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Supporting the international baking & biscuit industry

Issue 2 (187) | Vol. 31 | 2023

interpack 2023 SPECIAL

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Traceability Is a Means to an End

Snacking Trends
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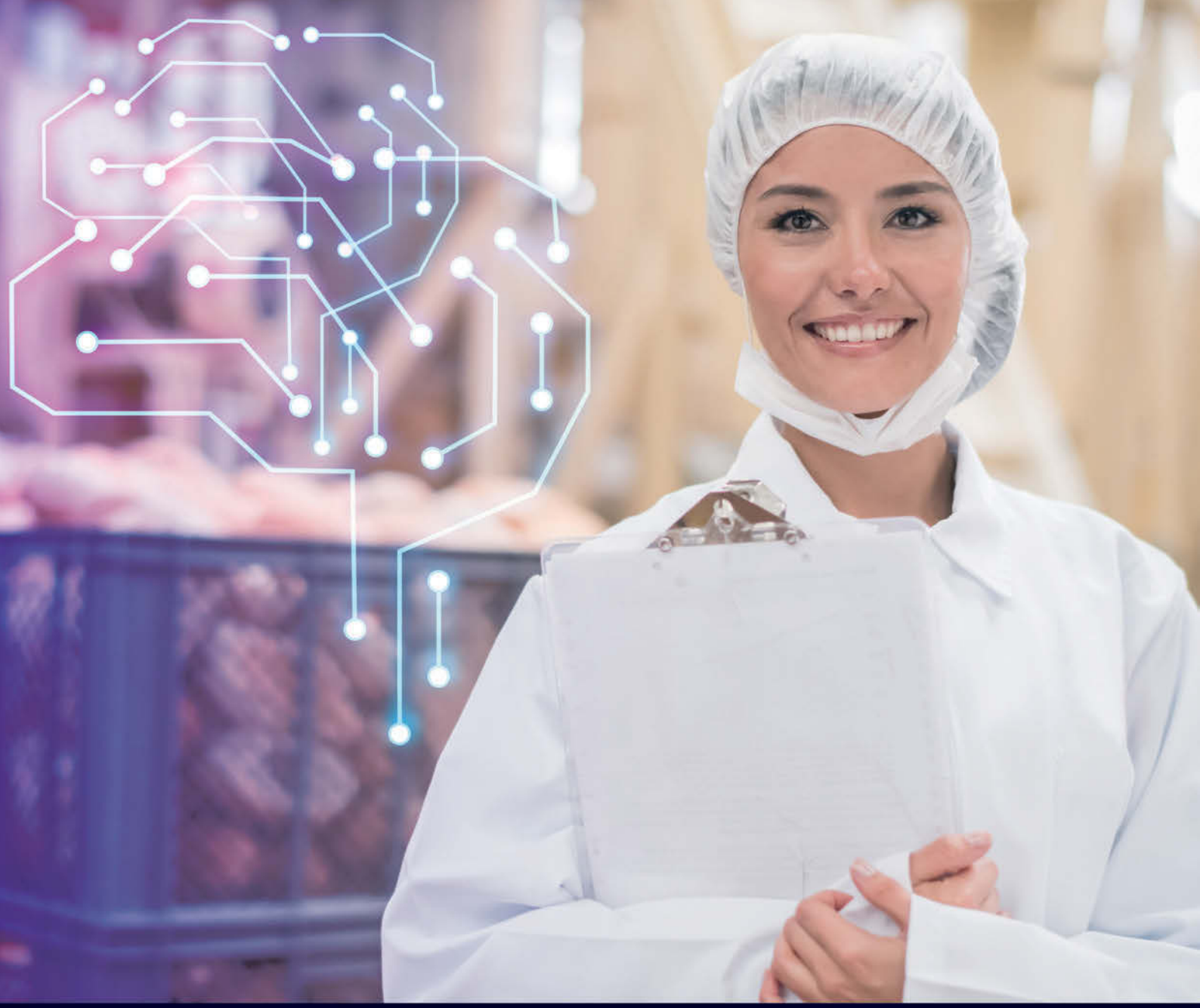

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Industrial-grade AI for the Baking Industry

With increasing energy prices, growing awareness of sustainability, and changing customer demands, the need for smart production in the baking industry has been growing. Artificial intelligence might just be the solution.

By Johann Strobl, Marketing Manager Industrial AI, Siemens

In modern industrial bakeries, automated machinery forms dough pieces for the baked goods. Errors can occur in the process, including badly formed pretzels or unshapely rolls, and these pieces have to be picked from the production line by hand. Otherwise, deformed baked goods reach the stores and can't be sold – and that's a waste of time and resources.
Siemens developed a smart solution that combines automation and artificial intelligence (AI): A camera system with pre-trained AI detects unshapely dough pieces and has them removed in an automated step integrated in the production process. Thanks to a special learning routine, the AI identifies the wrong shapes even when the position of the dough piece isn't ideal. Parameter limits can be set even tighter the longer the AI is trained.
The result: Dough pieces can be eliminated automatically, and the employees assigned to this task can spend their time on more ambitious jobs in the production process. It's also more sustainable to return unshapely dough pieces to the production cycle and have them remade, instead of selling crooked pretzels at a lower price.

AI FOR SMART PROCESS ANALYTICS

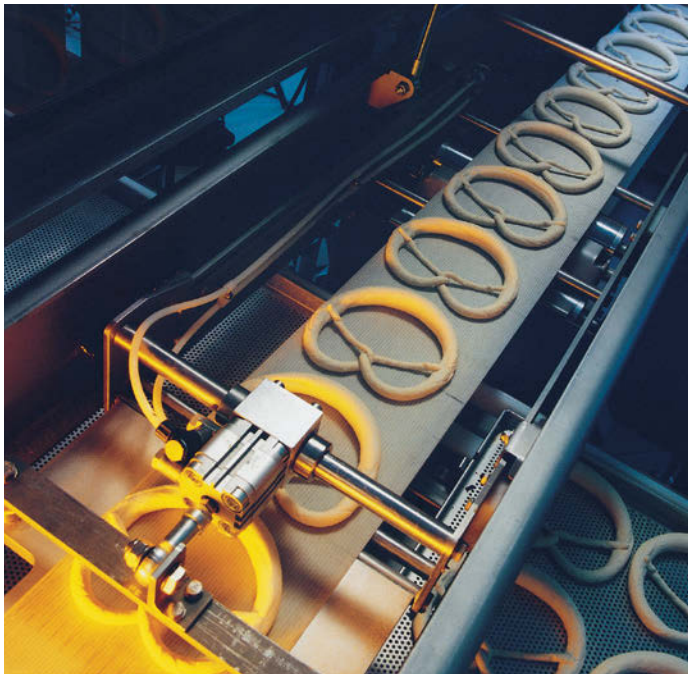
AI can be used for even more purposes. A lot of data can be generated while the production process is being monitored by visual inspection. The data enables key metrics to be reported, including standard counting and sophisticated OEE, so that the entire production can be optimized with a thorough data analysis:

- Recalls due to foreign objects that got into the dough accidentally can be eliminated.
- Faulty machines that don't produce according to recipe parameters can be identified early.
- External influences like weather conditions (e.g., cold, heat, high humidity) that have an impact on delicate ingredients can be foreseen, and the production can be modified to be more robust.

The overall effect: a transparent production that paves the way for better quality, more flexibility, and a better use of resources that leads to reduced costs and greater sustainability.

EXPERIENCE LEADS TO FUTURE SUCCESS

With its extensive experience in automation in the food and beverage and many other industries, Siemens is a reliable partner for successfully implementing artificial intelligence and scaling it to bakeries of all sizes. And the company is able to offer support, services, and data security along the entire lifecycle of their systems.
The first customers have already benefitted. They appreciated that the Siemens solution is an open system that allowed them to integrate the technology into their existing systems using only those elements from Siemens to enhance their production with AI. Fears that extra personnel might be needed were unfounded, because no special expertise is required for working with this AI system. Thanks to the AI visual inspection, they were able to make improvements to their processes, efficiency, and quality. And to their relief, customers found that AI-enhanced production solves another urgent problem in the baking industry: the shortage of skilled workers. With an efficient AI solution, night shifts can be significantly reduced, and the baker's job becomes much more attractive to employees and apprentices. What a smart solution! •



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INGREDIENTS
Taste the Plant-based Rainbow

interpack 2023: It's Showtime!

> Because requirements and framework conditions are constantly changing, this edition focuses on digital technologies and sustainable products and processes.

Tudor Vintiloiu

After a six-year break, numerous innovations for all user areas will be on display at interpack 2023: food, beverages, confectionery and bakery products, pharmaceuticals, cosmetics, non-food and industrial goods. Because requirements and framework conditions are constantly changing, this edition focuses on digital technologies and sustainable products and processes.

From 4 to 10 May, visitors can therefore expect numerous débuts in the 18 fully booked exhibition halls and fascinating solutions from the world of packaging. From Europe to Asia, from Africa to America to Australia: Exhibitors at interpack 2023 come from all five continents. In total, over 60 countries will be represented, and many will be bringing dedicated solution for the baking sector.

Without any form of packaging, bread, bread rolls, and other baked goods, are usually only available in a bakery. Freshly bought products should however also be promptly consumed. By contrast, industrially produced baked goods cannot do without packaging. Soft croissants or cakes, for example, are very sensitive to pressure, biscuits are often fragile. Robust trays are needed, while other baked goods can be safely packed inside tube bags. But packaging not only protects against mechanical hazards. Certain barrier properties allow packaging to extend shelf life without compromising on high quality. Growing mobility, an increase in single households and increasing consumption outside the home make reusable packaging for use to-go or smaller packaging sizes very attractive. Sustainable packaging materials must meet all these requirements as well, which are increasingly in demand by the market – a real challenge for the producers of baked goods and packaging.

Exhibitors at interpack will be showcasing modern solutions for the industrial packaging of baked goods in Halls 1, 3 and 4. European Baker&Biscuit will be there and we are looking forward to meeting you on the show floor! •

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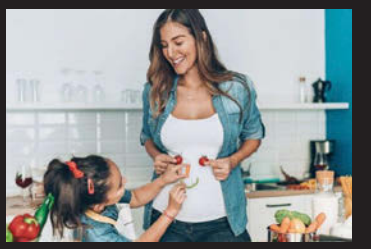
Dr. Oetker To Acquire Frozen Pizza Maker Galileo

Dr. Oetker will acquire Galileo Lebensmittel, a Trierweiler-based company specializing in frozen pizza snacks. The two companies signed an agreement on March 23, but the transaction is subject to regulatory approval.
With the planned acquisition, Dr. Oetker intends to expand its presence in the frozen pizza snacks market segment. Founded in 1993, the family-run Galileo Lebensmittel has in-depth know-how in this area and is represented with its products in several European countries. With the takeover of 100 percent of the company shares, Dr. Oetker is acquiring the production facility in Trierweiler and taking over all 200 employees of Galileo Lebensmittel KG. The parties have agreed not to disclose the purchase price. Galileo Lebensmittel KG will continue to be run operationally as an independent company by the existing management.

Lesaffre Works With Research Lab To Improve Fermentation

Lesaffre, a key global player in fermentation, and the Laboratory of Biology and Modelling of the Cell have renewed their partnership, which started in 2021. In this new collaboration, Lesaffre could benefit from new high-flow methods and a softwares allowing to define transcriptomic and genomic profiles of thousands of yeast strains, by relying on an advanced equipment – biofoundry – installed in the new Lesaffre Campus in Marcq-en-Baroeul.
The project named “baker yeast genomic analysis” consists in sharing Lesaffre and LBMC expertise in the genomic analysis field in order to develop an analysis method and a software tool necessary in yeast strains transcriptomic analysis and use it within Lesaffre R,D&I works.
In recent years, genomic scope has been completely transformed by the arrival of new sequencing techniques, commonly named NGS (for Next Generation Sequencing). The large data which is produced by NGS and its analysis requires dedicated informatic tools (bioinformatics). Generic tools are made available by the scientific community, but their usage requires a specific software implementation for each application and equipment.

