in the UK by acquiring Abergavenny Fine Foods Ltd., a market leader in the British retail and foodservice sector. Company headquarters is located in South Wales in a plant built in 2016 where a total of 200 staff are employed. This is where Abergavenny Fine Foods Ltd creates finger food and snack combinations in the form of deep-frozen goods or as fresh produce. Thanks to its state-of-the-art and highly competitive production lines, the company has enjoyed significant commercial growth in recent years. The product range includes finger foods such as Halloumi Fries, Jalapeño Poppers, Mac'n'Cheese Croquettes, laffa Cake Bites, as well as goat cheese products. And the significant export markets for the company are Australia, Japan, and the US. Jason Rees, managing director at the helm up until now, will continue to run the Abergavenny Fine Foods Ltd. "Abergavenny Fine Foods Ltd: here we have a cutting-edge business venture that focuses on its customers and their wishes. Such a precept mirrors exactly the philosophy of the Frostkrone Food Group. We are delighted that Abergavenny Fine



Foods Ltd with their innovative thinking and their experience will be part of our Company Group," Frédéric Dervieux, CEO of the Frostkrone Food Group says. Following the acquisition of Abergavenny Fine Foods Ltd., Frostkrone now boasts seven locations worldwide. "We're planning for the future. The finger food and snack market are continuing to grow and we, as an innovation driver, want to definitively grow with it," explains Dervieux. "We believe it is especially the free-from market that holds great potential all around the world. The group of companies was able to convincingly position itself in this segment already last year."

UK

FROZEN FOOD VENTURE LAUNCHED

Three food businesses have joined forces to launch a new frozen food ingredient supply venture that will offer a large amount of knowledge and sourcing solutions to food manufacturers. Known as REMS Frozen Foods, the business is the brainchild of three food industry veterans: Adam Shepherd, managing director of food ingredients supplier North Star Foods; lames Kempley, group managing director of leading vegetable, salad, and mayonnaise producer Troy Foods in Leeds; and Steve Humphrey, managing director of Hessle-based fresh produce trader The Tuber Group. The new

company will import frozen food ingredients from around the world, specializing in Individually Quick Frozen (IQF) fruit, vegetables, spices and herbs for further processing by UK and Irish food manufacturers. Complete with BRC certified technical and supply services and backed by a secured funding facility, REMS will provide a field-to-factory service. It will manage all aspects of the import and delivery of a wide range of produce from IQF strawberries, blueberries, mangoes and melons to onions, garlic, ginger, chillies, tomatoes, potatoes, peas, carrots, mushrooms and peppers.

Germany

ELOMA AWARDED BY KITCHEN INNOVATIONS

Eloma, one of the leading manufacturers of high-quality combi steamers, baking ovens, and convection ovens from Maisach, Germany has been awarded the Kitchen Innovations Award for the new JOKER, named COMPACT PRO in North America. According to the KI Awards program, the JOKER is defining the gold standard of foodservice equipment innovations. The honorees are recognized as the year's most forward-thinking and cutting-edge innovations that have meaningfully improved foodservice operations.

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H

GBP289M LOST BY ICE CREAM PARLORS

Ice cream parlors and ice cream vans have been hard hit in this pandemic losing a total of GBP289m in income in 2020, according to the Ice Cream Alliance (ICA) CEO Zelica Carr. "And that's just the tip of the iceberg when you add lost ice cream sales in cafes, restaurants, and hotels and the economic impact to businesses along the supply chain - manufacturers, flavor houses, wholesalers, and many others." The ICA surveyed members on the effects of the pandemic on business in 2020. It revealed that 90 ice cream parlors have closed in the last twelve months and that 800 mobilers have ceased trading over the same period.

Greece

ICE CREAM MAKER LAUNCHES NEW BRAND

Artisan ice cream maker Sotiris Tsichlopoulos created one of Greece's best-known dairy-based ice cream brands. Now, turning to the plant-based trend, Tsichlopoulos presented Wildgood, a brand born after an eightyear development. The new vegan ice cream brand Wildgood is backed by celebrity chef Bobby Flay. Inspired by the Mediterranean diet, the first-of-itskind vegan ice cream is made using Greek Extra Virgin Olive Oil, which helps give it a creamy texture. Wildgood is launching with eight flavors: Vanilla, Chocolate, Mango, Mint Chocolate Chip, Chocolate Hazelnut, Pistachio, Coffee, and Sea Salt Caramel.

CROATIA

EUROMONITOR COMMENTS ON NOMAD'S ACQUISITION

Nomad Foods Limited announced that it has entered into an agreement to acquire Fortenova Group's Frozen Food Business Group (FFBG) for approximately EUR615m on a debtfree, cash-free basis. FFBG is a leading European frozen food portfolio operating in attractive markets new to Nomad, including Croatia, Serbia, and Bosnia & Herzegovina, Hungary. Slovenia, Kosovo, North Macedonia, and Montenegro. Its two anchor brands, Ledo and Frikom, have unparalleled consumer awareness and #1 market share in many of these markets and offer a broad range of frozen food products including fish, fruits, vegetables, ready meals, pastry, and ice cream. In a strategic move, Nomad Foods Ltd. acquired Croatia's largest frozen food manufacturer and distributor. Ledo d.d. This means that the popular brand with the white polar bear has now changed owners, which will have larger implications in the region but also for Nomad Foods, Roland Száki, analyst at Euromonitor International points out. "Ledo is a well-established, successful brand mainly in Southeast Europe that enjoys a market-leading position in multiple categories (such as ice-cream, processed meat, and seafood,) across



many countries (like Croatia and Serbia). The company's strong distribution network will enable Nomad Foods to gain a foothold in countries where their reach was either limited or non-existent while also providing them with a large portfolio extension," Száki says. "It remains to be seen how the new western ownership will handle the freshly acquired brands, but it is safe to assume that Ledo as ice cream will not disappear but continue to prosper given that it is a new business area for the company. Having said that, Nomad Foods' own brand Iglo might enjoy priority in processed fruit and vegetables as a means to utilize the wider distribution network and geographical reach. From a food and nutrition perspective, personally, I would like to see how the company will capitalize on the dynamic development of ready meals," the Euromonitor International analyst concludes.

UK

POPEYES TO OPEN FIRST UK RESTAURANT



Popeyes, the US fried chicken restaurant brand, announced its plan to enter the United Kingdom in 2021, with the goal of opening 350 new restaurants over the next 10 years. Founded in New Orleans in Louisiana in 1972, Popeyes is a global player in the fried chicken market and currently boasts 3,400 restaurants across 29 countries. The

announcement follows successful rollouts in Spain in 2019 and Switzerland last year. Popeyes will enter the UK market as part of an agreement between PLK Europe GmbH, Ring International Holdings, and hospitalityindustry veteran. The first Popeyes restaurant in the UK is expected to open by the end of 2021 and will represent the brand's 11th country in Europe, the Middle East, and the Africa region, which already has more than 350 Popeyes restaurants. Popeyes launch into the UK market is expected to lead to major investment in market-leading talent and digital innovation.

US

AMAZON LAUNCHES PRIVATE LABEL FOOD

Amazon launched a new private-label food and snack brand called Aplenty that will feature hundreds of products, including frozen foods, pita chips, crackers, mini cookies, condiments, and many more. They will be available online and in-store at Amazon Fresh. Amazon's move after a year in which consumers cooked and snacked more at home, mainly due to the lockdowns and general restrictions imposed by different countries. As a result of the announcement, Amazon shares rose that day by 0.2%, trading at USD3.379.

SHOPPING HABITS CHANGING DRAMATICALLY



Americans are making significant lifestyle changes to reduce food waste, a new study by Proagrica, a global provider of independent connectivity and data-driven support solutions shows. Three-quarters (76%) of Americans say they are now more likely to shop more often and in smaller quantities, to avoid having to throw away unwanted or spoiled food. 74% are now likely to buy more frozen food for the same reason, and fully half (50%) suggest they are now prepared to buy the "ugly" fruit and vegetables that so often sit unwanted on the supermarket shelf. Male shoppers (56%) are more likely than women (46%) to accept those less attractive foodstuffs, according to the study. When asked where the responsibility for food waste primarily lies, US shoppers pointed the finger at food producers: 41% said it was

down to farmers and 42% said the responsibility lies with manufacturers such as grain firms and pesticide makers. The focus is clearly on the food sector to demonstrate it is doing all it can to reduce the amount of discarded food, the report shows. The survey of more than 1,000 US adults was commissioned by Proagrica, a global provider of technology solutions for the agriculture and animal health industries. It also highlighted the growing number of Americans who take ethical considerations into account when buying their food. More than a third (38%) say the ethical credentials of the retailers and producers (e.g., certification, where food is sourced, field to fork tracking) influence their purchase choices whenever possible. In addition, 77% say they're trying to reduce "food miles" by buying more locally-sourced produce. "Food waste has become a major issue on the national agenda and this research shows that Americans are changing their shopping habits accordingly. They're shopping more often, in smaller amounts, and buying more frozen food that will stay edible for longer," Graeme McCracken, managing director at Proagrica said.

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JIMMY DEAN'S NEW BREAKFAST NUGGETS

Jimmy Dean wants to keep breakfast exciting with its new Breakfast Nuggets and Skillets varieties. Breakfast Nuggets are made with premium, signature-seasoned Jimmy Dean meats, eggs and cheese, bundled into a crispy bread crumb coating and ready in two minutes. With 11 grams of protein per serving, Breakfast Nuggets are available in two varieties: Sausage, Egg & Cheese, and Chicken Sausage, Egg & Cheese. The new Jimmy Dean Skillet and Jimmy Dean Delights Skillet varieties feature Jimmy Dean signature seasoned meats, real vegetables and cheese. With the simple addition of six fresh eggs, the Skillets divide 13-14 grams of protein per serving when fully prepared.

US

CONAGRA SEES STRONG Q3 RESULTS

Conagra Brands reported results for the third quarter of the fiscal year 2021, which ended on February 28, 2021, showing that net sales increased 8.5% to USD2.8bn. Gross profit increased 10.8% to USD758m in the quarter, and adjusted gross profit increased 8.9% to USD761m. Gross margin increased 58 basis points to 27.4% in the quarter, and adjusted gross margin increased 12 basis points to 27.5%. The net sales increase, together with supply chain realized productivity, favorable margin mix, cost synergies associated with the Pinnacle Foods acquisition, and fixed cost leverage combined to more than offset input cost inflation, higher transportation costs, COVID-19-related expenses, and the lost profit from the Sold Businesses, according to the company's report.

US

TYSON FOODS OPENS NEW POULTRY FACILITY

Tyson Foods opened its new poultry complex in Humboldt, Tennessee. The USD425m project, which includes a processing plant, feed mill, and hatchery, represents Tyson's biggest investment in Tennessee. It is Tyson Foods' first new poultry facility in 25 years. Several hundred workers have been hired and are being trained for the start of production. The processing plant, which is expected to employ more than 1,500 team members by 2023 will produce pre-packaged trays of fresh chicken for retail grocery stores nationwide beginning in late April.

US

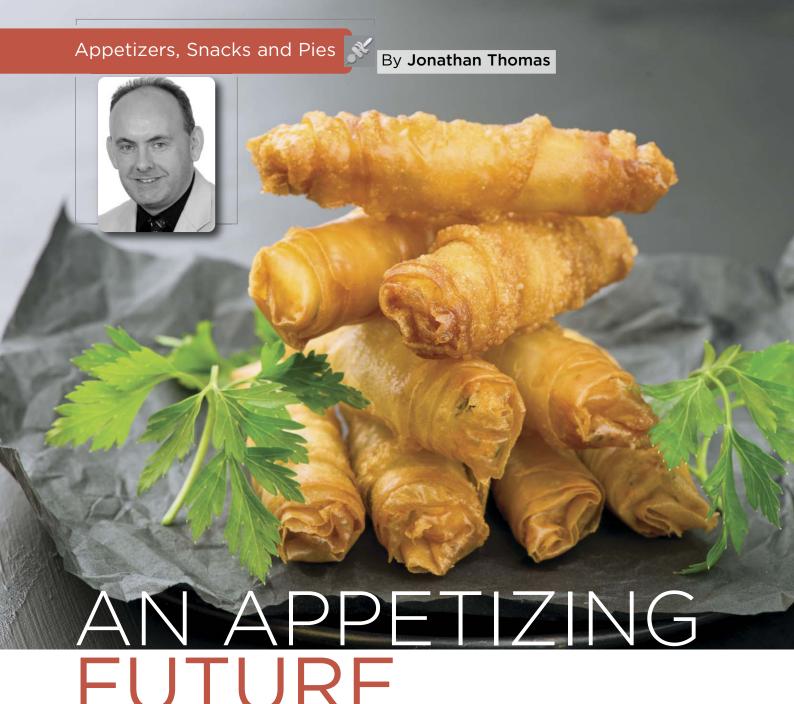
GATHERED FOODS SECURES FUNDING

Gathered Foods announced that the company has successfully secured USD26.35m in a B-2 bridge funding round with several investors. This strategic funding will allow Gathered Foods to further propel Good Catch plant-based seafood to the forefront of the industry, as well as raise awareness for the trajectory of the plant-based industry's market growth and popularity. This investment comes after last year's successful Series B funding round, in which the company secured USD36.8mn. The financing allowed the brand to continue on its successful path



towards expansion and production, leading to the opening of its own state-of-the-art plant-based production facility in Heath, Ohio. Gathered Foods will use this new round of funding to ramp up product innovation and dramatically increase the number of Good Catch products on the market. The additional backing will also aid Gathered Foods to extend its international retail footprint, beginning in Europe, with further expansion planned for later in 2021.





Smaller meals and more frequent in-home eating occasions are opening up opportunities for frozen appetizers and finger foods.

ven allowing for the prospects of reduced economic growth, the future for frozen finger foods, appetizers and pies appears relatively bright across much of Europe. Though sales via foodservice channels remain at very low levels, lockdown measures have increased the number of eating occasions within the home. And while convenience is likely to remain an important selling point for many of these foods, manufacturers have been using other methods to attract consumers, such as via the development of more products suitable for vegans.

IN-HOME EATING & ENTERTAINMENT

The number of meals eaten within the home grew throughout most of the world during 2020, with COVID-19 having closed much of the foodservice industry. According to data from the British Frozen Food Federation (BFFF), frozen food was one of the main beneficiaries of this trend – retail sales rose by around GBP872m to more than GBP7bn during the year, up by almost 14%. Many of the frozen foods typically marketed as appetizers or snacks are believed to have benefited from lockdown measures introduced to

curb the spread of COVID-19. The fact that more people have been forced to stay indoors instead of socializing outside the home has driven demand for in-home entertainment systems, specifically video on demand services. In many European and North American markets, more consumers have been turning to the likes of Netflix and Amazon Prime, watching films, drama series, etc. Consumers have become steadily more adventurous in the type of foods eaten during these occasions, a trend which has created numerous opportunities for the frozen food industry. According to data from Grand

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View Research, the global market for video streaming services was valued at more than USD50.1bn in 2020. Market value is forecast to increase by an annual average of around 21% for much of the present decade as the market develops further - for example, providers are now turning towards technological innovations such as blockchain technology and artificial intelligence (AI) to improve video quality, while cloud-based solutions are being adopted to increase the reach of video content. In the three months ending July 2020, Netflix added more than 10 million subscribers, increasing its yearly total to around 26 million. This compared with 28 million for the whole of the previous year. The market is becoming increasingly competitive, with new players either entering the sector or considering doing so. One notable example was Disney+, which was launched in North America and selected other countries (e.g., Australia, New Zealand and the Netherlands) towards the end of 2019. Its UK launch took place the following March, around the time the country was entering its first pandemic-induced lockdown. Disney+ accounted for 38% of new

video streaming subscriptions in the UK during 2020, while its number of global subscribers passed 100 million early the following year. However, Netflix does not expect this kind of growth to be sustained over the longer term, as the market becomes more mature. Data from BARB indicates that the number of UK households subscribing to at least one of the main video streaming services rose sharply to over 17.5 million as of the third guarter of 2020. This represents an increase of almost 28% from the corresponding period the previous year, with growth high during this time for both Netflix (up by almost 30%) and Amazon Prime (up by nearly 58%). Since its launch in March 2020, Disney+ has overtaken Now TV as the UK's third most popular video streaming service. According to separate data from OFCOM, demand for video streaming services surged during the second quarter lockdown in 2020. At its height, UK adults spent an average of six hours and 25 minutes per day looking at TV screens, up by 31% compared with the previous year. Video streaming services such as Netflix and Amazon Prime accounted for one hour and 11 minutes of this on average. According to

OFCOM, approximately 12 million UK adults signed up to new video streaming services during 2020, viewing figures for which increased by an impressive 71%. Encouragingly for the future, 55% of new subscribers claimed they would stick with their new purchases over the longer term.

MARKET OVERVIEW

Obtaining a precise estimate of the European market for frozen snacks and appetizers is complicated by the lack of a consistent definition throughout the food industry. At its broadest level, the market could be considered to include foods such as hot-eating microwaveable snacks, as well as pizzas and a variety of meat-based and potato products which have traditionally been viewed as either meal centers or accompaniments, rather than snacks. Notable examples include foods such as potato wedges and chips/French fries, new eating occasions for which continue to emerge. The European market for frozen snacks and appetizers remains small compared with its US equivalent, which is the world's largest by some margin. The US market is dominated by brands such as Hot Pockets from Nestlé, which claims



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leadership of the frozen sandwiches sector. These have traditionally been targeted at on-the-go eating occasions, with much of the marketing and promotional activity emphasizing their portable and convenient nature. Elsewhere, many of the other hot-eating appetizers and finger foods which have become increasingly popular in many European markets of late enjoy a strong following in the US. Much of this growth in both Europe and the US can be attributed to the growing tendency of consumers to eat smaller meals on a more frequent and less structured basis. as well as the fact that more people are eating simply when they are hungry. This type of eating behavior is most evident amongst younger consumers, such as millennials or those belonging to Generation Z. It is possible that this trend has been accelerated by COVID-19 and lockdown - with people spending more time in the home, they are more likely to graze throughout the day. With this rise in the number of potential eating occasions, the market for finger foods and appetizers has broadened in scope. As such, the sector can now be considered to encompass potato-based products such as chips, French fries and wedges, as well as scaled down versions of pizza – Oetker's Chicago Town brand, for example, includes The Sub, which is described as ideal for a snack or lighter bite. Various types of ethnic foods are well to the fore, as consumer tastes become ever more exotic -

some of the selections offered by supermarkets at times of the year like the festive period include products such as samosas, onion bhajis and spring rolls. Coated products such as breaded and battered foods also represent popular forms of finger foods and appetizers across both Europe and the US. Many of these are based around meat, poultry and seafood – for example, Nomad Foods supplies chicken nuggets, chicken dippers, chicken strips and Southern Fried Chicken Popstars under its Birds Eye and Iglo brands. Both retail and foodservice channels are also offering a wider range of coated cheese and/or vegetable products, as more consumers eschew meat – the Menu Signature range from McCain Foods, which is targeted at the foodservice industry, includes finger foods and appetizers such as Beer Battered Onion Rings. Breaded Cheddar Cheese Stuffed Peppers, Breaded Mozzarella Cheese Sticks and Red-Hot Chilli Poppers. One

of Western Europe's leading manufacturers of frozen finger foods, appetizers and other snacks is Frostkrone of Germany. The company has continued to expand its presence via acquisition, the latest of which was the purchase of the Scottish-based Innovate Foods in February 2020. The company produces around 15,000 tons of crunchy finger foods per annum, which are based upon meat, seafood, cheese, vegetables and fruits. One of the more novel products in its range is Lava Bites, which have a black coating resembling volcanic rock and contain red jalapenos and a creamy Cheddar cheese. Recent new product activity has included the launch of Green Date, a range of foods made from vegetables such as peas, carrots, bell peppers, kale and courgettes, in the summer of 2020. These are available in formats such as balls, croquettes and burgers. This was followed in February 2021 with the introduction of Favorizza, a new range







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of finger foods including bumer buns – Frostkrone described these are small buns made from pizza dough with different fillings. Varieties included 'early bird' breakfast buns (featuring ingredients such as scrambled egg and bacon), 'Goldie' buns (i.e., cheesetopped buns) and 'V-Style' buns, which are described as Italian-inspired buns suitable for vegans, made with ingredients such as smoked tofu, spinach and lentils.

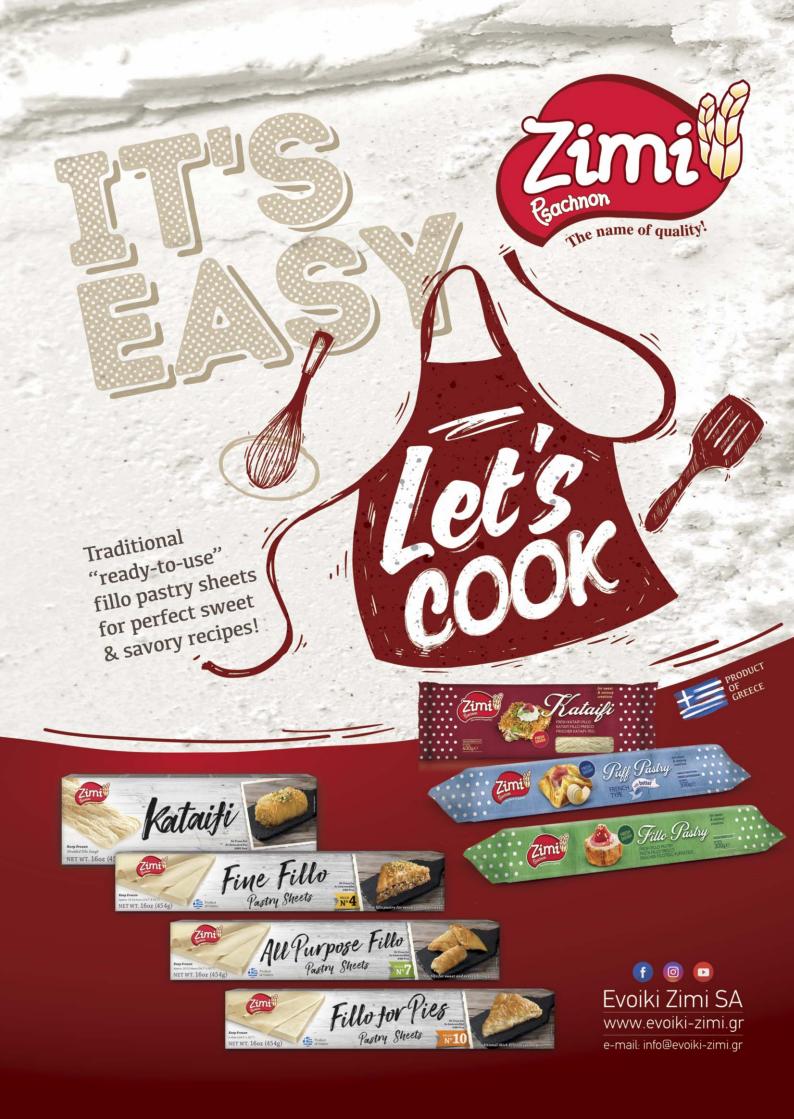
PIES & PASTRIES

The UK has Western Europe's largest market for savory pies and pastries. Not only do these represent popular lunchtime options, but they are also

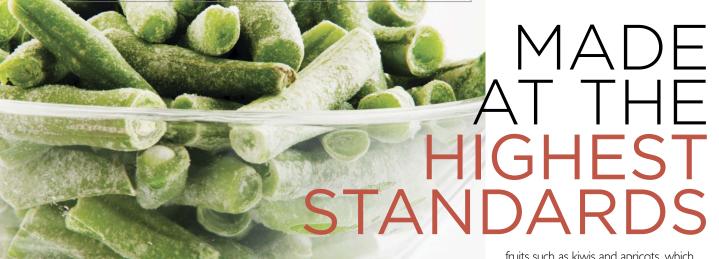
often purchased as a component for evening meals. Since pies and pastries carry strong links with outlets such as pubs, restaurant, bakery chains and fish and chip shops, annual sales are considerable via foodservice as well as retail channels. The UK savory pies and pastries market was another sector strongly affected by COVID-19 and its associated lockdown measures. During 2020, sales plummeted via out-of-home channels as many foodservice outlets were closed and workers (a key target group during lunchtime occasions, especially in towns and cities) stayed at home instead of commuting to their office. This trend resulted in rising demand for products suitable for 'working from home' lunches, with pies and pastries filling this need on numerous occasions. It was mainly for this reason that the chilled sector was the more dynamic performer during 2020, with retail sales increasing by over 7% to GBP1.4bn, according to data from Kantar. During this time, volume sales rose by almost 35 million packs. However, the UK also has a sizeable market for frozen pies and pastries this was valued at GBP133m by Nielsen within the last year, having risen by almost 18%. Unlike chilled items, consumption of frozen pies and pastries is more heavily skewed towards occasions such as the evening meal. This is reflected in the widespread availability of products promoted as being suitable for families, although individual pies are still an important sub-sector within the category. Much of the innovation which has taken place within the UK pies and pastries sector of late has focused upon the introduction of more premium products, as well as items suitable for vegan consumers. In September 2020, the Pukka range (which is purchased by

around 20% of UK households and is now worth over GBP43m at the retail level) was extended with new vegan options, in varieties such as Chicken & Mushroom and Minced Steak & Onion. These feature ingredients such as soya protein in place of meat, while Vegan Tikka Masala was another recent launch. Ginsters, which is one of its chief rivals within the chilled sector, has a range that includes vegan options such as Quom Peppered Steak, Quom Roll and Moroccan Vegetable Pasty. Manufacturers are also seeking to improve consumer perceptions of their products by incorporating more upmarket or premium ingredients. In the case of Pukka, this has included partnering with major suppliers of alcoholic drinks. In 2020, its range was extended with a new Steak & Ale pie made with Marston's Pedigree beer. More recently, the company has launched a limited-edition Sausage, Leek & Cider pie, which is made with Westons Cider. Outside the UK, savory pies and pastries tend to be less widespread as a lunchtime or evening meal option. However, many Western European countries do have reasonablysized markets for products such as savory quiches or tarts, with France one such example. Also worthy of mention are local specialties, of which empanadas are arguably the most well-known. Empanadas, which are believed to have their origins in Spain's Galicia region and Portugal, are savory pastries, usually filled with ingredients such as meat or seafood. They are also popular elsewhere in the world, including many Latin American countries and parts of South-east Asia. Returning to the UK, the Ginsters range was recently extended with new Vegan Mexican Chilli Empanadas.









The high quality of frozen foods is mainly attributed to the development of a technology known as the individually quickfrozen (IQF) method. IQF is a freezing method that does not allow large ice crystals to form in vegetable or fruit cells. Also, since each piece is individually frozen, particles do not cohere, and thus, the final product is not frozen into a solid block.