PharmaBiome And Roquette Work To Develop Tailored Fibers



PharmaBiome and Roquette announced today an agreement to use PharmaBiome’s proprietary technology, the NicheMap. This method allows the screening and the formulation of innovative prebiotic solutions using novel soluble fibers developed by Roquette.
Today, fiber intake is largely below recommendation in many countries, with a foreseeable increase in different health issues such as obesity, cardiovascular diseases, diabetes and intestinal diseases in the coming years, said the two companies in a joint release.
NicheMap has demonstrated strong capabilities to predict the effect of prebiotic fibers on both microbial composition and activity in the human gut.
Roquette aims at helping people to close the fiber gap with fiber ingredients easy to use for complementing consumers’ daily diets through fiber enrichment and supplementation.
Roquette, a global leader in plant-based ingredients, has been working with PharmaBiome since July 2017. The group has previously used and approved the said technology on existing and prototyped fiber ingredients.

Kerry Opens Southern Europe Innovation Center In Barcelona

Kerry has officially opened its Southern Europe Innovation Centre in Barcelona, Spain, as part of the ongoing expansion of its presence in the region serving Spain, Portugal, Italy and France.
The new facility will combine Kerry’s current office in Barcelona with a new customer suite and applications labs and will operate in conjunction with technology centers in Vigo and Granada, as well as the global taste centers of excellence in Grasse in France and Mozzo in Italy. It will allow Kerry to work more closely with customers in the South European region to develop solutions across food and beverage categories, including retail manufacturing and foodservice.
The new Southern Europe Innovation Centre in Barcelona was completed with the support of ACCIÓ, including funding under the framework of the aid programme for high-impact business investments in Catalonia.

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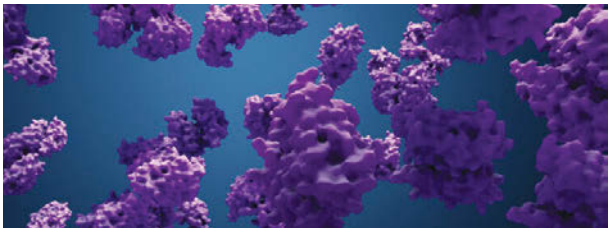
AAK Invests In Development Of Plant-Based Foods

AAK, the specialist producer of plant-based oil and fat ingredients, has created a state-of-the-art Innovation Center of Excellence to develop plant-based foods close to its Zaandijk production facilities in the Netherlands.
"We have renovated a riverside warehouse to create a purpose-built facility where we can work with our customers, co-develop new ideas and test them in our pilot plants and culinary kitchen, obtaining results and feedback quickly to support product development and iterative prototyping," said Niall Sands, AAK's President Commercial Development and Innovation. "We believe successive incremental product improvements are key to the long-term success of the plant-based food categories. Work on a wide range of insight-driven projects and technologies is already underway in the center, relating to the taste, nutrition, sustainability, and functionality of plant-based foods and ingredients. We are excited by their potential to make a positive difference to our customers' products and processes as we strive to make better things happen from plant to brand."

GEA Opened New Technology Center In Germany

Tate & Lyle announced that it completed the sale of a controlling stake in a new company and its subsidiaries (previously referred to as NewCo, now called "Primient"), comprising its Primary Products business in North America and Latin America and its interests in the Almidones Mexicanos S.A de C.V and DuPont Tate & Lyle Bio-Products Company, LLC joint ventures, to KPS Capital Partners, LP ("KPS"). KPS now holds a 50.1% interest in Primient and has Board and operational control. Tate & Lyle now holds a 49.9% interest in Primient.
Nick Hampton, CEO of Tate & Lyle, commented: "The completion of this transaction represents the start of a new and exciting chapter for our business. Tate & Lyle is now transformed into a purpose-led, growth-focused global food and beverage solutions business, serving faster growing specialty markets. Over the last four years we have created a strong platform for growth. As a more focused business we will enhance the way we serve our customers and accelerate growth through increased investment in R&D, innovation and solutions development. The trend towards healthier food is accelerating, and with our leading positions in sweetening, mouthfeel and fortification, we are well-positioned to meet growing consumer demand for food and drink that is lower in sugar, calories and fat, and with added fibre."

Novozymes Invests In UV Pasteurisation Technology From Lyras



Biotech group Novozymes, a global market leader in industrial enzymes, has invested in a new, energy-saving UV filtration system from Lyras, a Danish company specializing in sustainable pasteurization technology. Following a rigorous testing period, the group has purchased its first UV-based Raslysation system to replace its existing, labor-intensive filtration processes. Novozymes' investment in Lyras' Raslysation technology will help the group reduce energy consumption, bolstering its sustainable strategies, while providing a safe working environment for employees and improving control of unwanted microbial activity during the filtration process.
Raslyzation is a non-thermal treatment that uses UV light at a specific wavelength to pasteurize opaque liquid food and non-food products, including dairy, juice and enzymes. The liquid is directed past the light source in a controlled movement so that everything is illuminated to inactivate bacteria and other microorganisms.

Arzeda Debuts Enzyme To Unlock The Potential Of Stevia Sweeteners

Arzeda, a protein design company, has successfully developed and scaled its ProSweet Enzymes that will allow sweetener companies to efficiently – and cost effectively – make Reb D and Reb M from stevia leaf extract.
The development and scale of these high-performance enzymes broadens the company's portfolio of enzymatic stevia solutions – and builds on Arzeda's work in 2022 and 2023 to efficiently scale and validate enzyme performance for the commercial extraction of Reb D and Reb M glycosides.
Arzeda's expanded portfolio of Reb D and Reb M ProSweet Enzymes comes on the heels of the company's development agreement with AAK, further expanding Arzeda's footprint within the food industry. The introduction of the new enzymes also comes at a time of increased industry demand and product innovation – as global stevia sales are expected to grow by nearly 10% over the next six years due to continued consumer demand for better-for-you alternatives to sugar.

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YOUR SUCESS AT HEART

Middleby Expands Operations In Europe

Middleby Europe has announced the opening of its new Innovation Kitchen located in Madrid, Spain. The project, which was in development for a year, was unveiled in a grand opening ceremony held at the beginning of March. The company has described the facility as a "truly unique space" where technology and innovation meet passion.

The Middleby Innovation Kitchen is equipped with the latest kitchen technology and boasts a modern design, making it an ideal venue for culinary events and cooking demonstrations. The kitchen will also serve as a hub for innovation and product development, allowing the company's European team to showcase its latest technology and culinary solutions.

In addition to the new Innovation Kitchen, Middleby Europe has also expanded its operations into the German-speaking market with the establishment of Middleby Germany. The subsidiary will be managed by Jacqueline Bauch, who will be responsible for expanding sales in Germany, Austria, and Switzerland.

Martin Braun-Gruppe To Invest In Innovative Food Startups

Martin Braun-Gruppe, the food division of the internationally active group Geschwister Oetker Beteiligungen KG, decided to start investing in startups in the areas of "Alternative Ingredients", "Better-for-You", "Bakery Applications" and "Services and New Ideas" or to promote joint product development.

The decision comes with the establishment of its new business model in the form of Martin's Bakehouse, a corporate venture capital company bringing together start-ups and innovators in the industry and drive new products and services. Martin Braun-Gruppe receives support in its ambitions through a partnership with StartLife, Europe's most experienced start-up accelerator in the agricultural and food technology segment. Particular opportunities are seen in the field of fermentation: Fermentation has been an essential part of food production for centuries. Advances in technology are opening up new possibilities for food production.

ADM Launches Knwble Grwn, A Plant-Based, Sustainable Ingredients Brand

Food ingredient company ADM has launched a new brand, Knwble Grwn, which offers consumers plant-based food ingredients that are sustainably sourced and produced using regenerative agricultural practices.

The brand focuses on engaging with small or underrepresented farmers, such as Indigenous Americans, veterans, and other minorities, to grow crops using regenerative ag practices. These farmers receive financial incentives for being early adopters of these practices, and the brand provides an alternative crop to grow in their rotation to further enhance biodiversity and soil health. Regenerative practices include minimizing soil disturbance, improving soil structure and quality, continuously covering bare soil, maximizing biodiversity and responsibly managing inputs, including nutrients and pesticides. Knwble Grwn products include flaxseed, hemp seed, flax oil, hemp oil, and quinoa, and can be found on Amazon.com and Walmart.com.

Production Of Bioplastics Estimated To Triple By 2027

Global bioplastic production will triple in the next five years and reach 6.3 million tonnes, compared to 2.2 million tonnes in 2022, according to representatives from European Bioplastics speaking at the AIMPLAS International Seminar on Biopolymers and Sustainable Composites.

Worldwide production of bioplastics is currently 2.2 million tonnes. This figure is expected to triple and reach 6.3 million tonnes by 2027. The applications expected to show the most growth are related to agriculture, which now accounts for 4% of total production, but is expected to increase to 5%.

European Commission representative Theodora Nikolakopoulou highlighted Europe's concern for protecting farmland and said that from July 2026 it will be mandatory for all controlled-action fertilizers marketed in Europe to be biodegradable. Elena Domínguez, an agricultural researcher at AIMPLAS and technical coordinator of the seminar, explained how AIMPLAS is advising the European Commission about the criteria that these kinds of applications should meet in order to guarantee their status as biodegradable products.

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The Flagship of the Global Processing and Packaging Industry **Returns to Düsseldorf**

This year interpack will again offer the packaging and related process industry the biggest international overview of the market, thereby more than earning its motto “simply unique.” To help visitors not get lost in 18 trade fair halls, the halls feature a custom concept based on the core target groups food, beverages, confectionery and baked goods, pharmaceutical products, cosmetics, non-food and industrial goods. Around 2,700 companies from around the world will meet in Düsseldorf from 4 -10 May, 2023, to present cutting edge technologies and packaging trends from along the entire value chain, demonstrate chances for growth and respond to the challenges of the industry.

By Tudor Vintiloiu

In an exclusive interview for European Baker & Biscuit, Thomas Dohse, interpack Director, shared with us a few insights on the upcoming trade fair and the challenges it had to overcome as well as the long-awaited opportunities it brings for the industry.

Can you tell us what your expectations are for this edition of interpack?

We are obviously excited to welcome the world of processing and packaging back to Düsseldorf in May. The last few years have been challenging to say the least but here we are, in the final stages of preparation for interpack 2023. I'm extremely proud of the team here in Düsseldorf and everything they have been able to accomplish, a fully booked show and sizable waiting list. As each day goes by, the excitement grows and we are expecting a great interpack.

What are some of the novelties this edition brings for visitors?

With so many international exhibitors, you can bet there will be a lot to see. The processing and packaging industry will show us everything it has to offer, in addition to discussing current trends and setting the course for the future. The range of products and services is therefore as impressive as ever. A new aspect since the last interpack is the addition of several digital services and offers, which are taking on a much greater role. We see ourselves as an active platform 365 days a year. A key focus here is on networking and how to better bring exhibitors and visitors together. There are also new digital tools to aid in improving your overall trade fair experience. Maximizing your time through better and more efficient planning.

Tell us a bit about your registered exhibitors. What is the return rate, what sectors are best represented and what can newcomers expect?

After the cancellation of interpack 2020, we were obviously disappointed but we still had a great deal of support from the industry. The overwhelming majority of exhibitors from 2020 retained their spaces for 2023. Also, this year we can finally implement our new hall concept, which sets clear focal points and helps visitors to more efficiently plan their time. The confectionery and bakery sectors are concentrated in Halls 1, 3 and 4. Packaging materials and packaging means are also an important contact point and can be found as a cross-sectional area for all target groups in Halls 7 and 7a, 8a, 9 and 10.

The COVID restrictions have disrupted interpack's calendar, having the 2021 edition cancelled. How did that affect this edition, and what are the ramifications of that decision both for you as organizers, and for exhibitors?

Six years without an interpack is a long time. After the initial postponement in 2020, we tried to fit the event into the 2021 calendar but as we now know, the uncertainties were simply too great at the time to meet the demands of a leading trade fair. Everyone agreed on that. The industry though has continued to show its support for interpack and the 2,700 exhibitors plus the waiting list are proof of that. The processing and packaging industries are ready to come together and this year's edition might just be the most anticipated interpack yet.

Can you give us some details regarding the program?

We focus on highly relevant trend and future-oriented topics for our target groups. For example, our spotlight talks & trends lecture forum will feature presentations, case studies and interactive sessions with top experts and industry pioneers. We have the theme of co-packing and packaging innovations with several award ceremonies at the show. And we are looking forward to our first TV studio with live reports and talk shows from interpack. And we can't forget SAVE FOOD - this initiative also continues because it is really close to our hearts. The processing and packaging industries are important players in the fight against global food losses.