QF products find major applications in the food processing industry. Cooked and pre-cooked IQF products include food products such as berries, diced or sliced fruits and vegetables, seafood such as shrimps and small fish, meat, poultry, and even pasta, cheese, and grains, which are frozen in the processing stage and kept frozen until consumed. IQF pre-cooked grains are certified Ready-to-Eat (RTE) and easy to prepare while minimizing waste.

Pre-cooked grains are ideal for readymade and batch cooking. The expansion

of retail food chains, demand for frozen food, technological innovations in the packaging industry, and government initiatives are the key factors contributing to the growth of the IQF market. The growing demand for confectionery, bakery, and dairy products is expected to propel revenue generation in the IOF 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. The market is expected to witness a single-digit growth rate of 6% to 7% from 2018-2026.

IQF freezing maintains more freshness and preservation of texture: during IQF freezing, food products get packaged individually. For example, blueberries get frozen individually instead of frozen altogether in a giant block of fruit. This makes it easier for restaurants and others to work with, as it maintains the freshness. During IQF freezing, food items are sent via a conveyor belt through a blast chiller. Food items would stay separated after they get frozen. With traditional freezing, large ice crystals can damage cells and crystal fibers, which makes the food products dry out. Ice crystals can puncture the cell membranes of the food product, which causes it to leak intracellular fluid during thawing. This can cause the texture of the food to become mushy and unappealing. However, smaller ice crystals, such as those used through the IQF process, can help maintain a soft, creamy texture. The longer the food products freeze, the more ice crystals will form. IQF foods, however, produce very small ice crystals that allow the fibers of the food product to remain unscathed.

OPPORTUNITIES IN THE **DEVELOPING COUNTRIES** OF ASIA PACIFIC

Asian countries such as India and China have lower penetration of cooked and pre-cooked IQF products (at about 5%) as compared to European countries, where the penetration in certain product segments such as IQF fish is as



high as 30%–35%. Asian countries are undergoing major social and economic changes brought on by rapid urbanization, with the growing middle-class consumer base being influenced by the Western culture, thus leading to an increase in the consumption of various cooked and pre-cooked IQF food products.

THE EUROPEAN IQF MARKET

Europe is the largest market for the cooked and pre-cooked IQF products segment. The increasing consumption of IQF products in Europe is majorly driven by the growing consumer demand for convenience and faster-toprepare foods. Europe's regional market growth is often attributed to the high consumption of frozen food products by the people within the region. Some of the key players in the IQF products market in the region include Alaska Foods Inc, SunOpta Inc, Fruktana Ltd., Nimeks Organics, Rasanco Ltd., and Breukers Schamp Foods. European imports of frozen vegetables have increased annually by an average of 3% in volume during 2014-2018. The largest share of imports is witnessed through intra-European trade, while only 11% of the imports come from developing countries. This has led to an increase in the import of IQF products as the frozen food market is its parent market. According to Eurostat, European imports of frozen vegetables reached USD3.93bn and 3.4 million tons in 2018. The total European production of frozen vegetables was estimated to have reached nearly 6 million tons in 2018. The consumption and demand for individual quick-frozen food products in Europe are majorly dominated by Germany, France, Belgium, and the UK. Belgium is the largest producer of frozen vegetables in Europe, accounting for 27% of the total European production. Germany is Europe's largest importer of frozen vegetables. The German import value was USD692.73m in 2018, accounting

to 7% is the estimated IQF market growth by 2026.



The ease of use and availability of cut and chopped individually quick-frozen food products have provided consumers with convenient inputs for wholesome meal preparations.

for 17% of the total EU imports. Internal European trade accounts for 92% of all imports while imports from developing countries remain at 8%.

GLOBAL CONSUMER TRENDS DRIVING GROWTH

The rising demand for convenience food products is majorly triggered by the requirement for expedient food options, owing to the scarcity of time and a need for easy meal options. The majority of consumers that form the bulk of convenience food buyers fall in the millennial and generation Z population. This share of the population further stands as the mainstay of the workforce. As a result, consumers have been increasingly finding it difficult to prepare traditional meals from scratch, thereby gravitating toward the purchase of convenience food products. There has been an increase in the working population, with most countries having average yearly working hours of about 1,700 to 2,000, making it difficult for consumers to spend time preparing meals. Additionally, consumers have been willing to pay additional prices for convenience food products if that would mean the ease of access to wholesome food products. These factors have further enabled manufacturers to come up with healthier food options using natural ingredients. The provision of IQF products has further resulted in consumers having easy access to these products, leading to improved consumption levels. The ease of usage and availability of cut and chopped individually quick-frozen food products have also provided consumers with convenient inputs for wholesome meal preparations. The food processing industry has been on the rise, on account of several factors. One of the major reasons for this rise is that consumers are increasingly adopting

healthier and nutritional eating habits. According to the American Frozen Food Institute, consumers who eat frozen fruits & vegetables consume more fruits & vegetables. Better availability and increased consumption levels of these IQF products have aided toward a higher intake of nutrients such as potassium, fibers, calcium, and vitamin D, thereby improving the dietary lifestyles of consumers and aiding the maintenance of their health.

MACROECONOMIC FACTORS AND GROWTH OPPORTUNITIES

The factors that could have a substantial impact on the global IQF products market include the rise in the number of dual-income households, rising number of single-parent or individual households, and rise in the number of millennials who consume individual quick-frozen products. According to the US Department of Labor, 2020, the number of dual-income households in America increased by about 1.5% between 2018 and 2019. While the market for cooked and pre-cooked IQF products currently boasts of a substantial audience, future opportunities for the segment are dependent on factors such as infrastructural development, packaging transformations, and technological advancements. Refrigeration infrastructure in the form of maintaining cold storage units and mobilerefrigerated logistical solutions remains extremely important for the advent of different IQF products. Furthermore, the provision of convenient smaller options such as chopped, sliced, or shredded fruits, vegetables, and meats, could help propel the market growth during the forecast period.





Frozen private label food in Belgium holds a market share of 68.2% in terms of volume and 53% in terms of value, with some of the most sought-after categories being frozen vegetables, meat and poultry, fish, seafood and potatoes, according to the latest PLMA Yearbook, recently released in cooperation with Nielsen.

n Belgium, market share for retailer brands showed a slight decline which is mainly due to the decline in sales of confectionery and snacks in the country, according to Nielsen findings, while in the Netherlands a slight growth was tracked to 37.1% market share.

TRANSPORT AND LOGISTICS

The port of Antwerp offers the fastest and most sustainable connection with the surrounding area, because of its location 49.7 miles (80 kilometers) inland within Europe. A USDA report shows that the volume of freight loaded or unloaded in Antwerp has doubled over the past 20 years to more than 208 million tons. This makes Antwerp by far the largest port in Belgium and the second-largest port in Europe, after Rotterdam in the Netherlands. Antwerp is the European market leader for handling of steel, fruit and the largest port in the world for storage of coffee. Belgium is in the top ten of exporters in agricultural products, but typically imports raw crops, processes them, and then exports them as

prepared foods. The main export products are potatoes, beer, chocolate and pastries. Belgium also re-exports a number of fruits, especially bananas are imported into Belgium from the Caribbean and then exported throughout Europe. Belgium has a significant dairy industry and is selfsufficient in eggs, butter and milk. Belgium also produces a variety of specialty cheeses. According to Deloitte, through its transport and logistics industry, Belgium plays a key role in facilitating incoming and outgoing trade in the EU. This area encompasses rail, road, waterways, sea, air, pipeline operators and (from 2019) an electricity interconnector with the UK as well. According to Eurostat, there are more than 12,000 logistics services providers in Belgium. The sea ports of Antwerp,

is the frozen food market share in Belgium, in terms of volume. Bruges, Ghent and Zeebrugge will all feel the impact of Brexit. By way of example, 45% of the tonnage passing through Zeebrugge each year is related to the UK39. The ferry service to Hull carries well over 300,000 passengers annually. In tonnage terms, the UK is second only to the US in importance to the Port of Antwerp. Transshipment of containers of consumer goods to and from continental Europe is important to ports on both sides of the North Sea. Air freight is important to Belgium's trade in pharmaceuticals and Liège airport is a hub for e-commerce air freight.

TERTIARY PACKAGING AND SUSTAINABILITY

Within the entire food industry, perhaps frozen goods are the most dependent on proper and sustainable transportation. The way the world makes, moves and sells goods is being transformed. Businesses are being asked to meet growing consumer demand faster, easier, and cheaper – and at the same time shrink the impact of their operations. According to Brambles,





Freeze your products, not your business

Defrost your potential

You care about your business. So you care about your logistic processes too. And you know exactly how much you lose each year because of lost exchange pallets, right?

Well, we know that you have a lot of complex challenges as a player in the frozen industry. Challenges that impact your growth margins. Sometimes without you even realizing it. What if we tell you that we can help you create more financial space for what really matters? Thanks to a simple logistic switch to pallet pooling we take your pallet management out of your hands so you can focus on your core business and make your cold chain more cost-effective, more flexible and more sustainable. Let us help you defrost your potential to let your business grow.

Get in touch via frozen@chep.com.



which mainly operates through its CHEP brand and is one of the world's most sustainable logistics businesses, its circular business model facilitates the 'share and reuse' of the world's largest pool of reusable pallets and containers. This enables CHEP to serve its customers while minimizing the impact on the environment and improving the efficiency and safety of supply chains around the world. The company's platforms form the invisible backbone of global supply chains, primarily serving the fast-moving consumer goods, frozen and fresh produce, beverage, retail and general manufacturing industries. "At Brambles, we connect people with life's essentials, every day - moving more goods to more people, in more places than any other organization on earth. That network scale and visibility puts us in a unique position. We can work together with manufacturers and retailers to solve big, shared challenges saving them time, money, and resources, and creating value for society. To accelerate that, we're setting up Zero Waste World, a new working collaboration for leading companies committed to creating smarter and more sustainable supply chains," says Graham Chipchase, Brambles CEO

"At Brambles, we connect people with life's essentials, every day - moving more goods to more people, in more places than any other organization on earth. Using our network visibility and the power of our logistics platform, we want to help our customers find new ways to crack three big issues: How can they eliminate waste, eradicate empty transport miles, and cut out inefficiency? Overcoming these shared challenges will take concerted effort and collaboration, and it won't be easy. But it is vital, because it's how the world's leading companies will thrive and grow while creating value for society as a whole," Chipchase adds. CHEP (Brambles) uses the power of its

circular business model, network advantage and expertise to leverage the key capital inputs into its business to generate significant value for customers, shareholders and employees. "For customers, Brambles' end-to-end supply chain solutions deliver operational, financial and environmental efficiencies not otherwise available through one-way, single-use alternatives. For shareholders, Brambles delivers sustainable growth at returns well in

seeks to generate sufficient cash flow through the cycle to fund dividends and support reinvestment in growth, innovation and the development of its people. For employees, Brambles provides development and exciting career opportunities in approximately 60 countries. By fostering a culture of innovation and agility, Brambles seeks to attract and retain the talent which is integral to its success," according to CHEP.

In a resource-constrained world, circular business models like that operated by CHEP (Brambles) are recognized as a practical business solution enabling the world to trade more responsibly. By regenerating what it extracts and by providing its products via a service, Brambles helps reduce both the constant pressure on natural resources and the waste production typical of conventional linear business models. The company capitalizes on its unique position in the supply chain to enable customer collaboration and address sustainable development challenges, such as optimizing transport networks, addressing food waste and promoting sustainable use of the world's forests. "In this way, CHEP strives to create a circular economy on a global scale. CHEP has used the Integrated Reporting 'capitals' framework to illustrate the interaction and interdependencies between its sources of value, business model and ability to create value over time. This framework provides an appropriate methodology to help entities understand both their sources of value including resource dependencies as well as the positive and negative impacts of their business model on all stakeholders," the company concludes.



Prima Menü GmbH

The convenience company

We focus on quality and taste!

With an annual production volume of 7.000 tons, the German company is one of the leading manufacturers of frozen ready meals in Europe. The family owned business was founded in 1995 and has its factory in Leopoldshöhe near Bielefeld.

Prima Menü focuses on ready-to-heat meals in cardboard tray packaging and serves its products to many customers in the retail market, home delivery and foodservice market in Europe.



The current assortment contains potatoand noodle gratins, hearty complete meals like "Schnitzel" and "Currywurst", Asian dishes like "Chicken Tikka Masala" and snacking products such as "Chicken Nuggets" with french fries and a sweet chili dip. Prima Menü develops innovative products to be an attractive partner for its clients. Especially the product concept "Loaded Fries" attracted attention in the European retail market.





www.primamenue.de



Both varieties "Tex Mex Fries" and "Chili Cheese Fries" combine crispy microwave fries with a tasty, delicious sauce. You can whether dip the fries in the sauce or load the sauce on top of the fries.

Thanks to its 25 years of know-how in producing ready meals, the company ensures to meet the customers expectations. The production is IFS 6 – Higher level, MSC/ASC, QS and Organic certified and fulfils the highest quality requirements.