The trade show's motto is "simply unique". What are the features that set this event apart from other industry trade shows?

interpack is the flagship of the global processing and packaging industry. It is unique in terms of its dimension, diversity, innovative strength and internationality. Nowhere else do you meet the entire industry in one place, and nowhere else do you have this density of innovations and premieres. "Simply unique" is our self-image, claim and promise to our exhibitors, visitors and partners. We are delighted that we are once again "fully booked". This year's interpack has an extremely high status – There has been perhaps never more a need to meet. Since the last interpack in 2017, the market, political and social conditions, and above all technological progress have changed drastically.

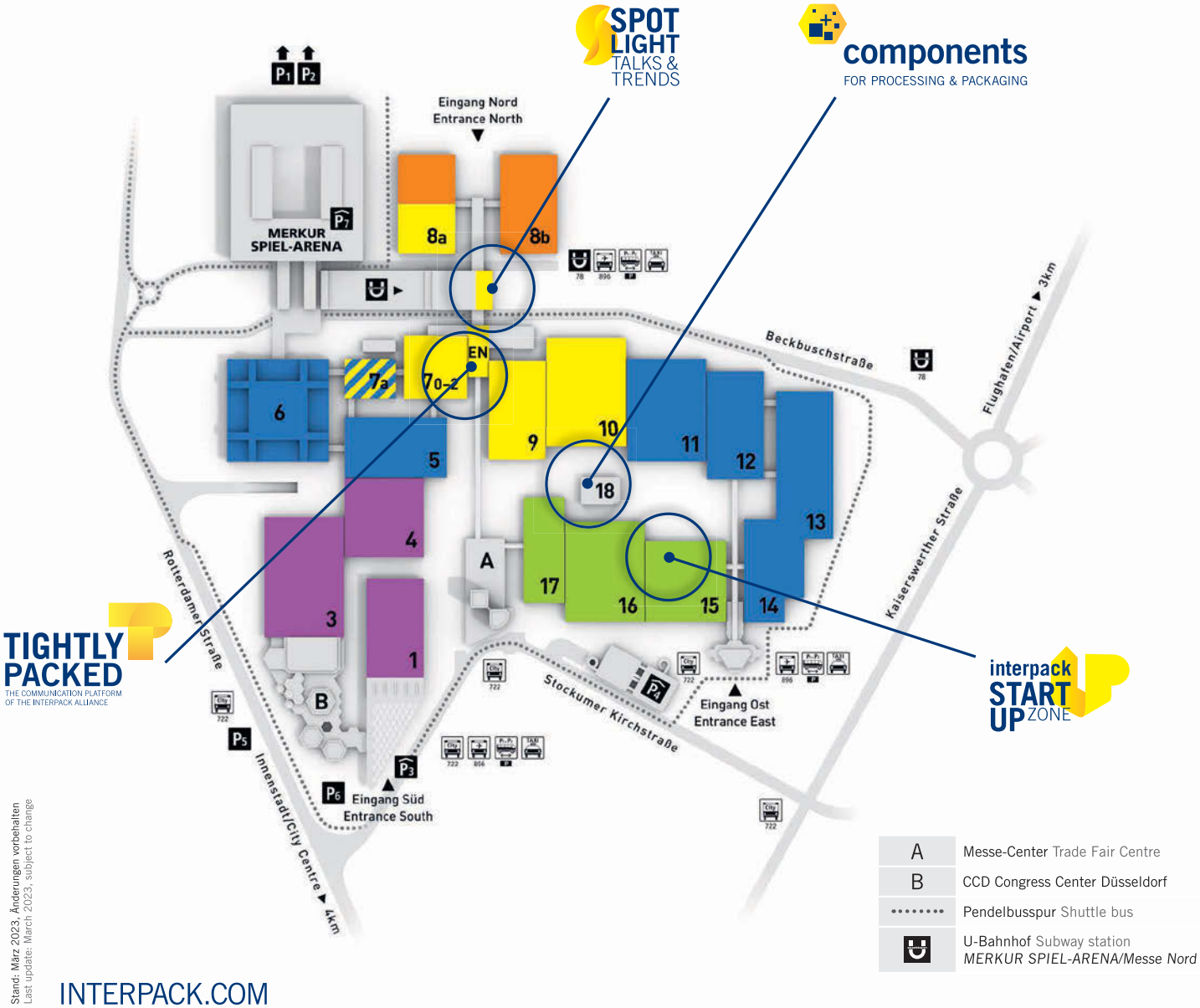
Anything else for everyone to look forward to?

We will see a lot of new things, for example production with more efficient machines and higher levels of automation, resource-saving processes, optimized supply chains, new digital services, material innovations and countless more. We are excited about all the announced premieres and helping the industry move into the future. •

interpack
PROCESSING & PACKAGING

interpack 2023 **Gets**

The unique flair of the Düsseldorf exhibition halls will once again turn into a platform for the world's packaging industry during interpack 2023: 18 halls, targeted exhibition areas, new specialty shows and forums demonstrate the industry's innovative prowess.



Stand: März 2023, Änderungen vorbehalten
Last update: March 2023, subject to change

INTERPACK.COM

Under Way

Visitors interested in the food industry will find everything in one area at interpack 2023. The same is true for visitors from the beverages, confectionery, bakery, pharma, cosmetics, non-food and industrial goods industries. This refined layout was made possible by a new concept for the exhibition halls, which will be implemented for the first time in 2023. Exhibitors at the accompanying suppliers' fair "components" will also be hosted in their own hall. Orientation for visitors is thus optimized, which allows visits to be planned more effectively.

Confectionery and baked goods

Visitors will find processes and machines for packaging confectionery and baked goods especially in halls 1, 3 and 4 of interpack. As in many other sectors, concerning the packaging of confectionery, baked goods, snacks and cereals, much has changed over the recent years. Mechanical engineering companies, for example, are adapting their portfolio to include packaging made from mono material or novel materials. Digital technology is another focus – as it is for the entire industry.

Food, beverages, non-food and industrial goods

The food sector is among the most favored target groups of visitors to interpack, and this shows in the breadth of their presentation. The global demand for packaged foods is increasing. Beverages and non-food products are presented together with the food sector in halls 5 and 6, as well as in 11 and 14. Around 20 percent of visitors to interpack are especially interested in solutions for industrial goods. These, too, are to be found in the same halls.

Pharmaceuticals and cosmetics

In light of global demographic changes, the industry's development opportunities are excellent. Increasing requirements within drug development result in a parallel increase in those within systems and machine technology concerning packaging and bottling of medicines. The pharmaceutical companies need universal solutions, and these are found in halls 15 to 17 at interpack, where the focus is on presenting processes and machines for packaging pharmaceuticals and cosmetics.

Packaging materials and packaging

Halls 7 and 7a, 8a, 9 and 10 of interpack are of the highest importance for the sector. This is where visitors can view at least a third of all exhibitors with all their materials and their finished packaging products. Here is where all packaging materials are represented and there is an especially high number of innovations in the field of sustainability and conservation of resources.

Labeling, marking, finishing

Inform, decorate, customize – packaging carries information. How to implement this for different products and requirements, is presented by the exhibitors in halls 8a and 8b. Here, there are machines for labeling and marking technology.

Components

"Every part counts" is the motto of the components trade fair, which takes place parallel to interpack as its own event. This is where you find companies offering technology for drives, control units and sensors, products for industrial imaging, handling technology, industrial software and communication as well as comprehensive automation systems for the packaging industry.

AMF Bakery Systems

Hall 1 A69

Industry leader in bakery machines and automation presents itself at Interpack, Hall 1 A69.
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www.ashworth.com

Handtmann Food Processing

Handtmann constitutes a leading manufacturer of process technology for food processing and offers modular, integrative line solutions from product preparation all the way through to the packaging solution. The range of products is flanked by process-supporting digital solutions developed in-house. At the same time, investments are being made in sustainable food innovation concepts, which also includes the state-of-the-art technology and customer centres at the company headquarters. Handtmann employs around 1,500 worldwide. The company is represented in over 100 countries around the world with numerous subsidiaries and sales and service partners and also operates a comprehensive network of strategic partnerships.

www.handtmann.com/food

IMA Ilapak
flexible packaging machines

Hall 17 – Stand A20

IMA Ilapak, with its vast range of flexible packaging solutions, can satisfy every Form, Fill, and seal packaging requirement of food, pharma, medical devices, and wet wipe industries.
Besides vertical baggers and flow wrappers, IMA Ilapak portfolio includes systems for modified atmosphere applications, product handling solutions, counting, and weighing systems and complete, fully automated lines.
IMA Ilapak believes that being well focused on market needs is key to customer satisfaction. This focus describes the Industry oriented approach to its customers, technology and developments — it does not produce generic machines, rather it engineers the products with your specific needs in mind right from the start.

www.ilapak.com

Intralox

Intralox is the global conveyance solutions leader, specializing in innovative solutions, including Modular Plastic Conveyor Belting, hygienic and food safe solutions, and industry-changing Spiral technologies and Activated Roller Belt™ (ARB™) packaging solutions. For more than 30 years, we've been helping food and drink processors convey their products more efficiently and more profitably. The combination of our service infrastructure, industry expertise, innovative technology, and performance guarantees allows our customers to achieve extraordinary results. With extensive knowledge and experience of food and drink processing applications, Intralox supplies beneficial solutions for numerous food and drink industries, including Bakery, Meat, poultry and seafood; Fruit and vegetable; Beverage and brewery; Snack; Tortilla; Dairy; Confectionery; Cookies and Crackers

www.www.intralox.com

Reading Bakery Systems
Successful Snacks Start Here

Hall 1/B70

Reading Bakery Systems is a world leading manufacturer of bakery and snack equipment, providing innovative process solutions and support for the food industry. The Reading Bakery Systems brands - Thomas L. Green, Reading Pretzel, Exact Mixing and Reading Thermal - offer production lines capable of producing a wide range of snack products, continuous mixing solutions and oven profiling services. Our experienced people apply decades of manufacturing and food engineering expertise to help customers create successful baked snack products.

www.readingbakery.com

TECNOPOOL S.p.A.

Hall 4/C26

We design, build and install machinery for heat treatment and processing of food products, from -40°C to +300°C, covering product make-up, proofing, pasteurizing, baking, cooling, deep-freezing as well as overall handling.

Since the very beginning of our long-standing experience we have always provided our customers with a comprehensive set of solutions and services, acting as a one stop shop that has allowed us meeting all customers specific needs. Guaranteeing cutting edge technology, superior design skills and flexibility has always been our strength and instrumental to our success in the marketplace, allowing us to delivery "Made in Italy" solutions to a worldwide customer base.

https://tecnopool.it/en

WALTERWERK KIEL

Hall 3 /BOOTH E73

WALTERWERK KIEL is specialised in the production of wafer baking machines for sweets wafers, Monaka wafers and snacks. Customers in more than 80 countries produce wafer products on JUPITER, MARS and METEOR machines made by WALTER.
Sustainability has become a central aspect in the design and construction of wafer baking machines. Therefore, WALTER will take the opportunity to present its latest development at the interpack exhibition: the electrically heated oven JUPITER ELEKTRA.
The e-oven will be exhibited at the WALTER booth E73 in hall3. Take a closer look and get detailed information from the WALTER staff.

www.walterwerk.com

Efficient Conveyor Belts **Lead to Overall Performance**

Conveyor belts have become an indispensable part of the baking industry, serving a crucial role in the transportation of goods from one processing stage to another. These belts are used in various stages of the baking process, including mixing, forming, baking, cooling, and packaging. They enable bakeries to efficiently and quickly transport large quantities of dough, bread, and other goods between production stages, reducing labor costs and increasing productivity.

By Tudor Vintiloiu

Conveyor belts are available in a wide range of materials, designs, and sizes to suit the specific needs of each bakery. Some of the common types of conveyor belts used in the baking industry include flat wire belts, spiral belts, metal mesh belts, and plastic modular belts. In recent years, there has been a growing demand for conveyor belts made from food-grade materials that meet strict safety and hygiene standards. This has led to the development of new materials and designs, such as belts with antimicrobial coatings and belts that are easy to clean and maintain. The continued evolution of conveyor belt technology has helped the baking industry improve product quality, increase efficiency, and reduce production costs.

CÉMOI CASE STUDY

With origins dating back more than 200 years, Cémoi is France's no. 1 producer of chocolate and one of the leading chocolatiers in Europe. Trough conveyors are a critical application in the Perpignan plant. Cémoi relies on both horizontal and incline trough conveyors to transport cocoa powder from the grinding area to the conche, where chocolate and sugar are mixed. The flat belts used in this area were causing many issues. They mistracked often, which meant maintenance personnel had to adjust them frequently. The mistracking lead to belt edge damage, shortening belt life (12–18 months on average). The belts themselves were also very difficult and time consuming to clean. Cémoi wanted a solution that would increase belt life, eliminate mistracking, and reduce maintenance and cleaning time, with an emphasis on food safety. Plant officials also hoped the installation would be easy to coordinate and would require, at best, minimal involvement from on-site personnel. With these objectives in mind, Cémoi chose Intralox® ThermoDrive Series 8026 belting. The ThermoDrive belt's solid thermoplastic structure ensures zero bacterial harborage, facilitates effective cleaning, and enables

Photo: Intralox

achievement of zero-level microorganism counts, all while reducing cleaning time (by up to 75%) and cleaning costs. Lightweight and easy to install, ThermoDrive belting eliminates tensioning, tracking, and cleanability issues that often arise with traditional flat belts.

ThermoDrive belts can also last up to five times longer than traditional flat belts, depending on the application.

Intralox's solution has delivered on all of its promises. Cémoi no longer experiences mistracking issues. Belt life has been extended from an average of 12-18 months to an expected minimum of at least five years. The system's easy-to-clean hygienic design has reduced cleaning time by over 12 hours per session—a total of 120+ hours saved per year. Cémoi plans to eventually retrofit all of its grinder-to-conche troughing conveyors with ThermoDrive belting. Plant engineer Patrick Alberny, who spearheaded the project for Cémoi, said: "We were having recurring issues that included belt tensioning, mistracking, and clogging of the return rollers. This motivated us to go ahead with a new technology: ThermoDrive from Intralox. [...] The new belt is a lot simpler to clean, since it's so easy to move it on and off the conveyor. Installation of the ThermoDrive belt has allowed us to improve our product quality while reducing our operating costs."

WHEN FLOORSPACE IS AN ISSUE

Dorner Europe's new AquaGard LP conveyor is designed to fit in tight spaces, making it the ideal sanitary conveyor for dry or wipedown applications within the packaging, pharmaceutical, confectionary, bakery and other packaged food industries.

The AquaGard LP (low profile) is the latest reiteration in the AquaGard sanitary conveyor platform. This updated version features a low-profile stainless steel frame with compact 1.25" diameter end-roller pulleys, enabling the conveyor to fit in tight spaces in and around other machinery, as well as safely operate in close proximity to

employees. The pulleys also aide in the efficient transfer of small- to medium-sized products on and off the conveyor.
The AquaGard LP's standard tip-up tail design provides operators complete, easy access to the frame and under the belt for cleaning. Dorner's reliable V-guided belting ensures precise belt and product tracking along with the enclosed tensioning system keeps the belt to the proper tension and provides smooth snag-free cleaning.
Engineered to meet high sanitary standards, the AquaGard LP has earned the coveted Baking Industry Sanitary Standards Committee (BISSC) certification, which is recognized as the definitive sanitation and safety standards for equipment used in the baking industry.

A CLOSER LOOK AT FOOD SAFETY

While technical innovations are crucial to the success of any potato processing plant, food safety is also a major concern. One of the most critical components of any conveying system is the conveyor belt itself, which can come into contact with the product and potentially transfer contaminants. To mitigate this risk, it is essential to choose a conveyor belt that is specifically designed for food processing, with materials that are easy to clean and sanitize.
The complexities of dealing with food safety and hygiene make choosing the right conveyor belt for food processing applications a crucial task. Anna Marcol, marketing communications manager at conveyor and power transmission belt specialist Habasit, explores the findings of a recent webinar that discussed how hygiene-rated equipment and the right choice of belt type and material are crucial in achieving food safety.
While food plant managers do a good job of keeping their facilities clean, food debris and microbes can still find their way into the smallest of dead spots. Bacteria can harbour on and in conveyor frames, under equipment, under the belt, or even in the small gaps of a modular belts. What's more, they can survive even the most rigorous cleaning cycles, leading to excessive use of detergent, water, time, and energy.
When thinking about food safety and hygiene, food processing operators should consider two key areas. They must think about hygiene-rated equipment and selecting the right food-contact elements, including belt type and material.

HYGIENIC APPROACH

In open conveyor systems, food debris can contaminate surfaces and get into crevices and internal support structures over time. While effective cleaning and sanitation plans reduce contamination, equipment and components designed specifically for hygiene can take less time, water and cleaning agents to clean and sanitise. Therefore, equipment and components should be appropriately hygiene certified for food. This includes meeting minimum hygiene standards in accordance with industry guidelines such as 3-A, NSF or EHEDG, as well as being compliant with the food contact regulations by the FDA or EU 1935/2004, and other national regulations. Hygiene certified components consider, among other factors, the cleanability of surfaces, preventing ingress and the growth of microbes in dead spaces, self-draining surfaces or on levelling-feet or castors and much more.

BELTING

According to experts, food plant managers should consider three areas when using open conveyor systems: choosing the right conveyor design, choosing the right food contact material to match the process conditions and selecting belts that support ease of cleaning.
A conveyor design supporting sanitary needs is one that provides easy access to belting from all sides, allowing operators to inspect, clean, sanitize and validate effectively. When selecting the right food contact material, it's important food processors choose a belt that doesn't change its mechanical properties or wear quickly when regularly exposed to harsh, chemical-based cleaning cycles, at elevated temperatures and with extended contact times.
To support engineers in identifying the chemical resistance of various belt types and materials, Habasit created a free online tool to help users decide the best belt for them. Whatever the food processing application, choosing the right conveyor belt, and ensuring equipment is designed with hygiene in mind is pivotal. This will help food processors comply with industry standards and ensure the industry can continue to reduce the dangers of contamination while making it easier for plant managers to run their facility. •

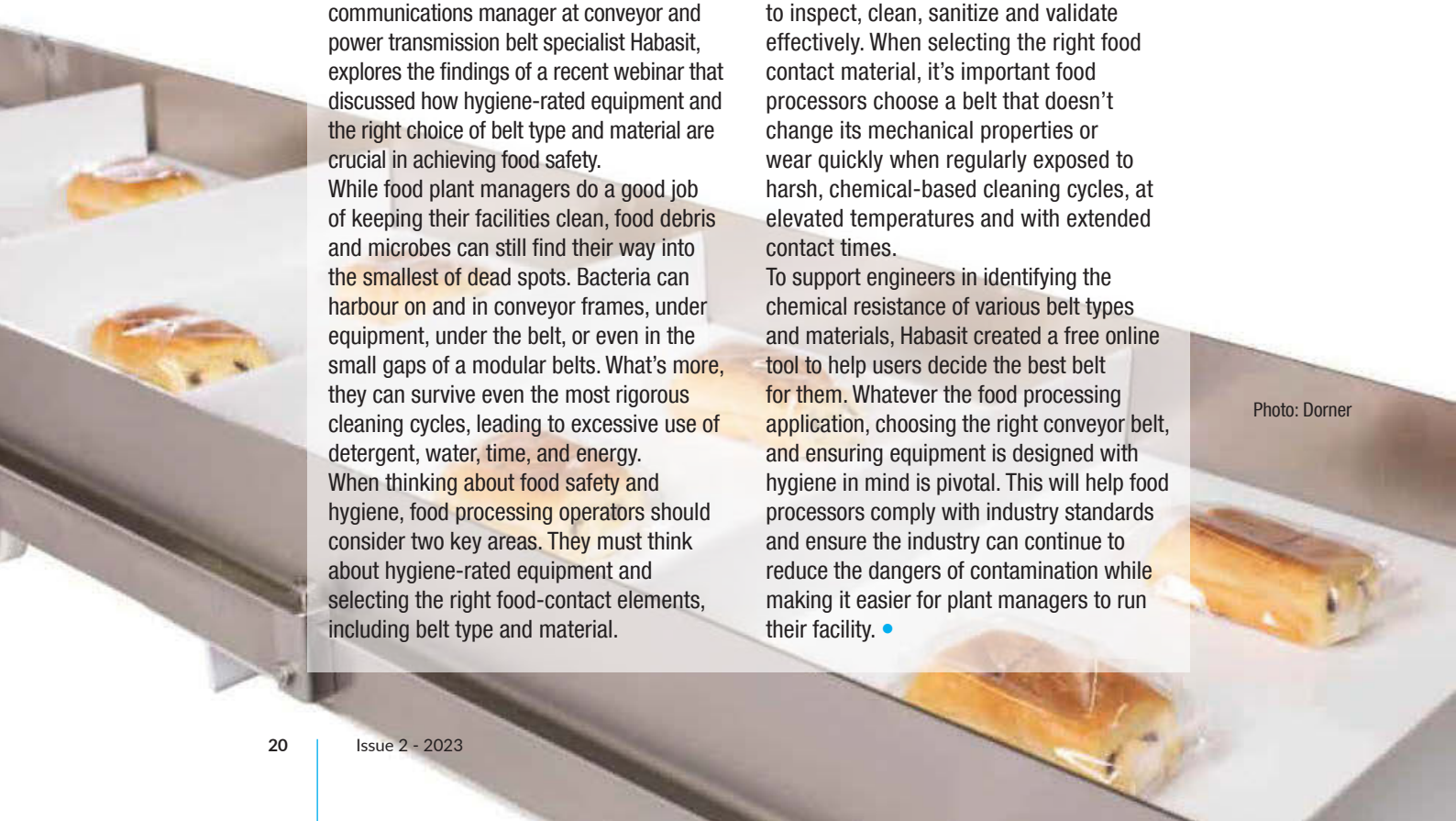

Photo: Dorner

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> RELIABLY INVENTIVE

Raising the Bar: Inspection and Monitoring Solutions for Perfectly Baked Goods

In the world of baking, ensuring product quality and consistency is critical to success. To achieve this, manufacturers rely on inspection and monitoring solutions to detect and address issues before they become larger problems. KPM Analytics is a leading provider of such solutions, offering a range of advanced technologies that help baking companies optimize their production processes and maintain the highest levels of product quality. In this interview, we speak with Andrea Bertuolo, KPM Inspection Managing Director, KPM Analytics about their portfolio of solutions for the baking industry and the latest trends and innovations in the field.

By Tudor Vintiloiu

Please describe some of the inspection/ monitoring solutions in your portfolio and their uses for the baking industry.