The production facility only uses certified CO2 neutral green energy to create a more sustainable product.





applications can even be slightly frozen. FAM offers frozen food processors a broad range of cutting machines throughout the IQF food categories. For cutting vegetables and fruit, FAM's Tridis family features two very robust cutting machines specifically catered towards heavyduty IQF process environments. They are among the most versatile and reliable cutting machines on the market, and your guarantee for minimized production downtime. With a Tridis 180 and 240 version available, both medium- and highvolume processors can benefit from a consistent high-quality cut on a broad range of cut sizes and shapes at capacities up to 15t/hr. The Volantis™ is our latest innovation and your preferred cutting solution for slicing elongated and oblong vegetable products such as carrots, zucchini, green beans etc. into uniform slices with minimal waste. But also elongated meat products such as sausages are cut to perfection in a split second by the Volantis. The USDA-certified Hymaks cutter is our premium cheese strip-cutting and dicing solution and next level when it comes to cutting performance and sanitary design. The Centris machine range is your high-capacity solution for top quality cheese shredding, also available with USDA-certification. For meat processors, the CMD.2 is FAM's continuous heavy duty dicer, dedicated to perfectly cutting large chunks of frozen meat into strips and dices at temperatures as low as -10C. FAM's Yuran Hytec in turn is a hygienic belt dicer for meat and



poultry processors looking to cut hand-pulled-look shreds, dices and strips.

A DISCUSSION ON STEAM PEELING WITH TOMRA

Not all vegetables can be steam peeled, such as peas, green beans, corn - but many can, including carrots, parsnip, beetroot, peppers, kohlrabi, swedes, pumpkin, and butternut squash. The TOMRA steam peeling process is completed in two stages. The first stage is the steam separation process. The vegetables are gathered in a batching hopper

that measures the exact batch

weight, which is important to ensure uniform steam treatment of each piece's surface. Then the vegetables are put into a high-pressure peeling vessel, capable of

processing at a steam pressure of up to 20 bar (300Psi). Steam is applied for between six to 60 seconds (depending on the products being peeled) to ensure that the water beneath each piece's surface reaches the required temperature. The

TOMRA steam peeling vessel has a unique design to mix and move the vegetables so that the steam quickly reaches the entire surface of every piece inside the vessel. The faster the process, the more efficient it is. Steam exhausts in one to two seconds through a large TOMRA XPT exhaust valve to reduce the loss of good vegetable flesh. The second stage is the peel separation and washing process. Peel separation removes the steam-peeled loose skin and improves the quality of the good vegetable flesh before cutting. When the skin is separated, there will be some blemishes and defects exposed on the vegetable surface. Many customers use a brush peel separator to gently remove some of these defects from the surface. The brush system consists of long rolls that rotate at high speed to wet-clean (using water inside the brush) or dryclean the vegetable surface and remove peel waste. Dry peel waste is preferable because this reduces water usage and wastewater treatment. The dry waste can be used for animal feed, which is better for the



environment and, thus, more sustainable. TOMRA's sorting and peeling solutions are used on many frozen food production lines around the world. Lines processing between 1,000 kg/hr. - 50,000 kg/hr. can benefit from TOMRA's steam peeling equipment, resulting in significant raw material and energy savings. The Odyssey Steam Peeler is the newest addition to the TOMRA Steam Peeling portfolio. It's the ideal costeffective steam peeling solution for seasonal processing companies and emerging markets. One of the main features of the Odyssey steam peeler is its ability to process and peel large diameter and long vegetables, which is especially important for peeling vegetables such as pumpkins, celeriac, kohlrabi and butternut squash.

AND BACK TO CUTTING WITH URSCHEL

Expert Mike Jacko, vice president of Applications & New Product Innovation at Urschel says that in the market of frozen food, endless products abound. Processors around the world turn to Urschel as the global leader in food cutting technology to deliver expert cutting solutions. Urschel manufactures more than 50 different models to assist in the processing of the wide array of foodstuffs. When determining the best Urschel cutter for the job, each cutting application is unique. Feeding method and effective delivery of the

product into the cutting area should be considered. While one machine may be able to process meats, poultry, vegetables (including potatoes), fruits, and other products, the machine set-up and required feeding method need to be taken into consideration. Although every cutting application is unique, there may be correlations between products that share characteristics, especially when creating a similar endproduct. It comes down to taking into account such items as density, rigidity, size, shape, temperature, and a number of other factors when identifying the product entering the dicer or slicer. Urschel manufactures a number of different models including the DiversaCut® line. The DiversaCut 2110A® (DCA) Dicer for vegetables, fruits, and certain meats as the favorite/best-selling for dicing. The Sprint 2[®] Dicer (SPR2), Urschel's lower capacity version of the DCA, offers cutting solutions for smaller processors. Precision in dicing is where the DiversaCut line excels. The exactness of each cutting station in relation next delivers accurate cuts within specified targeted parameters for less waste. The E TranSlicer® Cutter (ETRS) is the answer when slicing elongated products such as carrots, celery, leek, or green beans for frozen vegetable processors. This beltfed slicer may also reduce pepperoni (without peppercorns). Different cutting wheels allow for very thin to

thicker slices and julienne cuts. Crinkle and flat knives are available. The machine is also available in a bias slice version to capture niche markets. For frozen-tempered meats, bacon, or cheese, processors rely on the Affinity® Dicer (AFF) or the smaller Affinity Integra® Dicer (Integra) or Affinity® Integra-D Dicer (Integra-D) in lower capacity applications. The Affinity series is known for handling high-fat or products that are normally difficult to process. Both the AFF and Integra-D offer U.S.D.A. accepted models. A recent addition to the Affinity line is the large Affinity with a built-in pre-cutter. The new Affinity with pre-cutter specializes in the processing of meat logs. The precutter portion of machine is equipped with an affixed knife that works with the impeller to reduce the log as it enters a conical feeder. Reduced sections of the log then proceed to the other cutting stations to exit as dices or strips. Hygienic in design, Urschel manufactures stainless steel cutting machinery to assist processors in food safety. Hinged panels offer accessibility. Sloped surfaces facilitate ease of washdowns to deter bacterial growth. Mechanical zones are notably separate from the food zones. Many components have built-in handles to expedite changeover of parts. Washdowns and cleaning procedures are determined by each production plant and are product and running specific.





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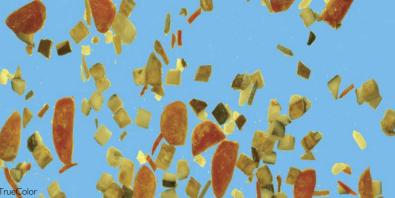
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BÜHLER SORTEX INNOVATES AGAIN

Connecting hardware and software is the next logical step, moving forward towards an integrated factory of the future. Bühler's family of sorting equipment has just received a major software update, that is meant to help processors achieve their goals faster, more precisely and with ease of mind.





recently sat down with Joel Chase, product manager Optical Sorting and with Stefano Bonacina, DT Global Head Segment Fruit&Vegetables, both with Bühler, to discuss their most recent development cycle, which, this time around, brings forth an integrative solution for their customers, in terms of connectivity between the sorting equipment and the software controlling it.

THE ALL-SEEING EYE

Everyone involved in the food processing business, whether frozen, potato, grains or coffee, knows how important it is to purchase state-of-theart sorting equipment. It can basically make or break the reputation of a processors' brand, should shards of glass, wood, tiny imperfections or other similar foreign material pass through their product inspection and end up in the consumers' shopping baskets. Recalls have been so frequent through the years, precisely for these kinds of slip-ups, which should no longer occur in the 21st century. Enter ProSortX 4.0™, the latest

success of the original ProSortX platform. So why was this important to be introduced now. I asked Chase, who in turn told me that Bühler has listened to recent market demands, ever since their latest sorting equipment, the SORTEX F has been launched about three years ago, a state-of-the-art sorting machine that they are continually improving on and releasing new features. "When we develop a product, it is a platform for continual development of innovation and since our latest launch a few years ago, we've been able to not only provide customers with a 1200mm wide machine, but also with a 600mm wide variant, which is perfect for packing and end-of-line installations. We have also launched the FA3 around 18 months ago, which is an 1800mm wide machine, which can handle 20 to 21 tons per hour of frozen peas and serves large-scale process lines. We also introduced smaller features to the main platform, such as different chute and infeed options, in order to provide the flexibility which our customers need, because we respect all of them and their processing needs," Chase told me.

However, their biggest and most recent release has been the update to the operating platform, from ProSortX to ProSortX 4.0™. So, let's dive into the new features and why this particular software upgrade is important to a sorter. ProSortX 4.0 not only brings ease of use and simplicity but also Industry 4.0 connectivity.

"It is the culmination of over 18 months of development effort and extensive field trials, where we've really listened to what processors need from an optical sorter. In terms of future advancements. aside from better detection technologies, we are excited about the opportunities remote connectivity and analytics offer, like our new SortControl Advance and Expert data analysis packages," Stefano Bonacina told me.

MAIN FEATURES OF THE PROSORTX 4.0

Both of my interlocutors said that this platform has a clean new look and a host of added features, aimed at simplifying the user interface and providing additional information to the operator and plant manager, both online

software innovation that is built on the

and offline. A new home screen and password protection offer peace of mind and at-a-glance performance line data. TrueColor™ and EasySim™ make setup and adjustments to sorting settings quick and easy, while connectivity to Sortex's AnywarePro remote data package offers immediate analysis of line performance based on a back-log of the customer's throughput and defect ejection rates.

Taking a closer look at the features,
TrueColor™ enables easy identification of
gross and subtle defects, allowing the
operator to make intuitive adjustments to
the machine's sorting parameters by
highlighting all frame captures in real color.
This results in intelligent improvements in
both efficiency and yield. Frames can be
stored and recalled for further analysis,
while the Foreign Material Library
capability makes monitoring and
demonstrating the machine performance



fast and simple. TrueColor™ can be switched on and off at the touch of a button, making it possible to not only see things as the human eye sees them but also as the machine does, offering total setup flexibility.

The other main feature is the EasySim™, which simplifies set-up and fine tuning of sorting settings by overlaying where the ejectors will fire onto a frame capture. This allows the operator to easily identify what will or will not be rejected. Adjustments can be made and changes simulated on the frame capture without affecting running product, thereby minimizing product loss and downtime. This feature also benefits by a Test Mode which offers the ability to trial new settings on real product flow for a pre-determined time before committing to them, while the new undo button

ensures that mistakes can be quickly and easily rectified, for total peace of mind. So, it is easy to operate, simple to understand and provides customers with the much-needed

remote control and assistance, especially during times like these. "This gives us a broad opportunity to connect to the analysis software, the Sortex's AnywarePro remote data package. This offers offline analysis of line performance based on a data log of the customer's throughput and defect ejection rates, as well as wear rates and other critical parameters. We have a new suite of tools called Sort Control, which connects the sorting machines to a factory's PLC system and through them one can create and control the ecosystem within the factory as well. All of this will become a must-have for any factory of the future that requires data analysis and equipment remote control," Chase said.

THE HARDWARE, THE ENERGY SAVINGS AND THE CUSTOMER SATISFACTION

Compared to optical sorters for other commodities, such as grains, plastics and pulses, a sorter designed for fruits and vegetables has to accommodate a wide range of different sized products, from peas to whole florets of broccoli and pellets of spinach, Bonacina told me. Because the company has managed to gain the trust of so many customers all over the world, due to their expertise and top-notch equipment, "in most cases, new and existing customers choose Bühler thanks to our extensive experience in sorting their products with the major fruit and vegetable brands in the EU. The experience we've acquired

over the years in developing new applications, side by side with the best expert fruit and vegetable processors in the market, makes our organization unique, as this cannot be



We introduced smaller features to the main platform, such as different chute and in-feed options, to provide the flexibility which our customers need.

Joel Chase, product manager Optical Sorting Bühler

replicated overnight," he said. With regards to a thorny point for all involved in the processing industry, namely energy and time savings, Chase says that Bühler has a commitment to reduce the energy, waste and water usage in their customers' value chains of up to 50% by 2025. This not only applies to the machines themselves, with each new model being more efficient and less energy-hungry than the ones before, but also to really understanding their role in Bühler's customers' value chains. Optical sorters are, of course, a critical part in this. Although not so common in the fruit and vegetable sectors, multi-pass sorting and the ability to create fractions of differing grade products that previously would have gone to waste is a great example of the role optical sorting has in increasing sustainability.

"The challenges of sorting are, in essence, the challenges of our customers, and these don't necessarily relate to sorting itself. For example, while all of our customers desire the ability to produce clean, safe food, their day-to-day challenges are often associated with keeping machinery clean, or keeping it running 24/7. We know that there is so much more to running a food production plant than putting food through an optical sorter, which is why all our machines have been designed with ultimate hygiene in mind, as well as offering comprehensive servicing packages and local support," Chase ends.

This is the culmination of 18 months of development and field trials, where we've listened to what processors need from an optical sorter.

Stefano Bonacina, DT Global Head Segment Fruit&Vegetables, Bühler





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FPS Food Process Solutions is a global leader in freezing and cooling solutions, including Spiral and Tunnel Freezers.