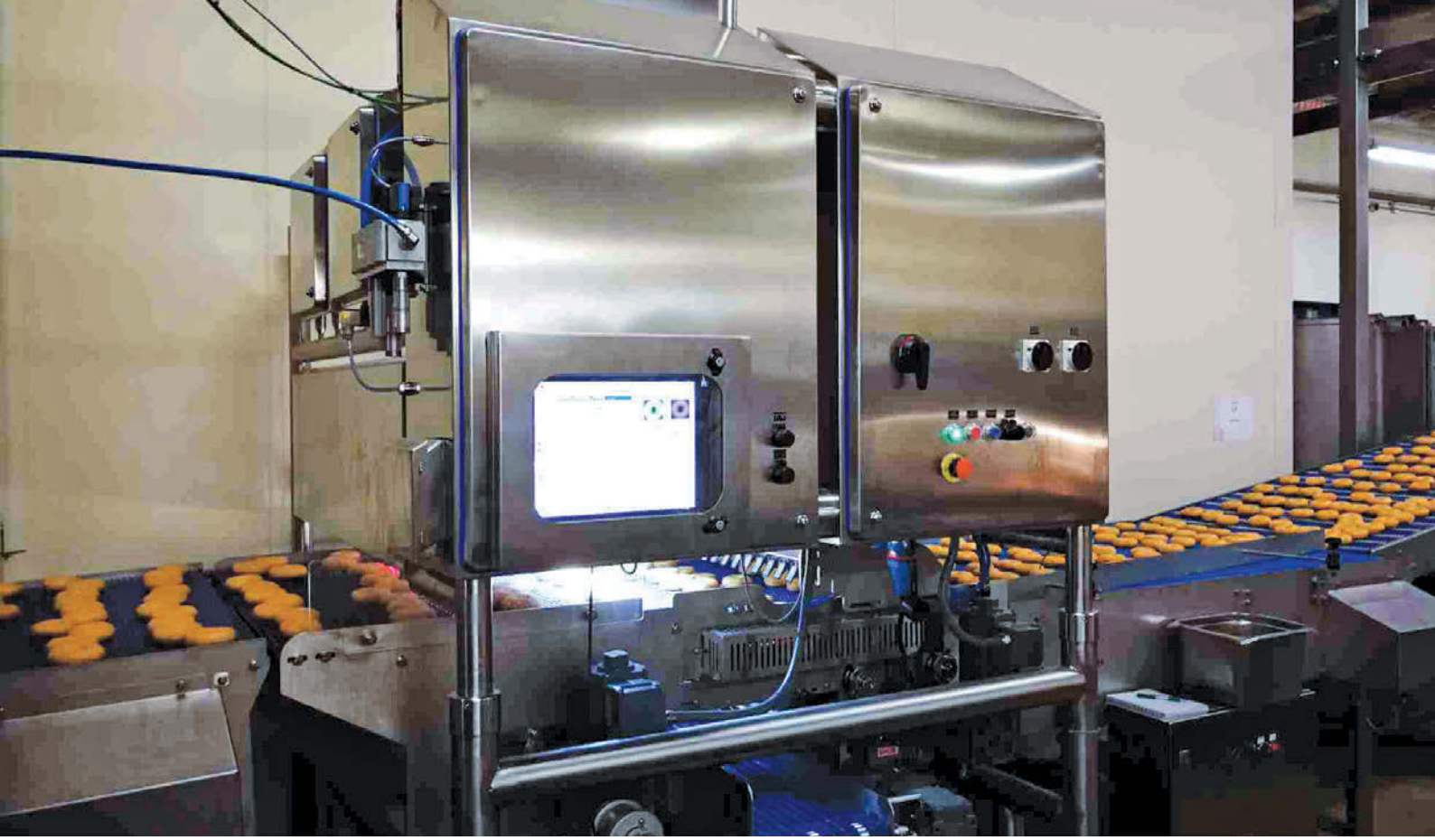
KPM Analytics leverages its EyePro System and Sightline product brands to provide Vision Inspection Solutions specifically tailored to the food manufacturing industry. With decades of experience in designing and manufacturing vision technologies, KPM partners with customers to supply vision systems that best fit their goals and operations.

We began serving the baking industry in the early 2000s when Vision Technology had limited capabilities due to the type of sensors and the limited processing power of computers. Nowadays, KPM provides a wide range of solutions for both Process Control and Final Product Inspection.

Final Product Inspection solutions are typically used to check the conformity of the finished products to defined quality standards such as shape, size, bake color, and topping. These vision inspection machines are typically integrated into the manufacturing line and installed before the automatic packaging systems. They integrate one or more vision modules: 1) a conveying system to transport and inspect the products; 2) a product-specific rejection mechanism to physically remove the non-conforming products from the line.

Vision Process Control Solutions are typically installed at key production process stages. Data visualization and real-time feedback connected with process machinery can automatically act to keep the process performance on target. This vision solution is becoming part of a “Smart Manufacturing Line.”

One example of this type of application is after a tortilla press. The system checks the product diameter and automatically adjusts the pressure of the press. Another example is a system positioned at the oven exit to assess tortilla color after baking and automatically



adjust the oven settings if necessary.
We see more customers adopting a multi-vision system approach, where vision technology is used in multiple locations on the same production line. Vision Process Control Systems monitor the forming, proofing, and baking processes.
In contrast, Final Product Inspection Systems check the finished products before arriving at the automated packaging system.
All of these systems collect data in real time and make them available to the key players through the integration with SCADA supervisor and MES systems. Dashboard displays are installed across the plant and stored on Database servers for ad-hoc reporting and statistical analysis.

How can vision inspection equipment help boost productivity and reduce costs and product waste?

The information provided by Vision Systems represents the key to understanding what is happening on the line. These technologies make it possible to inspect products for key visual parameters in real-time, either directly on the HMI (typically a touchscreen display) and/or on a Dashboard. Applications also exist to automatically warn or alert line operators and supervisors to take action if the process drifts out of control. The statistical analysis of the data acquired by the systems and stored on database servers aids operators in identifying the root causes of process inefficiencies.

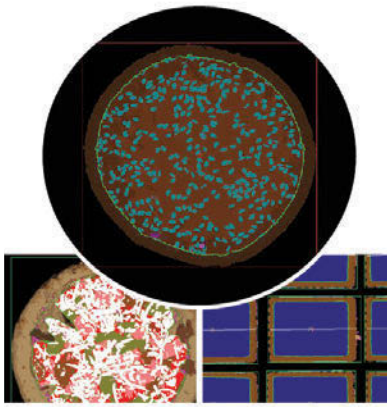
Using multiple Vision Process Control Systems makes it possible to monitor different production process phases in real-time and, if necessary, react to fix issues causing non-compliant finished products.
For example, a Vision Process Control System installed at the proofer exit and used to monitor the product's height variation when they come out from the proofer can optimize the monitoring of the yeast rise effect. This will increase the product height consistency and minimize the amount of product waste due to height compliance.
The same can be done with vision-based bake color monitoring at the oven exit.

What are the differences between equipment designed to detect foreign bodies in food, and those designed to check quality and compliance?

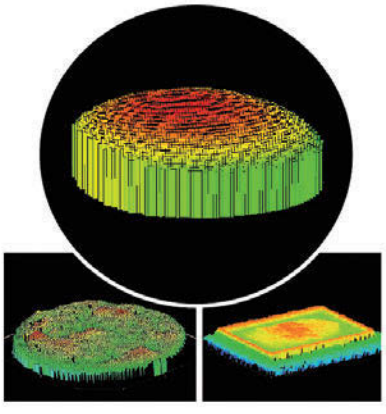
Nowadays, the division between these types of technologies is less visible, and we see a continuous increase in the demand for integrating foreign bodies' detection and quality/compliance inspection functionalities. KPM Inspection Systems integrate the latest developments in AI techniques which now permit a significant advancement in detecting anomalies on the acquired images of the inspected products. In many cases, these innovations bring the capability to detect color anomalies or foreign objects on the surfaces of the products in addition to size, color, and other standard measurements in a system.

6.9%
is the estimated CAGR of the machine vision market through 2028

EyePro Q Bake-Bun



TopColorAnalysis



3-DShape

How do bakers verify detection equipment performance, and how often are recalibrations and maintenance necessary?

KPM Inspection Systems integrates a series of calibration and verification tools that can be used by line operators to check and verify the status of the systems and their performances.
The frequency of the verification sequences depends on many factors. First, we must consider that systems are "High Precision Instruments" integrated into a production line that typically runs 24/7 in a harsh environment.
The main requirements to obtain optimal performance are:

- The mechanical frame's robustness and the inspection conveyor used to measure the products. This is key for consistency and reliability over the time of the inspection tasks performed by the system.
- The respect to the periodic sanitation and preventive maintenance procedures suggested by the system manufacturer.
- The level of commitment of the users to the use of the systems.

Very robust and well-maintained systems require only periodic sanitation and verification of performance. This can vary from a daily routine verification for harsh environments to a weekly check for a relatively clean environment.

What role does the IoT (Internet of Things) and smart solutions play in the design of modern inspection equipment? What are the key differences between a connected, continuous monitoring system and an offline traditional system?

Industry 4.0 has opened a vast number of opportunities for the adoption of Vision Inspection Technology in a Smart Factory environment.
While automation technology and IoT enable the acquisition and integration of equipment and their data, only Vision Technology can provide real-time objective data on products as they are produced.
Integrating process equipment data with product data acquired through vision technology is becoming more and more customary. This task is nearly impossible to be achieved with an offline sampling system, which only provides sampling measurements on a limited number of products.
These new demands can only be achieved by integrating 100% online inspection systems with all IoT capabilities related to data exchange and integration with the Smart Factory environment.
Through this integration, our customers can fully understand and control the Process Capabilities and Quality Compliance. Some examples of this are SCADA integrations through OPC-UA or other field-bus standards, ERP integrations, integration with third-party SPC software, and BI and Data Analysis integrations.

How does the design of various inspection solutions take into consideration product diversity?

All KPM Inspection Solutions are tailored to the specific product/s where they are installed. We design our Vision Systems around the critical product requirements:

- How the products are presented at the inspection location. The line layout and product organization on the belt are the key starting points to evaluate the type of solution to offer.
- How the products are measured by the system. All measurements and features are specifically tailored to the products to be inspected. In this way, it is possible to first replicate the same way that the products are measured with other traditional methods and then compare the data of the different measurement methods. Also, some measures are specific only to some products (like the presence and distribution of seeds on a bun, quality of chocolate topping on a cookie, quantity and pattern conformity of pepperoni slices on a pizza, etc.).
- How the products are physically handled by the system. Suppose the inspection system is integrated with an automatic rejection mechanism. In that case, product handling is crucial for the application's success. The physical removal of a defective fresh pizza, bread loaf, hamburger bun, or cookie from a production line typically requires different product handling approaches. For this reason, when required, all KPM Vision Inspection Solutions also integrate a product-specific rejection mechanism. We provide a wide variety of rejection systems, from air nozzles to pneumatic paddles, from bulk rejection to an array of conveyorized gates, and many others.

What further technology innovations do you anticipate in the long run, customized for bakery operations?

The technology evolution will enable new applications both in the process and in the packaging areas.
Vision Technology will be adopted and deeply integrated into process equipment, where these systems will become "the eyes and the brain" of the future manufacturing processes.
New sensors and technologies like SWIR (Short Wave Infra-Red) cameras and Hyperspectral Imaging systems will introduce very soon new possibilities in the in-line product compositional analysis (moisture, fat, protein analysis, and more) and in the advanced "soft density" foreign material detection, where more traditional technologies like X-ray and metal detection cannot succeed. •

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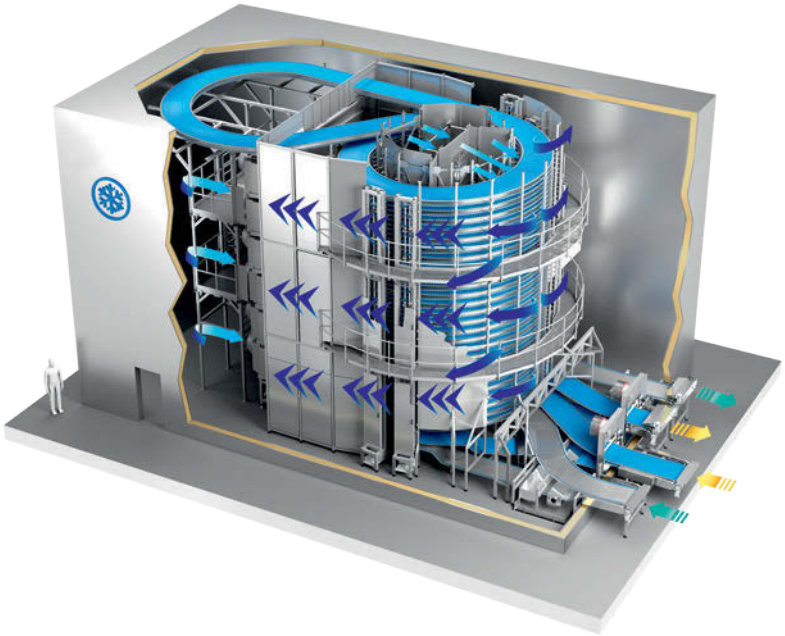

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RBS Invests in Operations **for Europe, Middle East and Africa**

Offering automated, energy-efficient technologies, Reading Bakery Systems (RBS) has been building its global footprint and its reputation as baked snack systems expert for decades. Most recently, RBS created a new operational structure spanning Europe, the Middle East and Africa (EMEA). The goal? To make RBS customer service and support more responsive to local markets across the region.

By Reading Bakery Systems

To make it happen, RBS made key personnel moves and is initiating service, supply chain and manufacturing improvements. Backed by its new EMEA management structure, RBS plans to keep promoting its deep process and product knowledge, and its partnership approach to projects for customers large and small.

Supporting EMEA with Personnel Changes

As part of the EMEA improvements, Joe Pocevicius (photo) has been promoted to the position of RBS Regional Director, EMEA. Since 2016, he had been handling RBS European sales from the Netherlands. In his new role, Joe will be responsible for executing RBS strategic and tactical plans, leading sales, servicing existing customers and managing EMEA staff.

Hassan Harakeh will continue in his role as RBS Sales Manager - Middle East and Africa from Dubai, UAE. Hassan joined RBS in 2016 from a sales role with AMF Bakery Systems.

Rustice Shirima, based in the UK, has joined RBS as an additional EMEA Sales Manager focusing primarily on RBS pet food systems and business development in Sub-Saharan Africa. Rustice brings 25+ years of baking industry experience working for various equipment manufacturers.

Roman Romanov has also joined RBS as Aftermarket Sales & Support Manager for EMEA. Based in the Netherlands, Roman will provide local technical service, support and parts sales throughout Europe. He will also use technical site visits to enquire about customer needs. Romanov has worked with RBS as a Field Support Technician since 2011.

Omar Mostafa and Eugene Xrystich will join EMEA operations as RBS Service Technicians dedicated to projects in the EMEA region. Omar will support system installations and commissioning throughout EMEA from his location in Akkar, Lebanon, while Eugene will do the same from the Netherlands.

MORE LOCAL PARTS AND MANUFACTURING SUPPORT

In conjunction with Romanov's new role, RBS will be sourcing more parts locally – particularly "wear" parts that require more frequent replacements. During his technical site visits, Roman will be instructing customers on the RBS eZone – the food industry's only parts and services portal that allows customers to view 3D equipment models, select replacement parts and request quotes.

RBS will now hold an expanded spare parts inventory in the Netherlands and intends to bolster parts availability by building new regional supplier relationships.

On the manufacturing side, an RBS

engineering team is working on process improvements at parent company Markel Food Group's manufacturing plant in Tianjin, China. The RBS team has been tasked with applying intelligent and lean design/build protocols for manufacturing, with the goal being more relevant and cost-effective equipment for the EMEA market.

SOLUTIONS FOR CUSTOMERS BIG AND SMALL

The recent personnel, parts and manufacturing initiatives will help RBS support the bakery equipment needs for customers across EMEA. And just as they are in other regions around the globe, the needs of large and small RBS customers are distinct and different.

For large multinational companies, RBS is often asked to make already large capacity systems even larger and more efficient. Project goals generally include cutting energy and labor requirements, and ultimately, the cost per kilograms of output. RBS helps these larger customers expand their existing systems with many potential upgrades – wider lines, more product flexibility, automated continuous mixing systems, improved control systems and more.

In Europe, companies big and small alike are facing strict governmental standards and timelines for reducing greenhouse gas emissions. New carbon taxes, gas usage quotas and permits, and other mandates are forcing factories to consider alternative energy sources. RBS is helping companies meet these regulations with alternative energy solutions, including all-electric oven lines to replace gas-fired systems.

For small and medium-sized EMEA companies, RBS is often asked to help launch a new snack, or to make an existing line more automated. These companies are usually led by entrepreneurs who want to introduce a local version of a successful snack from somewhere else in the world using local ingredients, or who want to transform their pan or rack oven line into a more automated system. These RBS customers need experienced project partners who can support new product concepts, formulation, sample development, plant layout, system commissioning, package sizes and more – virtually everything needed to introduce a new snack locally. RBS is finding many such potential customers in Eastern Europe, the Middle East and Africa. And thanks to its flexible oven systems and deep process and product knowledge, RBS is well positioned to help these snack food entrepreneurs.

RBS Process and Product Knowledge

Two RBS systems – the Low Pressure (LP) Extruder and the Multi-Crisp Baked Snack Systems – are well equipped to produce baked snacks from "difficult" doughs. These include potato, wheat, multi-grain, rice, corn masa, and most notably for EMEA – cassava, which due to its low cost and availability, is a dominant flour across Africa. These systems can process such doughs into countless snack shapes, and RBS is the only equipment manufacturer offering anything like them in the region.

RBS can also help customers of any size refine an existing production process or develop an entirely new product at the company's Science & Innovation Center. This unique Research and Development facility allows customers to test products and processes on RBS equipment. Recent test runs at the facility include several successful product trials using cassava flour, plaintain flour, pea flour and other veggie flours that are also used for gluten-free snacks.

LOOKING AHEAD, SHORT- AND LONG-TERM

In the near-term, RBS expects increased trade show activity in 2023, with customers looking to solve energy efficiency and new product development challenges, plus pandemic-driven problems like labor and material shortages. RBS will also be promoting key digital tools, including RBS eZone, educational webinars, a 24/7 self-service parts portal, and improved systems automation via RBSConnect.

Longer term, RBS plans to provide more support for its automated continuous mixing systems and solutions. Throughout the pandemic, RBS has seen demand for automation spike, and versatile RBS continuous mixing solutions can help snack makers boost product quality while cutting labor and energy costs. As the company's growth across the region continues, RBS hopes to expand its sales and support team across EMEA. •

Six Degrees of **Saving Energy**

With increasing gas and electricity costs, investing in energy-saving solutions is the smart decision for bakers worldwide. Some of these are technological, others are ingredients that shorten the baking time.

By Jo Ilie & Tudor Vintiloiu

Manufacturers have been under pressure to reduce energy costs for years now, at first for sustainability reasons and, in the past year, because of the increasing gas and electricity prices across the world, but especially in Europe, caused by the war in Ukraine. What was once a "nice to have" badge of honor for a responsible business, became a business necessity in the past year.

PRE-HEATING

Whatever heating method is used to bake, a primary requirement of ovens is to ensure that no energy is wasted. Oven producer GEA, with its Imaforni multi-zone tunnel oven for crackers, cakes, pies, biscuits and cookies, achieves this by pre-heating the combustion air for the burners. This is usually most effective when applied at the beginning of the oven when the dough pieces under baking require, for technological reasons, the highest level of heat input and where the set temperatures are higher. Fuel usage can also be optimized by preventing heat escaping from the oven through advanced forms of insulation.

Precisely how much can be saved will depend on the existing insulation, the temperature profile and the general settings of the oven set to achieve optimum baking of the specific product. However, it is likely that using a modern energy-saving oven it will be possible for a baker to save between 10% and 30% of its energy consumption.

HYBRID OVENS

Another take on saving energy comes from combining direct gas fired (DGF) and convection baking zones. These types of hybrid tunnel ovens give bakers a more flexible, sustainable way to mass produce crackers with better product quality and consistency. Reading Bakery Systems' production line contains several convection ovens because they allow better control of evaporation of water from the product's interior and determines its final surface color.

The oven data loggers show how the low air flows and high radiant temperatures of DGF ovens are not particularly well suited to the moisture removal phases of cracker production. In effect, the data underlined the need for more controllable air heating zones – that is, convection zones in which both product moisture removal and coloring/drying can be controlled separately and more efficiently.

In general, DGF burners provide a controllable radiant and conductive heat

flow but do so with very little air movement; convection heat flow is limited by this type of burner design. Having higher humidity ratios in the first phases of baking is important in developing products, as it enables proper product flavor and texture development. But high humidity and a limited ability to control convection heat flow is not helpful for product drying as operators try to achieve uniform product moisture and color.

Over the years, operators have developed ways to compensate for the excessive heat in the last zones of a DGF oven. Often these involve a complicated dance of shutting off burners, increasing exhaust rates and opening oven doors – whatever could be done to reduce the residual heat remaining in the air, product and belt from previous oven zones. It's an inefficient prospect at best, and it's one of many that a hybrid oven eliminates.

In terms of energy efficiency, convection burners deliver distinct advantages vs. DGF burners. A traditional DGF tunnel oven could easily be 100 meters long and operate with up to 300 individual ribbon burners. For cracker or biscuit making, one third to two thirds of those 300 DGF burners can be replaced with convection burners. The typical RBS hybrid oven, for example, has two DGF zones and four convection zones, with one convection burner per zone replacing about 30 ribbon burners. The specific energy savings will vary depending on the age and type of ovens involved, but the cut in energy consumption and costs could range anywhere from 5-20%.

A DGF oven takes an experienced operator to understand how to manage and control it. Convection technology is much more automated with the four baking parameters easily set and managed by the recipe at the OIT. With the labor problem across the food industry, this makes convection technology much more attractive to bakers.

Thanks to their precise temperature control, the convection zones in a hybrid oven will not overheat if there is no product on the belt moving through them. This is in sharp contrast to conventional DGF ovens, which, following extended lines stoppages, require operators to make a lot of adjustments – shutting off burners, speeding up the belt, or some combination thereof – to help stabilize oven temperatures and prevent burnt products.

Speaking of burnt products, a hybrid oven's convection drying zones will also drastically reduce the chance of product and productivity losses due to fires. By far, DGF fires tend to occur in the drying zones toward the end of the oven, where the chance of nearly finished products falling off the belt and collecting near an exposed burner flame is far higher than in the front. The absence of exposed flames in the convection zones helps reduce the risk of fires and makes it easier for operators to keep the product in specification between start-up and shutdown.

AWARENESS IS KEY

According to a recent interview with Markus Bartels, general manager of Walterwerk KIEL, a company specializing in bakery equipment, updating baking ovens to the latest state of technology can have a significant impact on energy saving performance. While energy recovery can also help, its potential is relatively small in comparison.

In addition to costly investments, awareness is essential for increasing energy efficiency. According to the company, logging and communicating energy consumption should become part of daily routine. "Awareness is the key. For this we offer digital loggers in combination with an OPC UA interface to transmit the data to the customers network," says Bartels. In terms of potential, Walterwerk's solutions can lead to savings above 20% in many facilities.

Walterwerk offers retrofits for existing plant equipment, specifically for their JUPITER C and MARS C series ovens to reduce gas consumption. Their JUPITER C Series, MARS Series, and METEOR, all come with features that reduce energy demand considerably and are intended for clients that have energy saving high on their list of priorities.
According to Bartels, the market demand for such solutions has evolved, with the main driver for customers being the reduction in carbon footprint - before the war in Ukraine - and now, the regional threat regarding gas shortages and increasing prices.
While uncertainties regarding market developments present a challenge, the main barrier to implementing such processes or innovations is mindset.
Overall, Walterwerk provides solutions that can significantly improve energy efficiency in the bakery industry with a typical ROI of 3 to 7 years.

INGREDIENTS

When replacing the existing technology is not an option - or even if it is - there are also ingredients that help bakers save energy.
Yeast producer Lesaffre launched at FiE 2022 in December 2022 a new umbrella for all its bakery products, Bake with Lesaffre. Part of this new offer, bakers can now have ingredients that help save energy. The conditioner called Minute Bread, for example, reduces the baking time for several types of bread. For a 350g fresh baguette, the baking time reduces from 22 to 18 minutes which means an almost 20% time and energy saving. For par baked bread, products can be taken from the freezer and fully baked in less than 3 minutes. The conditioner controls weight loss in baking and improves shelf life of the final baked product. This allows bakers to produce more or, if they prefer, to just save on costs for the same yield.
Other yeasts and ingredients developed by Lesaffre for the frozen food sector, whether the bread is designed to be part-baked or fully-baked when frozen. A complementary range, T-Control, has been created for doughs that only need refrigerating to avoid further fermentation. This also optimizes costs, as refrigeration requires less energy than freezing. •

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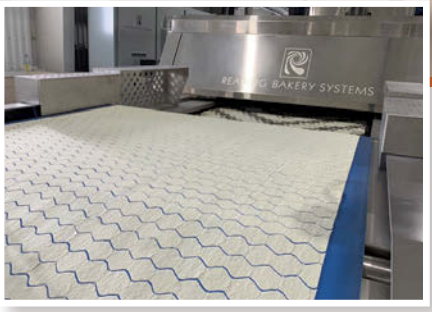

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Efficient Conveying
Through the Bake Oven

Marko Leber, Global Product Manager, Food, at steel belt company IPCO, looks at the different aspects that contribute to an efficient, reliable and productive bake oven conveying system.

By Marko Leber, Global Product Manager, Food at IPCO

The function of a bake oven conveyor is a relatively simple one: to transport uncooked product through an oven at a predetermined speed until it is baked, then transfer it for downstream packing or additional processing. On the face of it, the technology involved isn't particularly complicated either: a drum at either end of the system and a belt that carries the product. The reality of course is somewhat different.

The success of the conveyor system depends on a wide range of components interacting in a reliable and predictable manner, while being subjected to constant heat and stress.