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'First of its kind' Extra Wide Spiral Freezer Meets Market Demand

By Shirley Wong

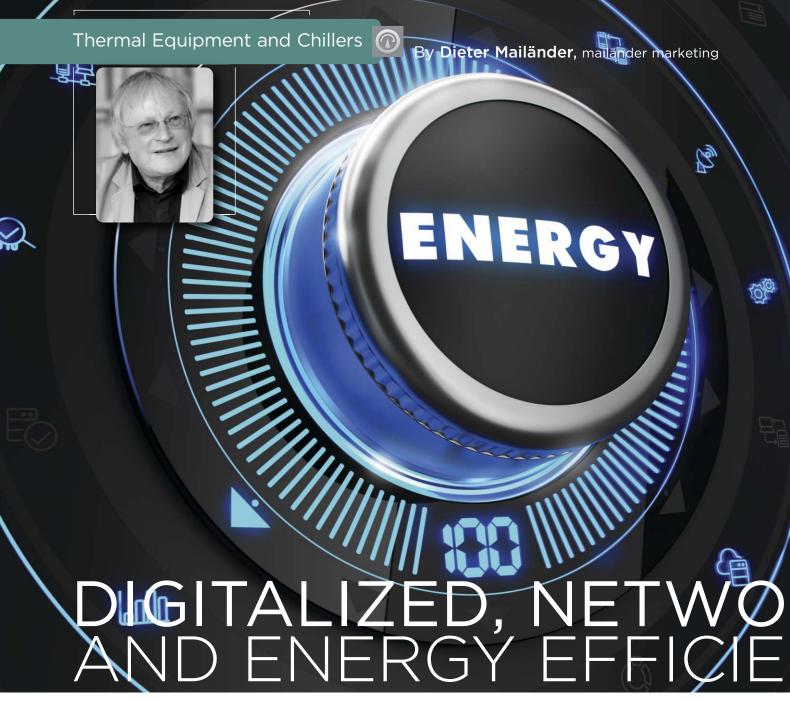
Overlooking the extra wide 1.8m spiral freezer from atop a lift, Jeffrey Chang, President and Justin Lai, VP of Sales and Marketing, FPS Food Process Solutions. review the custom-built freezer to the last detail. Designed as the 'first of its kind', the 1.8m Spiral Freezer was built with one purpose in mind - meeting market demand for higher capacity. For food processors, that is a critical factor. Says Justin Lai, "We believe in forging partnerships that meet our customers' long-term needs and designing the spiral to match the conveyor system, optimizes seamless input and output of products." Collaborating with Intralox, the conveyance solutions manufacturer, FPS has a long history of experience in forging complementary partnerships that meet high standards.



Achraf Elhassouni, Global Product Manager – Spiral Platform, Intralox, exclaims, "Customers are looking for ways to produce products on a higher scale. To match their expectations, working in tandem with FPS to design, in my mind, a seamless, end to end DirectDrive™ System solution, really pushes the envelope to the highest standard. We are always looking for opportunities to learn from our partners and in turn, produce the best for our customers."

Emerging technologies and customer expectations for safe, hygienic solutions in food production has consistently pushed FPS to go over and beyond. With a long history of experience in industrial freezing solutions over the last 10 years, FPS explores partnerships that complement the company's business model and product lines. Continues Lai, "In the last three years, we experienced explosive growth in demand, resulting in acquisitions in Eastern Canada and New Zealand, as a strategic fit in diversifying and complementing our product line offerings. We listen to our customers and we deliver."





The food-away-from-home market is currently undergoing severe structural changes. On the one hand due to COVID-19 and on the other hand due to digitalization and networking. But there is yet a third factor of influence which is of great importance for the operation of thermal and refrigeration equipment.

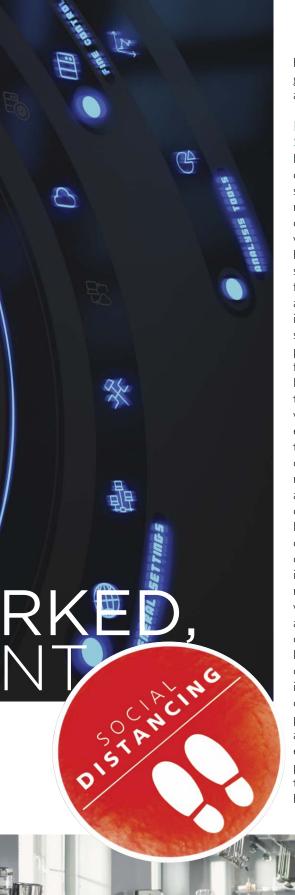
020 was an abstruse year. If one had counted the people in April and May 2020 who were on the road all across Europe, one would have gotten the impression that this part of the earth was being haunted by aliens. The human species were almost not present on the streets - hypermarkets, restaurants, cafes, and other stores were closed. At the moment, life outside of our biosphere

hasn't been proven. Therefore, aliens remain fictitious beings – unlike COVID-19.

CONSIDERABLE TURBULENCES

The pandemic is real. It has moved broad sections of economies into considerable turbulences globally – even in Europe. Gastronomy and community catering were hit very hard. The European "Big Five" of

eating out – Spain, France, Great Britain, and Germany - have lost in 2020 up to 42% of their turnover, on the average 38% compared to the previous year. In Germany, the number of visitors in the area of the workplace has been cut in more than half. In comparable other countries of the European Community, the development may be similar. But like in every crisis, there are also segments in the "food-away-from-



home market" that could hold its ground better than , such as delivery and take-away.

PERMANENT STRUCTURAL SHIFTS

In gastronomic segments, one doesn't have to reckon with serious shifts permanently. The guests will maintain their visiting habits. The development in the area of the workplace is different. Home office has been established and is here to stay, to whatever extent. Hybrid forms of presence on site and work at home are thinkable. "New Work" is coming into being. Flexibility in space and time, a higher degree of personal responsibility, and a new form of senior management (New Leadership) are characteristic for this. Executives were often skeptical whether this would work, but they experienced quickly that they could trust their employees because they complete their tasks in a targeted manner. The presence of employees at the company will therefore decrease noticeably. In some companies, this development has already had concrete ramifications. Some, for instance, have already reduced the number of in-house workplaces which have been firmly allocated and are thinking about scaling down office spaces. Some workplacekitchen professionals are counteracting this development. For instance, some have built up their delivery structures in order to provide meals directly to employees at their workplaces. Others have entered into co-operations with parcel services in order to be able to deliver food to their guests in home office.

30%

to 50% energy savings

can be achieved

during peak loads with

an energy

management system.

EQUIPMENT - SMALLER, MORE FLEXIBLE, MORE ADAPTABLE

Not only will the presence of employees decrease, but the volume of the catering will decline too. Conferences and meetings will take place more frequently online than in the past because companies are able to save, to a considerable extent, on travel expenses and time. Conclusion: One must assume that the output and turnover will decline considerably in the segment workplace. That's why the equipment and the spaces of these kitchens will be reduced successively or will be designed smaller with new buildings. There will be fewer and smaller dimensioned thermal equipment which will be used more flexibly. The same applies to chillers, shock freezers, and dishwashers.

INDUSTRY 4.0 -KITCHEN 4.0

Kitchen 4.0 succeeds the somewhat more well-known term industry 4.0. It rewrites a value-added chain in which humans, machines, and products are networked with each other independently from their location: usually via internet. Such networks are then called intelligent if their elements can learn from each other.

One refers to a commercial kitchen

One must assume that the output and turnover will decline considerably in the segment workplace.
That's why the equipment and the spaces of kitchens will be reduced successively or will be designed to be smaller.



important energy users. One includes them meaningfully into an energy management system. It is particularly important that thermal equipment and exhaust air systems communicate via interfaces: this means that their signals can be transmitted. Only then it becomes possible that the exhaust air system reacts adequately to the operating conditions of the cooking equipment. This kind of network costs in Germany EUR10,000 to EUR30,000. It is amortized in a maximum of four years.

as "state of the art" when almost every piece of thermal or refrigeration equipment offers interfaces by which they can be integrated into a network with a cable or via WiFi and linked to a cloud as external data storage. Listed below are some of the central areas of application for such network systems:

- Cooking and chilling programs can be maintained centrally and can be installed into the equipment, location independent where desired culinary uniform standards can be implemented.
- Cooking protocols and data of quality assurance can be recorded digitally, be it directly into the equipment or outside per App low manpower commitment.
- Efficient control of production capacity and occupancy of chiller resp. shock freezers can be adjusted optimally to each piece of thermal equipment.
- A chiller can recognize which cooking process is running in a piece of thermal equipment that is interconnected with it, whose cooked goods has to be blast chilled: It chooses the appropriate program proactively. Operating errors by employees, especially in hectic times, can be minimized in this way.

 More flexible production of smaller batches shorter standing times while serving optimization of hygiene and more freshness.

ENERGY MANAGEMENT

In spite of all of the problems, COVID-19 has a few positive side effects. The countries of the European Union have presumably reached two of their three significant climate targets in 2020: the reduction of their greenhouse gases and the promotion of renewable energies. Whether they could lower their energy consumption is currently still open.

Of course, commercial kitchens also play a role on this subject. Their thermal equipment, chillers, and shock freezers together with exhaust air systems and dishwashing systems are It is reasonable in the sense of a total optimization of energy consumption to integrate peripheral equipment like plate warmers or meal distribution trolleys so that they are connected need-based, but no longer (avoiding unnecessary standby times).

CUT BACK THE PEAK LOAD

One of the most important effects of an energy management system is that so-called peak loads (a short term rise of large amounts of energy) will be cut back. The systems suspend the energy input for this, but usually for only a few seconds. Ongoing processes will not be impaired by this. Peak load savings from 30 to 50% are realistic. Thereby, the costs of an energy management system are paid off within two years in a professional kitchen in Germany. Whoever is planning to renovate his or her kitchen but can or would not like to invest in such a system for the time being, should let control and LAN cables be laid for an unproblematic upgrade in any case.



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La Pinsa Romana



It's not a Pizza, but a PINSA!

PIZZA IS OUR PASSION SINCE 1974

The great Italian and international success of the Pinsa is to be found in the general health trend which tends to reward those products characterized by eating healthily and genuinely.

The lightness of the Pinsa derives from a higher hydration of the dough unlike traditional pizzas, and therefore a better digestibility. Consequently, the type of water used to

make a Pinsa is a fundamental element to obtain its taste.

Even the ancient Romans, from whom the recipe comes, knew its lightness, so much so that they used the Pinsa in its original oval form, like an edible dish on which they spread the main dish, usually meat or fish.

Svila, the company that has been producing exclusively bakery products, for over 45 years, masterfully approached the ancient Roman recipe of Pinsa, maintaining all the features connected with tradition. The company is nestled in the Sibillini mountains, above, where the air is always sparkling, uses pure water that has always distinguished all its production, guaranteeing an index of

lightness and purity among the highest in the category. The lightness and tastiness of Svila Pinsa is also the result

of the raw materials used: a mixture of wheat and cereal flours, carefully selected, which make the product crispy on the outside but extremely soft inside. The high digestibility of the Svila Pinsa is guaranteed by an exceptional water that perfectly hydrates the dough, from a very long leavening and above all from the pinsatura made by hand,

without ever stressing the base. It is this slow movement that brings us back to the real name of Pinsa, which comes from the gesture of stretching, of enlarging, in fact the Latin word is pinsere!

When you open a Pinsa produced by Svila, you already recognize the quality by eye: the presence of its innumerable alveolus represent the essence of its lightness. The crunchiness of its crust preserves the secret of softness!

Svila has been producing baked products every day for 45 years. Millions of hours of experience that pass from wise daily gestures. The choice of excellent raw materials, combined with a constant care for product control.

Because everything done in Svila, before others, is eaten by them and their children. This is their quality assurance!









P

A BILLION EURO MARKET AND GROWING

A sizable and rapidly-growing category, the plant-based meat market is worth USD1.4 billion. The category increased by more than USD430 million in sales during the last three years in the US alone.

o20 was ripe with new product introductions and increased consumer adoption in the plant-based meat category, according to the **Good Food Institute** (**GFI**), whose expertise and research is presented in this article. As appetites grow for different plant-based meat types and formats, the category continues to expand and diversify. In addition to plant-based beef, consumers are shopping for plant-based chicken, pork, and seafood.

PLANT-BASED FOODS IN THE U.S. ARE A USD7BN MARKET

Plant-based products
are a key driver of
sales growth at
grocery
retailers
nationwide,
growing
almost twice
as fast as
overall food
sales. SPINS
retail sales data
released April 6, 2021,
shows that grocery sales

replace animal products have grown 27 percent in the past year to USD7bn. The GFI summarized highlights from the data here to help companies understand the size and growth of the U.S. retail plant-based food industry. They cover both the plant-based food market as a whole and key plant-based category like meat. Data shows that

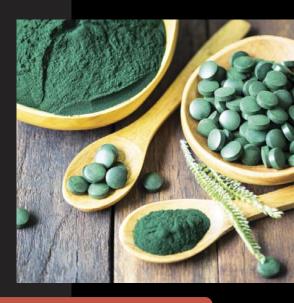
food manufacturers ranging from startups to leading CPG companies to the world's largest meat companies are innovating rapidly in the plant-based market. Next-generation plant-based meat, egg, and dairy products are increasingly competitive with animal products on taste, price, and accessibility. Distribution is expanding, and a growing number of mainstream consumers are buying plant-based options. In the U.S., 98% of people who buy plant-based meat also purchase conventional meat. "The plant-based meat market today is, in ways, reminiscent of the plantbased milk market when it was in its early stages of rapid growth. Today, plant-based milk accounts for 15.2 percent of all dollar sales for retail milk. Assuming the plant-based meat category has the potential to reach market share parity with plant-based milk, that represents a 14-point growth in plant-based meat's share of the total meat market. This opportunity is worth USD 14bn," GFI says.

KEY ALTERNATIVE PROTEIN INDUSTRY CHALLENGES

GFI's Advancing Solutions for Alternative Proteins initiative aims to identify key challenges and high-impact solutions to accelerate the alternative protein industry. The speed with which foodservice operators and retailers are adding plant-based products to their shelves and menus has made it clear that demand from their customers - as demonstrated by positive retail and foodservice sales results - is not holding back the alternative protein industry. Instead, the constraints are further upstream, on the supply side. "Increasingly, foodservice purchasers have shared with us that the only thing holding them back from launching plantbased meat products is the pricing and the need for additional tasty, functional, and affordable products which meet their category needs. This situation consumer demand for plant-based foods outpacing supply chain capabilities - supports the hypothesis that underpins all of GFI's work: If the alternative protein industry can - at scale - produce foods that are delicious, functional, versatile, and affordable, there is a massive potential market of consumers just waiting to be tapped," GFI says. From 2019 to 2020, GFI conducted an extensive market shaping analysis that included interviewing more than 150 experts throughout the alternative protein value chain to identify the existing challenges, future bottlenecks, and potential solutions. The experts interviewed included scientists from academia and industry, entrepreneurs, investors, marketers, consultants, and other industry leaders. These representatives were chosen from a wide variety of alternative protein companies, suppliers, and ecosystem members, with a focus on gathering diverse global perspectives across each segment of the value chain and covering the plant-based, fermentation, and cultivated protein production platforms. Unsurprisingly, one of the topline takeaways from our interviews is that many alternative protein insiders are highly optimistic about the future of the industry, in spite of the many challenges they outlined. "Over the past few years, we've seen strong consumer enthusiasm for plantbased products - even with premium pricing and variable product quality that demonstrates pent-up demand for meat, egg, and dairy alternatives that are taste- and price-competitive with animal proteins. This demand is driving investment from global governments, investors, and existing companies into R&D and scaling the supply chain for higher production output. Research is creating innovations that are improving product quality, including allowing for more analogous taste and texture to conventional animal-based products,

increased variety, and improved

functionality and versatility. And a scaled supply chain is increasing the quantity of products produced, lowering prices, and expanding availability for consumers," GFI says. By addressing technical bottlenecks, alternative protein industry players can continue to improve product quality and make those products even more accessible to consumers. In doing so, the alternative protein industry will continue to increase demand. Food and agriculture are among the largest human-made systems on the planet. Increasing our reliance on alternative proteins will require fundamental transformation of crop growth, food





For plant-based food manufacturers, the past two years were of major importance. Plant-based meat, particularly the plant-based burger, has generated considerable interest with consumers, investors, and the press.

Good Food Institute

storage, supply chains, industry worker training, and manufacturing processes. For alt proteins to realize their transformative potential, the industry needs more money for R&D funding, mobilizing and training a massive new workforce, and investing billions of dollars to scale processing and production infrastructure.

"To achieve these critical breakthroughs, we need to enable the R&D to be as effective as possible and to disseminate those insights as rapidly as possible. By identifying critical industry challenges and sharing potential solutions, GFI's Advancing Solutions for Alternative Proteins initiative aims to enhance the alternative protein industry's scale and speed to propel it forward. The challenges ahead are not insignificant, but represent massive opportunities if overcome, which we are confident they will be. The early developments in this emerging industry have shown that alternative proteins are a high-potential opportunity to disrupt multi-trilliondollar categories and an indispensable part of building a sustainable, secure, and just global food system," GFI adds.



For plant-based food manufacturers, the past two years were of major importance. Plant-based meat, particularly the plant-based burger, has generated considerable interest with







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consumers, investors, and the press. This has been due in large part to a recordsetting IPO by Beyond Meat and numerous retail product launches from both new and established food companies. Beyond Meat and Impossible Foods proved that plantbased meat can be tasty and popular, while large food companies have made strong moves to meet the growing demand for plant-based meat with their own products and distribution networks. The sea of change started by plantbased milk and propelled upward by plant-based meat has lifted the plantbased food industry as a whole, with nascent categories, such as plant-based eggs, also experiencing increased innovation and growth. Plant-based meat product launches are by no means limited to plant-based companies such as Beyond Meat and Impossible Foods. In order to respond to consumer interest in plant-based products that closely mimic animal-based meat, established plant-based meat brands such as Lightlife, MorningStar Farms, and Sweet Earth, announced their next generation of plant-based meat products Animal-based meat companies also launched their own plant-based or blended meat product lines. Smithfield announced their Pure Farmland brand in August, which comprises a variety of plant-based meat products, including some with plant-based cheese. Hormel introduced both a plant-based meat brand, Happy Little Plants, and a blended product, The Great Organic Blend Burger, under their Applegate Farms brand. Tyson and Perdue also debuted blended products, Tyson with their Raised & Rooted brand of blended burgers and meatless nuggets and Perdue with their Chicken Plus line of blended chicken, chickpea, and cauliflower nuggets. While these blended products are not plant-based,

meat companies' efforts to respond to growing consumer interest in reducing meat consumption.

WHY PLANT-BASED PROTEINS WILL WIN

As the plant-based market continues to grow, the industry should expect many plant-based foods to match and eventually surpass the functionality of animal-based foods. Given biological limitations, animals are about as cheap, delicious, efficient, and healthy as they're going to get, but plant-based proteins are just getting started and have nearly endless room for optimization. The animals people currently eat - cows, chickens, pigs, and so on - weren't selected for being the most delicious or nutritious. They just happened to be easy to domesticate. Plant-based protein innovation will enable foods that transcend the existing animal protein paradigms. The operational and functional benefits will probably take a variety of forms. The creative possibilities of plant-based proteins range from the fanciful - a steak with a brand's logo imprinted in the marbled fat or a custom meat blend, such as turkey-duck-chicken, that is unique to a brand - to the practical, such as only the highest-value meats. Inherent to animalmeat production is the "carcass balancing problem": Producers must grow an entire cow or pig - organs, hooves, hair, and all - to extract the highly profitable parts, such as meat. Animals simply don't grow or produce in the proportions that meet

consumption demands; consumers want a lot of some parts (e.g., sirloin) and not much of others (e.g., bones and eyeballs). Production of plant-based meat allows for targeted production of the most profitable components. Further, plant-based protein producers are not constrained by animal birth rates and the maturation time lag (up to 24 months for some species) as animals grow to slaughter weight. This shorter feedback loop between demand and supply will create faster market responsiveness, decreased prices, and less supply volatility. "Supply shortages or gluts will become far less common. As plant-based protein producers attain additional economies of scale, we can expect to see even less price volatility and much lower prices. Additionally, as alternatives to non-meat animal products, such as Modern Meadow's cultivated leather or Geltor's collagen, displace their conventional counterparts, raising an entire animal will become even more economically dubious. Eventually, plant-based versions of today's premium conventional meats, such as sirloin, could cost the same as lower-grade animal protein products. This - combined with the ability to personalize nutrition and flavors, an increase in the diversity of protein choices, and opening the door for consumers to eat products that they cannot eat in their conventional forms, such as lactose-free plant-based milk or kosher plant-based bacon - will cause a dramatic shift in consumption patterns," GFI concludes.

of people who buy plant-based meat also purchase conventional meat in the US.



their launches still highlight animal-based

frozen dossier

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STATE OF THE FROZEN FOOD INDUSTRY



According to BFFF CEO Richard Harrow, cited in the association's latest report on the industry, 2021 will undoubtedly bring new challenges, however, the UK association feels confident that the frozen food category will meet these head on and continue to grow. Below, you can find the most interesting views on the main frozen categories, as written in the report.

he pandemic will continue to impact the UK frozen food market well into 2021, but the industry will also have to deal with the fall-out of the end of the Brexit transition period. Early indications are that, whilst the Free Trade Agreement with the EU was welcome, the devil will be in the details. Companies who have never exported before will need to learn new skills just to supply the island of Ireland. Supply chains will need to be re-set as producers get to grips with the new normal.

FROZEN DID WELL IN RETAIL

The retail market saw massive growth in 2020 as consumption patterns changed dramatically. Kantar Worldpanel data valued the retail market at GBP7.21bn with a year-on-

year growth of 13.8%, compared to total grocery, which grew at 11.3%, and fresh and chilled at 9.3%. From the start of the pandemic, frozen grew faster than total grocery on every four-week period. Frozen added a total of GBP872m in value sales. Kantar also highlights that the frozen category has shown the highest rate of growth, apart from alcohol, in 2020. Year-on-year volume growth of 11.5% added approximately 240 tons of product across the nine categories monitored by Kantar. This has resulted in average prices increasing by 2.0%, slightly behind the total grocery market of 2.1%. Behind the average growth of 13.8%, there were some quite wide variations across the nine categories monitored. Ice cream grew by 19.1% adding GBP207m, although this value growth was beaten by the

savory category, which added just over GBP214m in value sales. Across the categories, six achieved doubledigit value growth and five also achieved this in volume performance. The only category that missed the growth trend was ready meals, with a value only just positive at 0.29% and volume down by 1.4%. Typically, consumers of ready meals are 'cash rich and time poor', and the one thing people were not short of in 2020 was time. However, the frozen category was more resilient than the chilled category with recent data from Nielsen showing a value decline of 3.6% and volume down 4.0%. The change in the way people shopped also played into the strengths of the category. The frequency of shopping trips declined but basket spends were higher, and consumers were looking for products that did not spoil



between shopping trips. Across the broader grocery sector, Kantar reported shopping trips dropped by 34% but basket size grew by 38% in the initial stages of the pandemic. Later, there was see some increase in frequency and a drop in basket value through 2020, but both remained very different to the long-term trend. Data for November showed at a total grocery level, shoppers made 9.6% fewer trips in 2020. However, the frozen category saw the number of trips grow by 3.1%, which combined with higher value and volume sales, helps explain the strong growth. The channels consumers bought frozen from also saw some significant changes. Data from November showed the big winners with increases were online (49.6%), convenience (20.5%), hard discounters (15.1%) and freezer centers (14.0%). Although frozen under-performed in online vs total grocery (49.6% vs 61.0%) this may be due to the growth of older shoppers in this channel, driven by responses to the pandemic and the need to isolate for long periods. The growth in the category was shared across most retailers, with relatively small changes in overall market share, ranging from a loss of 0.23% to a gain of 0.18%. However, all retailers saw a major increase in value sales. The Big Four saw an extra GBP451m of sales, or 12.9%, slightly behind the overall market. M&S saw a growth in value sales of 38.4%, albeit from a small market share.

FOODSERVICE TOOK A BIG HIT

Of all the sectors affected by the pandemic, foodservice has arguably been hit hardest. But this hardship has inspired a range of creative solutions and accelerated the adoption of new

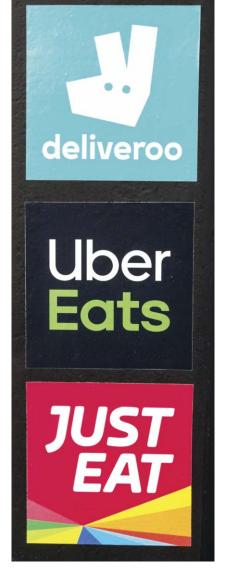


technologies that mean the sector is well prepared for the years ahead. To understand what the foodservice market will look like in 2021, it is important to put it into the pre-COVID context. In 2019, the market looked fairly similar to the previous year and several years before that too. From 2014-2019, the overall market had grown each year on average by about 0.3% in real terms; after inflation, the annual growth was 2.4%. In 2019, the food and beverage market was worth GBP53bn (excluding drinks served without food). The value of food sold by wholesalers and direct suppliers to the foodservice sector was GBP39bn. The shape of the market was relatively consistent. The 'destination' sector - restaurants, quick service, fast food, pubs etc., accounted for around 61% of the sales value; this sector had been increasing its share as a result of the advance of casual dining, food-to-go and fast food. Hotels and the leisure market accounted for around 29% and the institutional sector (B&I, healthcare, education etc.) accounted for the balance. In terms of purchases, the balance between the sectors was somewhat different because the gross

(restaurants and pubs for example) is high, while in others (notably schools and hospitals) the mark-up is low, even non-existent in the case of subsidized and free meals. In March 2020, swathes of the foodservice sector were closed down restaurants, pubs, the leisure sector, even takeaways initially ceased operating. Only hospitals and care homes (plus prisons and the armed forces) remained at anything like normal levels. Over the next two to three months, takeaways and restaurants pivoted to delivery which started to grow rapidly, as did dark kitchens which rely on delivery to get orders to their customers. In July, restaurants, pubs, and hotels were allowed to reopen. Demand immediately started to grow for dining-in at restaurants and pubs. August saw a significant increase as a result of the Eat Out to Help Out scheme, but after the scheme ended demand started to fall away as colder weather set in. At this time schools and universities reopened and demand for meals increased rapidly compared with the summer term when almost no meals were served. In October, the foodservice sector seemed to be approaching some sort of stability, even growth in parts. Then in early November, the second lockdown returned the market to March conditions and once again trading was massively reduced. The net result of these multiple changes and huge monthly swings, for the year as a whole, was that the value of food sold into the foodservice market fell by 55% in the year from almost GBP12bn in 2019 to an estimated

margin applied in some sectors





GBP5.4bn in 2020. Within this period of massive change, demand for frozen food fell by half from GBP2.5bn in 2019 to GBP1.3bn in 2020. Its share fluctuated from month to month as a result of changes in the importance of each sector. In months when sectors such as quick service (where frozen purchases are above average) grow more quickly, the overall share of frozen also rose.