IPCO's primary role here is the supply of the steel belt that carries the product so let's begin there. Again, at first glance, this may appear fairly basic in design, a strip of steel that travels between two end stations. It is in fact a precision component, one that requires specialised manufacturing equipment to 'engineer in' qualities that are central to the performance of not just the conveyor but also the oven itself.

These properties include levels of flatness, straightness and thickness consistency that simply don't exist in the cold rolled carbon steel band that is our raw material. Only by subjecting the band to a series of carefully controlled and measured processes is it possible to create a product capable of performing in an environment where it will be tensioned, tracked, heated, cooled and pulled around rollers thousands of times a day.

Consistency of colour is important too; dark areas absorb heat while light, shiny areas reflect it, so uneven belt colour could result in an uneven bake. This too has to be engineered into the belt.

HIGH PERFORMANCE SOLID AND PERFORATED STEEL BAKE OVEN BELTS

So why choose a steel belt over other technologies? The type of product being baked will very often be a determining factor. Certain goods – real butter cookies for instance, or chocolate brownies – need the flat, solid surface of a steel belt otherwise fat would melt into the oven with the resulting risk of fire. A solid steel belt will also usually be the preferred choice for products such as biscuits, pastries, shortbread and granola bars. Alternatively, perforated steel belts can be a 'best of both worlds' option, opening up the possibility of producing both 'mesh' and 'solid belt' products on the same line.

Steel belts offer a number of distinct advantages in terms of performance in the oven, primarily due to their excellent heat transfer and thermal conductivity. As the heated steel belt surface is in direct contact with the underside of the product, this delivers the crisp, chewy base that represents much of the appeal of many products.

A flat, smooth surface ensures clean release at the end of the oven with minimal risk of damage to fragile products. This also means that a steel belt stays cleaner longer, lessening the risk of a build-up of carbon deposits. And when cleaning is required, steel is easier to clean than other materials.

Durability another key quality. With correct maintenance a working life of 20 years is not unusual and can be much longer. This compares favourably with wire mesh belts,

Steel belts are suitable for a wide range of products including biscuits and cookies.

which typically last 4-5 years, and makes represent an outstanding ROI.

No comparison of technologies is complete without considering sustainability and again, steel belts come out on top. As much of 25% of the energy consumed by a bake oven is used to heat the conveyor belt and each time a belt exits the baking chamber, it begins to cool and has to be heated up again.

Solid steel belts are inherently lighter than mesh belts and perforated belts even more so. A lighter belt means less metal to heat, so significantly less energy is required – and these savings are continuous. This weight advantage also means less energy is needed to 'drive' the belt through the oven.

So that's the belt. Now let's move on to the other components that go to make up a successful conveyor system.

BELT TRACKING ISSUES AND SOLUTIONS

The most complex part is the end station. Besides providing a sturdy 'anchor' from which to keep the pulleys/drums in position, end stations host the drive power and enable belt tensioning. And as they also provide the foundation for advanced, active tracking systems, they are central to overall system performance.

For a belt to track properly, the line and all the parts that touch the belt (i.e. belt supports, rollers and the like) must be straight and level with gravity and each other. They must also be in good working order and not worn down. When these requirements are fulfilled – in other words with perfect, stable conditions and fine adjustment of the drums – a properly designed and constructed conveyor will track straight and true without the need for a tracking system.

Unfortunately conditions are never perfect. In baking lines we have the particular issue of temperature changes in the belt, which will inevitably cause it to track one way or the other from time to time.

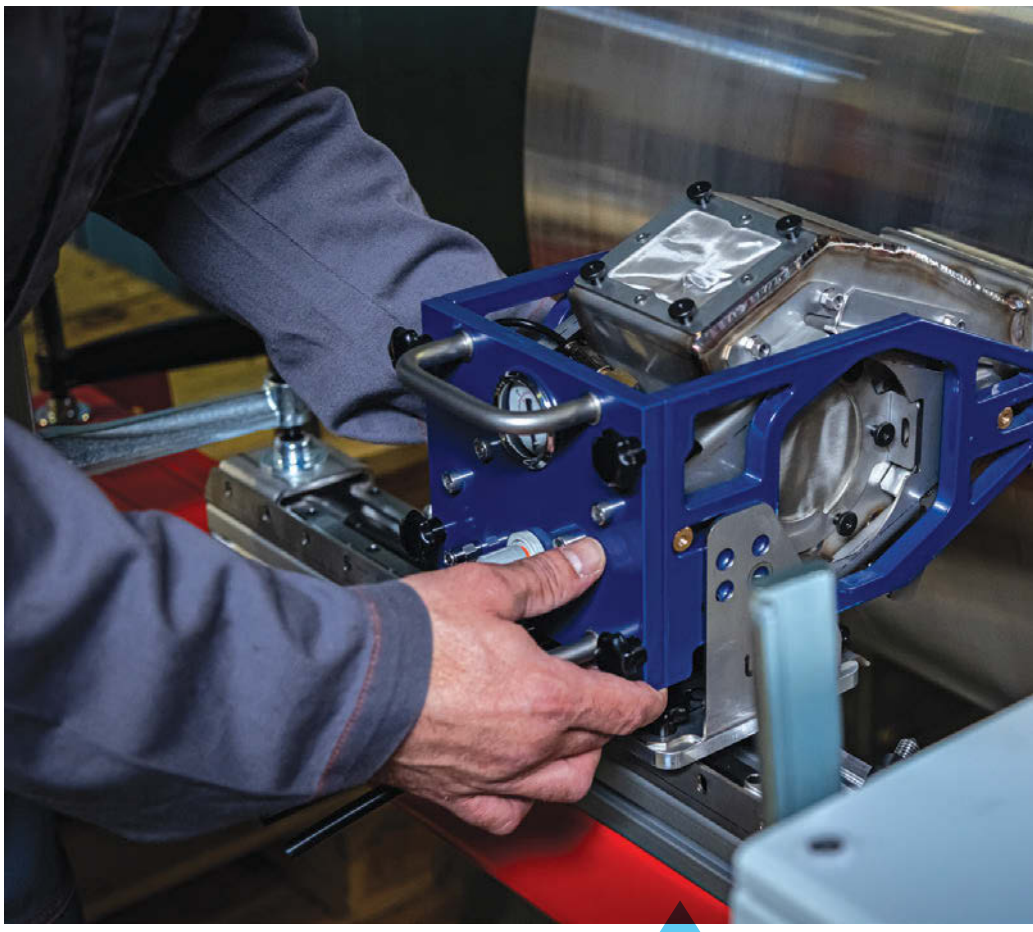
One solution commonly seen in the bake industry is the use of fixed guide rollers. Generally speaking, these are not a good solution as they can quickly wear down, with the risk of damage to the belt edge. Spring loaded guide rollers are preferable as they are less prone to wear. These are purely mechanical devices with no electronics, few moving parts, and are easily mounted to an existing conveyor's frame with little modification.

However, it's worth noting that if either fixed or spring loaded guide rollers are mounted any closer to the drums than 10x the width of the belt, they are essentially useless as the belt will be too strong for them to affect, and sooner or later they will end up damaging the belt.

A more effective solution is IPCO's Compact Belt Tracking (CBT) system. Tracking is achieved by means of a tilt roller positioned beneath the belt, causing it to move laterally as necessary, to maintain smooth, straight running.
The CBT device consists of rollers arranged on a cradle, a linear actuator acting on wedges and a belt edge detector. When the detector activates an edge sensor, a small logic relay controls the tilting in a pre-defined sequence. The tracking effect is achieved by tilting (lifting one edge of) the belt.
These units can be mounted to an existing conveyor, usually with little modification, so are ideal when a rebuild is either impractical or undesirable. For clean-sheet installations, or system upgrades where an end station is being replaced or rebuilt, our recommendation would usually be a pneumatic tracking solution.

DESIGNING AN EFFECTIVE PNEUMATIC TRACKING SYSTEM

This stable and proven system provides pneumatic tracking control and belt tensioning. Real time detection of the position of the belt edge from one side is achieved by means of a contactless inductive sensor. This triggers an analogue signal from the sensor, which actuates any necessary correction in the electro-magnetic positioner. Basic tension is applied to the system at all times.
This system has the key benefit of contact-free detection of the belt position, eliminating all risk of wear to the edges of the bake oven belt.
The challenge here is that the end station needs to be designed and maintained in such a way that the force from the pneumatic cylinders is applied evenly to both drum bearings. If one side exerts more pressure than the other, the belt will track off course.
We've seen some mechanisms that are meant to eliminate this issue but can still be installed / adjusted poorly so that the drum ends up angled anyway, causing the belt to track. This can be confusing to troubleshoot since the mechanism itself is supposed to keep the force even.
In general the end stations must be properly designed and strong enough to withstand the tensioning forces on the belt without flexing. If it's weak enough to flex then even tracking systems will have a difficult time keeping the belt running straight. This is usually not a problem on a modern OEM-designed baking line, but on older lines – or when end users have modified their end stations or tensioning systems – it can become an issue.



Repairing a deformed belt using the Shotpeener Pro, just one of the services offered by IPCO's belt specialists.

Another problem is end users not paying attention to how much tensioning force their pneumatic system is generating on the belt. We have seen instances where air pressure in the system has been kept as high as possible as the end user thinks that's what it was designed for. Tensioning forces that are higher than necessary can shorten belt life. For bake oven applications we recommend 10.4 MPa (1500 psi) as 'optimal'. So the correct tensioning force can be calculated out from that depending on the width and thickness of the belt.
It should also be said that not all pneumatic tensioning systems are equal. Some are designed to work either On or Off; each time the system is switched on, the cylinders abruptly tension the belt with maximum force. It's much better to have a system that 'throttles' the force so that tension on the belt builds gradually.

SLIDING AND ROLLING BELT SUPPORTS

The length of most conveyors usually means that some type of support is required to hold the belt up between the end stations. Add the weight of the conveyed product and proper belt support becomes crucial to the performance of the conveyor and the lifespan

10.4 MPa (1500 psi) is the 'optimal' recommended tensioning for bake oven applications

of the belt. These supports fall into two categories: sliding and rolling.

Sliding supports will either take the form of cast iron skid bars manufactured to provide optimal performance with carbon steel belts, or graphite skid bars. We recommend that graphite be deposited on the underside of the belt at regular intervals between cast iron supports. Graphite skid bars are designed to leave a deposit of lubricating graphite on the underside of the belt in a continuous and automatic way.

Rolling supports are also available in a variety of types including simple wheeled shafts and idlers consisting of steel tubes mounted to a shaft with ball bearings, the latter offering the least friction against the belt.