CHANGES IN CONSUMER BEHAVIOR

The global pandemic has affected every aspect of people's lives, not least the way people purchase and consume food. From changes in the weekly shopping basket to the emergence of a new, more conscious consumer, consumers look at the changing behaviors and trends impacting the frozen sector. BFFF member The Ice Co highlighted that throughout 2020 consumer shopping habits changed significantly, affecting consumer basket spends. Indeed, there were changes within changes, as consumers responded to varying

levels of restrictions throughout the year. The first national lockdown drove some extreme behavior as consumers responded to the shock of the situation. Out-of-home spending dropped by GBP1bn per week while takeaway sales increased by 250%. Grocery sales added GBP350m per week and lunch occasions in-home went up by 80%. We saw a big drop in shopping trips down 24%, but average basket size went up by 43.2% during March and April. This moderated during the year, but the trends remained as restrictions steadily increased again so UK consumers continued to make a large weekly shop in a limited number of stores.

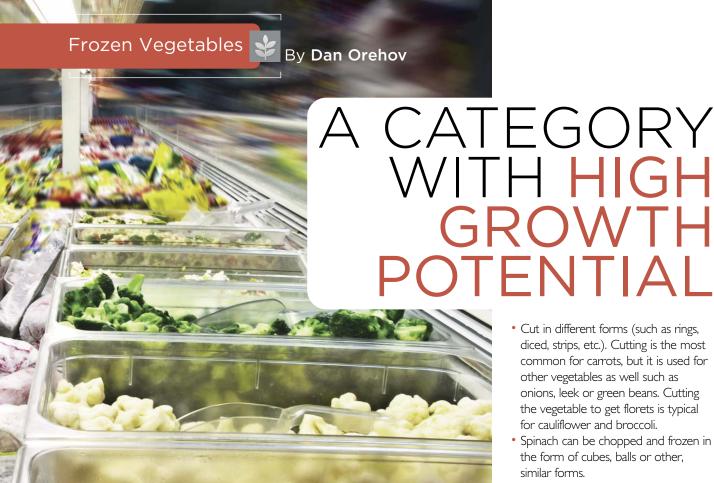
FOOD WASTE AND THE SHOPPER OF TOMORROW

Millennials (born between 1981 and 1996) have been linked with the resurgence of frozen food; however, it is Generation Z (those born between 1997 and 2012) shaking things up in frozen. According to a report from Packaged Foods, under 25s are more likely to snack between meals than Millennials, and 23% more likely to eat frozen dinners. As well as convenience being of utmost importance, Gen Z consumers place a higher value on flavor and quality of ingredients as opposed to seeking out brands. Individuality and uniqueness are valued over mass-produced. Having grown up with smartphones they are connected and informed. This is a generation looking to make responsible choices about people and the planet. They are also more likely to eat and drink plant-based food for some or most of the time. According to research by WRAP (Waste and Resources Action Program), UK households waste 4.5m tons of edible food every year. Meanwhile, food waste is known to be responsible for 6% of global greenhouse gas emissions. As the

nation struggles to feed the world's growing population, while protecting the world itself, it's never been more important to tackle food waste. Here. BFFF examines the crucial role frozen can play in this challenge. Throughout 2020, WRAP carried out extensive research to find out how lockdown restrictions changed our food behaviors and attitudes. The research was conducted in three phases; in April, June and September, and the results offer a fascinating insight into how much people reported wasting food, as well as how they feel about it. The first survey was undertaken in April, during full lockdown. At the time, UK citizens were encouraged to leave the house as little as possible and only for a limited number of reasons, including shopping for food. When asked: 'In the past month would you say you are buying certain food items more often, less often or the same as always?', consumers admitted to purchasing more frozen vegetables, meat, fish and fruit, but less frozen ready meals. Kantar reported that volume sales in the four weeks ending 22 March increased as follows: frozen vegetables 42.5%, meat 38.4%, fish 31.4% and fruit 17.1%. Frozen meals also started strongly at 23.0% but this fell away as the pandemic went on. It was also revealed UK citizens were undertaking more food management behaviors in the first month of lockdown, including more pre-shop planning (checking the fridge and freezer), better in-home food storage (freezing leftovers and unused foods) and a more creative approach to cooking and meal preparation, such as batch cooking. When asked: "In the past month would you say you are checking what was in your freezer before shopping more often, less often or the same as always?', 30% confirmed they were checking what was in their freezer before shopping more often.







In the long term, the European market for frozen vegetables is expected to show stable growth of 1-3% annually. This growth is likely to be driven by changes in the consumption patterns of European consumers, including 'ready to eat' or 'easy to prepare' meals and the replacement of food of animal origin with vegetable alternatives. Especially Germany, France, Belgium, the United Kingdom, Italy and the Netherlands offer opportunities for developing country suppliers.

rozen vegetables are a range of products prepared by freezing fresh vegetables with the appropriate maturity for processing. They undergo operations such as washing, peeling, grading, cutting, and blanching/deactivating enzyme activity, depending on the type of product. The freezing operation is carried out in such a way that the range of temperature of maximum crystallization is passed quickly. The quick-freezing process is not regarded as complete unless and until the product temperature has

reached 18°C at the thermal center of the vegetable after thermal stabilization. Repacking quick-frozen vegetables under controlled conditions is permitted. Of all trading categories for frozen vegetables and fruit, five main types are most common:

- Individual Quick Frozen (IQF), where each piece is separated from other pieces
- Stuck to one another where pieces can be easily separated
- Stuck together or in blocks to an extent that they cannot easily be separated in a frozen state

- Cut in different forms (such as rings, diced, strips, etc.). Cutting is the most common for carrots, but it is used for other vegetables as well such as onions, leek or green beans. Cutting the vegetable to get florets is typical for cauliflower and broccoli.
- Spinach can be chopped and frozen in the form of cubes, balls or other.

In the majority of cases, frozen vegetables are traded without any ingredients added. In some cases, such as in ready-to-cook mixtures, ingredients such as salt, sugars, aromatic herbs, stock or juices of vegetables and garnishes may be added.

EUROPE LEADS

Europe is by far the world's largest importer of frozen vegetables, accounting for around half of global imports. European imports of frozen vegetables have increased annually by an average of 3% in volume in the period of 2018-2020. The largest share of imports is intra-European trade, while only 11% of imports come from developing countries. Statistics show that in the next five years, the European market for frozen vegetables is likely to increase with an annual growth rate of 2-4%. The main reason for the expected market growth is the convenience in eating and increasing consumption of ready-to-eat frozen food. Also, consumption of vegetables (including frozen) is increasing due to the popularization of vegan and vegetarian food across Europe. Regular fluctuations in imports will continue to be influenced by harvested crop volumes and accessory price developments, rather than changes in

demand. Between 2018 and 2020, European imports of frozen vegetables grew an average of 4% in volume and 3% in quantity every year, to a value of EUR3.3bn and a quantity of 3.4 million tons in 2020. Higher growth in value than in volume indicates a slight increase in import prices over the last five years. However, the prices of frozen vegetables are expected to remain stable in the medium to long term. The European Union financially supports local farmers with various subsidies, which is thought to have a stabilizing impact on prices. Internal European trade accounts for 92% of all imports and import from developing countries for the remaining 8%. Europe is the largest producer of frozen vegetables in the world, which explains the large share of internal trade in total imports. European import from developing countries increased by 3.2% in quantity over the last 5 years, reaching 275 thousand tons in 2020. The total European production of frozen vegetables was estimated to have reached nearly 6 million tons in 2020. Belgium is the largest producer of frozen vegetables in Europe, accounting for 27% of total European production. Production in Belgium is centered around the South and West of Flanders, and around 90% of production is exported. Spain is ranked as the second- and Poland as the third-largest producer in Europe. However, some data rank Poland as the second-largest European producer before Spain. Over the last five years, consumption increased by an average annual growth rate of 4%. France, Germany, Belgium, Spain, the United Kingdom and Italy are the largest markets. In 2020, European consumption has reached 4.7 million tons. Easy preparation of frozen vegetables, which are perceived as a healthy food, is the main driver of increased consumption in Europe.

THE GERMANS REMAIN ON TOP

Germany is Europe's largest importer of frozen vegetables. The German import value was EUR582m in total in 2020, good for 17% of total EU imports. German imports increased annually by 0.8% in volume between 2018 and 2020, reaching 628 thousand tons. The most significant import growth rate was noted in frozen beans, where import

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doubled from 3.3 thousand tons in 2018 to more than 7 thousand tons in 2020. Germany imported 92% of its imported frozen vegetables from other European countries and only 8% from developing countries. However, developing countries are slowly gaining market share on the German frozen vegetables market, as the average growth of imports from developing countries of 2% is more than the average total import growth (0.8%). The leading supplier to Germany is Belgium with a 41% share, followed by Poland (16% share) and the Netherlands (14% share). The Netherlands is gaining the most in market share in Germany, increasing its export from 57 thousand tons to more than 90 thousand tons. The leading developing country supplier of frozen vegetables to Germany is China, with frozen mushrooms as the leading export product. Other important developing country suppliers to Germany are Ecuador (with frozen

broccoli as the main export product), Turkey (with frozen tomatoes and sweet peppers as leading products), Serbia (mostly frozen sweet peppers) and North Macedonia (mostly frozen sweet peppers). According to data by the German Frozen Food Institute, total local sales of frozen vegetables slightly decreased from 507 thousand tons in 2018 to 501 thousand in 2020. However, sales in the foodservice (outof-home) market have slightly increased from 221 thousand tons to 224 thousand tons. This slight decrease in sales is forecasted to be just temporary, as sales of frozen vegetables have increased by 7% on average over the last 10 years. The average per-capita consumption of frozen vegetables in Germany is 6.2 kg. German consumption of frozen vegetables is boosted by convenience in eating, vegan and vegetarian food popularity, organic food consumption and sustainability. According to Mintel, Germany is the leading country worldwide for vegan product launches.

To conclude, besides Germany, France is the leading European frozen vegetables market and the second-largest importer of frozen vegetables. However, regardless of the European state one may be residing in, most consumers choose frozen vegetables for convenience purposes and the IQF taste and quality that come along with this category.







IVE WAYS



PANDEMI

The COVID-19 pandemic has led to several challenges for retailers and manufacturers. However, it has also created new opportunities in some areas, with private label becoming a potential winner from the period. Shoppers have undertaken fewer, but larger shops and have had to cook more at home. Working from home has also created more opportunities for snacking. These new behaviors have formed new openings for several categories.

espite the captive audience, retailers have continued to innovate and spotlight their private label ranges to help them prepare for the more competitive environment expected after the pandemic's initial impact has ended.

PRIVATE LABEL PRODUCT PERCEPTION IMPROVED **DURING 2020**

Our ShopperVista data shows how the perception of private label products has risen with shoppers in Great Britain in 2020. In the third quarter, 71% of shoppers said they were very satisfied with the quality of private label products, with 66% reporting they trust private label products as much as brands. The evolving shopping behaviors seen due to lockdowns and restrictions implemented during the pandemic has been a real opportunity to drive awareness and trial of private label products. To take advantage, retailers have continued to innovate with their private label ranges, improving both the products' quality and their packaging to help them stand out on shelf. Retailers have also activated

their private label brands in new ways in-store, but also online, raising their visibility with shoppers. I consider five ways retailers have maximized the opportunity provided by the pandemic to spotlight their private

label products, to help them gain new shoppers and build on existing loyalty.

1. INNOVATING WITH **VEGAN AND** VEGETARIAN RANGES

Across Europe, there has been a strong increase in shopper interest in trying out a vegan diet or switching some meals to meat-free products. Veganuary sign-ups saw a staggering increase, with more than 500,000 pledging to follow a plant-based diet, which is double the figure from 2019. While this has been stimulated by shoppers looking to try different meals during lockdowns, there is also a growing consideration and rethinking of lifestyle habits, which is putting an increased focus on healthy eating. To meet this demand, retailers have introduced new private label ranges or products. Portugal's Continente launched Powered by Plants, for example, is a new range including

meat-free burgers, nuggets and meatballs made exclusively from vegetable protein. Products are available in the frozen department across all the retailer's hypermarkets and supermarkets, retailing for between 2.69 and 5.49, therefore offering an affordable and accessible meat-free solution.

2. SPOTLIGHTING SUSTAINABLE **INITIATIVES WITH** PRIVATE LABEL

Despite the pandemic shifting all parties' short-term focus, longer term interest in and the need for sustainable solutions remain for shoppers, retailers, and manufacturers. For private label this has seen two developments emerge: first, providing transparency, and, secondly, educating shoppers about environmental impact. In relation to transparency, Ahold Delhaize-owned Albert Heijn has, since Q3 2019 provided an online map that shows shoppers where products were last processed in the world. At launch, the map showed 1,200 locations and allowed shoppers to search the 11,000 private label products by country, type of product and supplier. To help shoppers better understand their purchasing habits' impact on the environment, Belgium's Colruyt and Switzerland's Migros have both introduced initiatives to help inform and educate them as part of their buying process. Colruyt has added the Eco-Score to its Boni Selection private label range. The score, which will be on about 2,500 SKUs across multiple categories, including frozen, considers 16 impact categories, including climate change, water use, land use, particulate matter, and acidification. Meanwhile, Migros has added a sustainability scale, of one to five stars, and has been launched with the tagline 'We are not 100% sustainable. But 100% transparent'. The score will be on approximately 250 products initially and operates like a hotel rating system, ranging from one to five stars.

3. SUPPORTING LOCAL AND SMALL, MEDIUM-SIZED COMPANIES

Given the renewed impetus during the pandemic on shoppers supporting small and medium-sized companies, especially for fresh produce, retailers have begun to demonstrate how they support local suppliers. SPAR Austria launched a new private label range that showcases local producers on the packaging to both spotlight the work it is doing to support them, but also to showcase the regionality of some of its products. One of the first products introduced as part of the initiative was a honey sourced from Burgenland, Weinviertel and southern Styria. Meanwhile, Coop Switzerland introduced locally produced garlic under its Ünique private label. The initiative also helps support its sustainable aims in combating food waste by working with producers to sell produce that is the right quality and taste but not necessarily the correct caliber, size, shape, or weight.

4. BENEFITING FROM THE SWITCH TO ONLINE SHOPPING

The online channel significantly benefited during the pandemic on a global basis, as shoppers looked for a convenient and safe way to shop. Retailers increased the capacity to meet online orders, helping the channel, by our estimates, increase its share to 3.1% of all sales in Europe in 2020, up from 2.2% in 2019. It has required retailers to consider how best to showcase their private label products

of all sales in Europe in 2020 came from the growth of the online channels.

online and help shoppers find them. As a consequence, retailers have dedicated increasingly prominent space on their online stores to spotlight their private labels. From adding product features, improving imagery and launching shop within a shop pages for specific labels and extensions. Retailers are also creating dedicated health-focused sections or 'shops' within their websites. Delhaize has added Nutri-Score information and provides inspiration on which health products to purchase. Elsewhere, meal kits have grown solidly during the pandemic as shoppers look for retailers to inspire them with new products and recipes to try. Again, overlapping with other trends is helping to maximize the return-on-investment for retailers. For example, Sweden-based ICA added a climate-focused meal bag to its grocery meal kit range. Dishes contain 0.5kg CO₂ per serving, a value developed by the WWF to meet the Paris Agreement's 1.5-degree target. Recipe cards are also available online only. Meanwhile, best in class retailers have taken the online trend further by extending the reach of their private labels using social media platforms to engage with shoppers.

5. TARGETING THE LOCAL SHOPPER IN PROXIMITY FORMATS

Another channel development has seen shoppers buying close to home, as they looked to limit the distance they traveled. Since COVID-19, frozen and liquor sales at proximity stores have increased significantly in many markets. To meet this demand in the short term, retailers have expanded the amount of sales space they have dedicated to the categories. For the longer term, though, they have explored new ways to sustain growth in these areas.

using private

labels to help

them

differentiate from rivals and drive loyalty. Retailers in Italy have invested in this area strongly in recent years, maintaining the pace of innovation during the pandemic. Given the importance of proximity stores for leading retailers -Conad, Coop and Selex the desire to spotlight their private label ranges in these stores is unsurprising. From Despar Italia, expanding its Special Edition private label range to include more locally sourced goods to Conad and Crai growing their premium private labels too, the retailers have put the spotlight on these products in-store.

PRIVATE LABEL GROWTH LIKELY TO FIND MEDIUM-TERM SUPPORT

Building on the foundations provided by the pandemic and shoppers' changing purchasing behaviors will be key. Given the economic outlook for many countries, retailers can continue to attract new shoppers to their private label brands by either spotlighting their affordability or the benefits they provide. However, they need to maintain their investment in the area to help them turn this short-term opportunity into long-term loyalty.

IGD provides unrivalled insight and foresight that connects the food and consumer goods industry www.igd.com



www.frozenfoodeurope.com

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EVOIKI ZIMI PRESENTS THE ARABIC RANGE

Evoiki Zimi S.A. has been in the export business for more than 20 years and expands every year its geographical distribution. One of its major products is fillo kataifi which is distributed in Europe (Austria, Germany, Belgium, United Kingdom, Italy, Baltic States), Asia (Japan, China, Taiwan, Singapore) and the Middle East (Iraq, Saudi Arabia, Bahrain, United Arab Emirates, Oatar, Oman). Fillo kataifi of Zimi

Psachnon is very easy to use; its fibers are elastic and absorb the syrup very well. Our new Arabic range is companied with baklawa fillo and the pioneer product "Sambosa Leaves". These are ready country-style fillo pastry

cut into strips. They give great ease to modern women to make many tasty handmade mini pies, for example mini triangles or mini rolls, simply by selecting the appropriate filling. Sambosa Leaves are chilled and the package contains 50 leaves. They are distributed in Germany, United Kingdom, Iraq, Bahrain, Kuwait, UAE, Saudi Arabia and Qatar.

www.evoiki-zimi.gr



GEA SHOWCASES NEW COOKSTAR 1000 SPIRAL OVEN

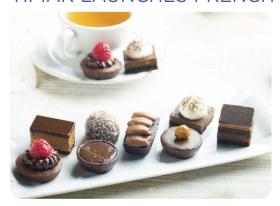
GEA launches its new CookStar 1000 spiral oven for manufacturers of roasted, crispy-coated, and smoked products. The new oven is the next generation of the same trusted technology that has led the market for nearly 30 years, now with more power, precision, and performance. Each aspect of the CookStar 1000 has been refined to deliver higher capacity, increased yield, improved product quality and consistency, more flexibility and greater efficiency. These enhancements allow manufacturers to dry, steam, cook, roast and smoke products in the same oven, while increasing production, improving product quality, variety and reducing energy. The new CookStar 1000 generates up to 25% more heating capacity than previous versions, thanks to improved heat



exchanger technology. This also translates into increased throughput along with improved color and crispiness, and all within the same footprint.

www.gea.com

TIPIAK LAUNCHES FRENCH CHOCOLATE PETITS FOURS



Tipiak has launched a new range of exquisitely French Chocolate Petits Fours for the foodservice sector in the UK. The 'thaw and serve' selection includes chocolate and feuilletine squares, chocolate and hazelnut tartlets, chocolate, mascarpone and coffee squares, caramel and chocolate tartlets, milk chocolate, Tonka flavored financier, milk chocolate and coconut shortbreads, hazelnut and chocolate fingers, and chocolate and raspberry cakes. Made in France with free-range eggs, the Tipiak French Chocolate Petits Fours selection features 42 individual pieces and includes eight different flavors. Labeled images on the outside of the box make product identification easy. The selection is available to UK foodservice professionals via frozen food distributor Central Foods.

www.tipiak.com

KETO FROZEN CUSTARD FLAVORS BY MAMMOTH CREAMERIES

Mammoth Creameries has released three all-new flavors of their keto-friendly, diabetic-conscious frozen custard including Butter Coffee, Strawberry, and Butter Pecan. The flavors are now available for delivery nationwide and can be found in the freezer aisle at Harmon's Grocery stores. The frozen custard is made with a sweet cream base of 100% grass-fed butter, high-quality heavy cream, and egg yolks to offer a nutritious ice cream option. These three new flavors expand upon the existing collection of four low-carb frozen custards and include Butter Coffee (3g of net carbs per serving), Strawberry (5g of net carbs per serving), and Butter Pecan (2g of net carbs per serving). The new flavors will not only change the keto ice cream game, but the ice cream game overall.

www.mammothcreameries.com





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- worldbakers.com
- WEEKLY NEWSLETTER

LANTMÄNNEN UNIBAKE MOUNTAIN BUNS

The German frozen bakery expert Lantmännen Unibake is launching the new range of Mountain Buns. The bread rolls look like they are handmade, rustic on the outside and soft on the inside. The dome-shaped burger rolls are available in the flavors "Rustikal", "Potato", "Sesame", "Whole Grain", and "Brioche Style" and will hit the shelves in February. The bread rolls also have a compact size (4 inches/4.5 inches), which translates into an easy preparation in reliable portions, according to the company.



www.lantmannen-unibake.com

PECAN DELUXE INTRODUCES EGG & DAIRY-FREE COOKIE DOUGH CHUNKS



The company created this selection of no added egg and dairy cookie dough chunks in order to respond to the increasing demand for treats suitable for a vegan diet. Just like the company's existing flagship range of cookie dough, the individually-frozen chunks are perfect for adding to ice cream and other desserts. In addition to vegan diet-friendly products, protein-fortified cookie dough chunks have also been developed by Pecan Deluxe, suitable both as a raw stand-alone snack or delivering an extra protein kick to fortified ice cream.

www.pecandeluxe.com

TYSON ADDS PLANT-BASED PATTY TO JIMMY DEAN RANGE

Tyson Foods is adding plant-based breakfast sandwiches to its Jimmy Dean product line. The largest US meat company recently launched its Jimmy Dean Plant-based Patty, Egg & Cheese Croissant Sandwich, featuring a plant-based patty made from soy protein, egg whites, and American Cheese. Tyson is also launching a Jimmy Dean Delights Plant-based Patty & Frittata Sandwich featuring a vegetable-based patty, the company's proprietary blend, made with soy protein, black beans, brown rice, quinoa topped with a spinach and egg white frittata and cheese served on an English muffin. Both will be available at grocery stores nationwide this spring. It's not the first time Jimmy Dean served up a meat alternative, according to Fox News. In 2019, it released a burger blended with meat and pea protein in addition to plant-based nuggets.

www.tysonfoodservice.com



JUST EGG PARTNERS ROLLS OUT PREMIUM PRODUCTS



Just Egg maker Eat Just, Inc announced a partnership with Cuisine Solutions for a forthcoming US retail launch of the new product 'Just Egg Sous Vide bites'. Just Egg Sous Vide bites will be available starting March in the freezer section of select grocery stores in four flavors: America (roasted potato, dill, chives, red bell pepper and black pepper); India (curry, broccoli, cauliflower, coconut milk and lemongrass); Japan (portobello mushrooms, yams, togarashi, soy and tamari); and Mexico (roasted poblanos, chipotle chile powder, black beans, corn and lime). The Just Egg Sous Vide bites come fully cooked and frozen, and can be heated in either the oven, toaster oven, or microwave.

www.ju.st



JANUARY/FEBRUARY

Frozen Pasta for Catering and Foodservice

product innovation, manufacturers, suppliers

Bakery and Pastry

key market players, producers, suppliers

Frozen Desserts

market dynamics, new product development

Bio and Organic Products for the Food Industry

clean label and energy saving products

Frozen Potato Market

innovative products and European overview

Frozen Potato Technology

cutting, slicing, peeling, dicing

Technology & Logistics

conveyor belts, spiral ovens, IQF freezers & chillers

Packaging Technology

state-of-the-art equipment and solutions

Smart Industrial Kitchens

trends and digital solutions

Ice Cream Market in Europe

evolution and estimates

Nutrition & Ingredients

for frozen bakery and potato products

Frozen Food in Germany

recent developments, review, estimates

Trade fairs: Biofach, Gulfood, FoodEx JAPAN, FoodExpo Greece, M.A.D.E., Sandwich & Snack Show, Parizza, FoodEx Birmingham



MAY/JUNE

Ad closing 28.05 Publishing 14.06

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

for pasta, pizza, ready meals (herbs, rice, vegetables, mushrooms, processed meat)

Frozen Finger Food, Fried or Baked Mix Balls

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

Frozen Food in the US

evolution, challenges, opportunities & major players



SEPTEMBER/OCTOBER

Ad closing 10.09 Publishing 24.09

ANUGA SPECIAL EDITION 2

Key Exhibitors Road Map and Event Agenda **Anuga Trends**

special report

Bakery & Pastry

new product innovation, suppliers, producers

Frozen Vegetables, Fruit, Mushrooms, Green Herbs

solutions for retail and foodservice

Technology Innovation for Frozen Vegetables and Fruit

cutting, slicing, peeling, dicing

Technology & Logistics

trends and solutions in packaging equipment

Technology Automation & Artificial Intelligence

applications in professional kitchens

Meat and Poultry Products

market overview in EU vs USA

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, Process Expo Chicago, iba,

INTERPOM/Primeurs, Alimentaria FoodTech, Gulfood Manufacturing, PLMA Chicago



Appetizers, Snacks and Pies

high convenience, filo pastry products, pizza, ready meals

Frozen Vegetables, Fruit, Mushrooms, Green Herbs

trends and market overview

Technology Innovation for Frozen Vegetables & Fruit

cutting, slicing, peeling, dicing

BeNeLux Market Review

major players and new products

Cooked & Pre-Cooked IQF products for the Food Industry

rice, pasta, sauces, cereals, noodles, vegetables

Technology & Logistics

industrial freezing equipment

Technology and Equipment for Frozen Bakery

proofers, ovens, coolers, freezers

Meat Alternative Products

plant based substitutes

Thermal Equipment & Chillers

technological flexibility in professional kitchens

Private Label Food

innovation, new products, producers, retailers

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, Cibus, Sirha, Snackex, CFIA, Alimentaria



JULY/AUGUST

Ad closing 30.07 Publishing 16.08

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 frying, cooking and seasoning Vegetarian and Vegan Food

product trends, innovations Technology & Logistics

trends in cold storage and warehousing

Frozen Food in Spain and Portugal

latest market developments

Technology & Logistics

industrial freezing equipment

Dishwashing Machines for Professional Kitchens

highly efficient and environmentally friendly

Nutrition & Ingredients

trends for coated and breaded products

Trade fairs: Anuga, Polagra Food-Tech



NOVEMBER/DECEMBER

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

innovation and trends

Technology & Logistics

freezing and chilling equipment

Quick Service Restaurants & Bar and Snack Channel

market evolution, leading operators in Europe

Front Cooking Devices, Bakery Stations and Take-Away-Counters

equipment innovation & hygienic requirements **Nutrition & Ingredients**

ethnic food innovation

Frozen Food in Scandinavia

producers, suppliers, consumer trends

European Retail Market

suppliers, major retail categories, food trends

Trade fairs: Fruit Logistica 2022, MARCA, Gulfood 2022

Frozen Food Europe

on social media