PROCESS EXPERTISE BASED ON DECADES OF EXPERIENCE

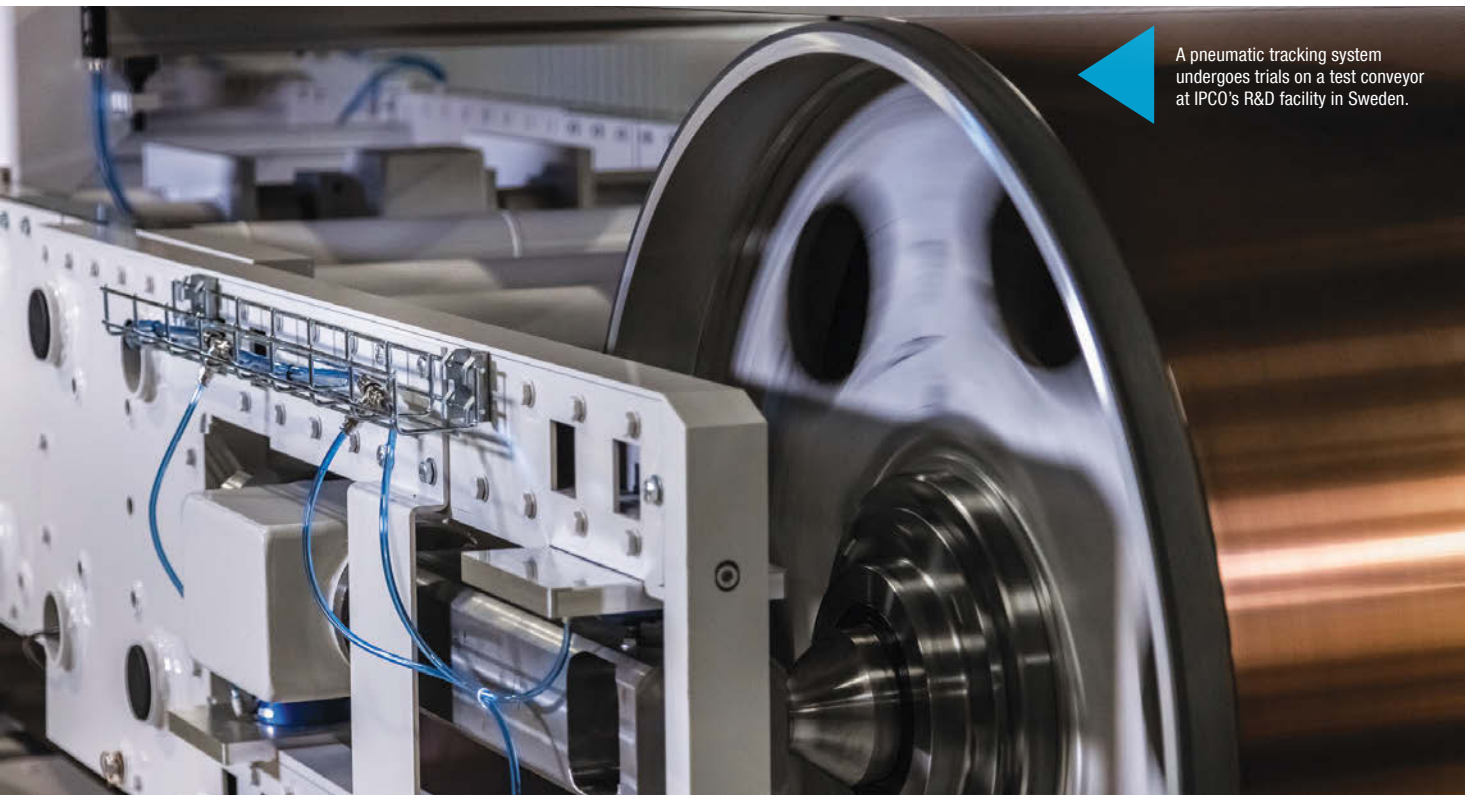
While IPCO's core skill lies in the design and integration of steel bake oven belts, our experience in maintaining and servicing belts means we have an in-depth understanding of the entire process. To our engineers, the condition of the belt acts provides a window into how it is interacting with the many other components that make up the conveyor, and this in turns provides a visual report into the health and performance of the system as a whole.

The design of every oven will, quite reasonably, be focused primarily on the baking process itself. The design of the conveyor system will secondary and consideration of the belt will follow that. This puts us in a unique position to support OEMs and end users in terms of trouble shooting system performance.

For instance, even on a brand new bake oven line it's possible that certain aspects will not be optimized in relation to the belt. Or that maintenance practices are focused on other aspects of the system. As belt specialists who also have the ability to supply a complete range of conveyor components, our process expertise and system understanding means we are able to diagnose and fix these types of issues quickly and easily.

We have fully trained and equipped service teams on the ground in all key markets. This means we can provide a quick response to any service or repair needs, and that work is carried out by qualified people with a real understanding of customers' needs and values. Our local teams can call on the support of IPCO's Special Engineering team, experts who can be sent anywhere in the world to provide specialist support.

While successful trouble-shooting is satisfying, prevention is better than cure so we recommend that customers take advantage of Preventative Maintenance Agreements (PMAs). In this way, risks of failure can be identified before they have chance to disrupt production. •



A pneumatic tracking system undergoes trials on a test conveyor at IPCO's R&D facility in Sweden.

Incorporating Cleaning Procedures **into Company Policy**

Sanitation in food production and processing facilities can be challenging, and the baking industry is no exception. One common challenge is the presence of hard-to-reach areas and intricate machinery, which can make cleaning difficult. Another challenge is the need for quick turnaround times between production runs, which leaves little time for cleaning.

By Tudor Vintiloiu

There are several good practice principles that can help ensure proper sanitation in food production and processing facilities. These include:

- Establishing a sanitation program: A sanitation program should be established that outlines the specific cleaning procedures and schedules for each area of the facility.
- Training employees: Employees should be trained on proper cleaning procedures and the importance of maintaining a clean and sanitized facility.
- Using the correct cleaning agents: The correct cleaning agents should be used for each surface and piece of equipment to ensure that they are properly cleaned and sanitized.
- Maintaining equipment: Equipment should be maintained regularly to ensure that it is functioning correctly and does not pose a risk of contamination.

Cleaning in Place (CIP) is a cleaning method used in the food and beverage industry that allows for the cleaning of equipment and machinery without the need for disassembly. CIP solutions are commonly used in the baking industry to clean mixers, ovens, and conveyors.

These solutions work by circulating cleaning solutions through the equipment using a series of pumps, valves, and pipes. The cleaning solution is then drained, and the equipment is rinsed with water before being put back into operation.

Compared to other cleaning methods, CIP solutions offer several advantages. They are more efficient, as they allow for quick cleaning without the need for disassembly, reducing downtime between production runs. They also reduce the risk of contamination as they eliminate the need for manual cleaning, which can lead to human error.

DIGITAL CIP OPTIMIZATION FOR MEMBRANE FILTRATION

GEA recently announced they were able to reduce water and power consumption during

the cleaning of membrane filtration plants by up to 50% with two new digital tools. The software duo, GEA Smart Filtration CIP and GEA Smart Filtration Flush, automatically intervene in CIP processes, pulsing the pumps and flushing the membranes individually and according to real-time water quality.

Membrane filtration plants separate or concentrate substances without thermal stress. Membrane filtration is primarily used in food manufacturing – including new foods – and in dairy processing. Common product examples include dairy protein and fish collagen isolates. Until now, cleaning this equipment was energy- and water-intensive, requiring three or four individual cleaning steps with different chemical cleaning agents to be pumped and circulated throughout the equipment for a specified amount of time before rinsing it out with water.

In contrast, GEA Smart Filtration Flush uses sensors to constantly measure the permeate quality of the water during the flushing process, reducing the freshwater required. Setting blanket rinsing intervals and water quantities in advance are no longer needed as the software stops the process as soon as the necessary hygiene level is reached, and the cleaning agents are discharged. Depending on the type and size of the plant and the water properties, operators can reduce their freshwater requirements by up to 50%.

WATER-SAVING CIP OPTIMIZATION, DOWNSIZED CIP INFRASTRUCTURE

"A typical dairy whey protein concentration process needs two to four filtration plants connected in a series. This set up can require more than 100,000 liters of water, per cleaning cycle," explains Nils Mørk, R&D Engineer for membrane filtration at GEA. "Today, we know from plant tests that we can save well up to 50,000 liters of water per cleaning in such large plants and 500 to 700 liters per CIP in small productions."

Additionally, when less water is fed into the process, this decreases the amount of wastewater, which needs to be discharged. "Many manufacturers can only clean their filtration systems successively because the peak flows during flushing of filtration plants often exceed pipeline capacity. That can create a potential safety hazard for staff and cause contamination in the production area. We eliminate this peak water flow problem with Smart Flush because we can significantly reduce pressure fluctuations in the water supply and reduce the overflow of drain lines."

GEA membrane filtration

The second software module, GEA Smart Filtration CIP, is a software module that regulates cleaning efficiency. It causes the pumps to operate in a pulsating manner as opposed to running continuously. As a result, the pumps consume up to 50% less energy during the CIP process. Traditionally, the best results were achieved by cleaning with high shear forces (e.g., mechanical washing with a strong rinse flow). This approach meant the maximum allowed pressure drop across the membranes was applied during the CIP process – which entails much higher energy consumption. GEA Smart Filtration CIP breaks with this inefficient method, without losing efficacy. Tests conducted by GEA on various membrane plants prove that the same level of hygienic cleaning is achieved even if the pump only operates at short intervals – providing the time, temperature and chemical concentration is kept constant. "Our method, now applied to membrane plants, mirrors the basic principles used successfully by washing machines: agitate the clothes followed by intervals of rest, allowing the cleaning agent do its job," explains Mørk. Compared to plants with standard pump operation at full load, small production plants with GEA Smart Filtration CIP would save between 5 and 7 kilowatt hours per cleaning. Large filtration plants would require 60 to 100 kilowatt hours less electrical energy per CIP process thanks to this innovation.

A COMPREHENSIVE HYGIENE CONCEPT FOR FOOD TECHNOLOGY

Eric Lefebvre has been the Technical Manager of KRONEN since 2010 and additionally a Managing Partner since 2018. In his role, he is also responsible for the

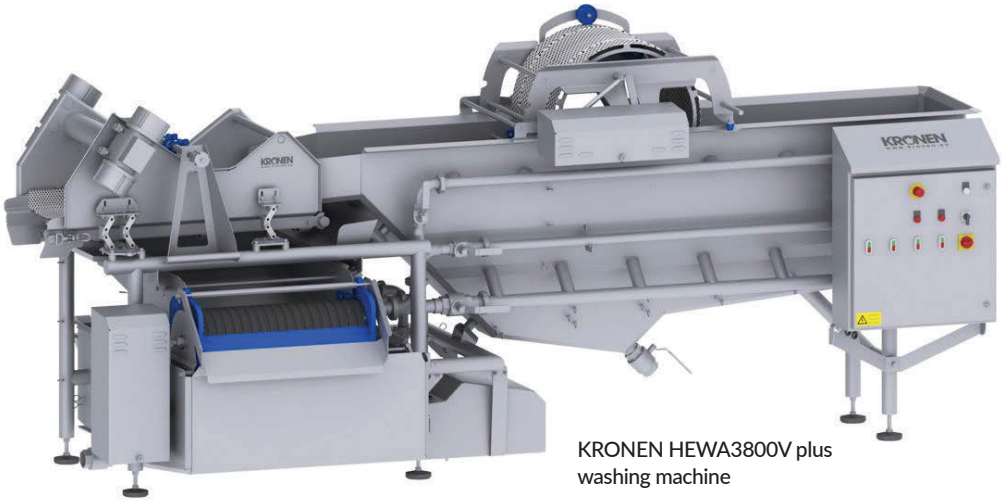
60 to 100

kilowatt hours less electrical energy per CIP process is required by large filtration plants thanks to this innovation

company's hygiene strategy and manages a multitude of research projects conducted in close cooperation with universities, research establishments and the industry.
"Hygiene has been an integral part of KRONEN GmbH ever since day one. It is one of the most essential requirements that the machines and systems used for food processing are expected to meet. Our high quality standards not only help our customers using these solutions to ensure the consumer safety of their products but also serve to secure the freshness and long shelf lives of the products processed. In the more than 40 years in which KRONEN has been operating in the food processing industry, we have learned a great deal about hygiene. We constantly follow the latest developments in terms of technology and science and remain in close contact with relevant experts. In 2017, this led to the establishment of our own hygiene regulations, which specify the special requirements for hygiene processing and hygienic design," he says.
According to the specialist, an important aspect that the company has worked continuously to optimize is guaranteeing the simple, efficient cleaning and hygienization of their machines. This is where hygienic design plays a decisive role. Another essential factor is good accessibility when cleaning the machines and the option of dismantling parts of the machine. Time plays a central role in the production activities of food processors. So KRONEN aims to maximally reduce the time and effort involved in cleaning their machines while ensuring optimal, thorough hygiene at the same time.
"Of course – if you reduce the cleaning and hygienization cycle, you can also make some savings. You not only save the time required for the cleaning process; you can also benefit from needing less water, fewer chemicals and less energy for the cleaning. Alongside the fact that hygienic, safe food production is an absolute must that needs to be ensured, such factors also make a hygiene concept a clear economic benefit too. In turn, the fact that we can use it to support our customers on a sustained basis gives us a competitive advantage. Our solutions represent high quality and maximum hygiene, which are valued by our customers all over the globe," Lefebvre concludes.

CONCLUSIONS

In order to make sustainable improvements, efficient cleaning, with its associated reductions in cleaning costs, needs to be part of the culture of the organization. Incorporation of hygienic design into a food facility, as well as keeping up with cleaning schedules rigorously, can prevent development of pests and residue buildup in microbiological niches, avoid product contamination with chemicals and debris particles from both inside and outside the factory, and may facilitate cleaning and disinfection, all the while keeping down-times to a minimum.
But the most important aspect of cleaning is to know that your cleaning procedures and frequencies for cleaning are scientifically correct to produce safe food. This means that cleaning methods must always be validated.•



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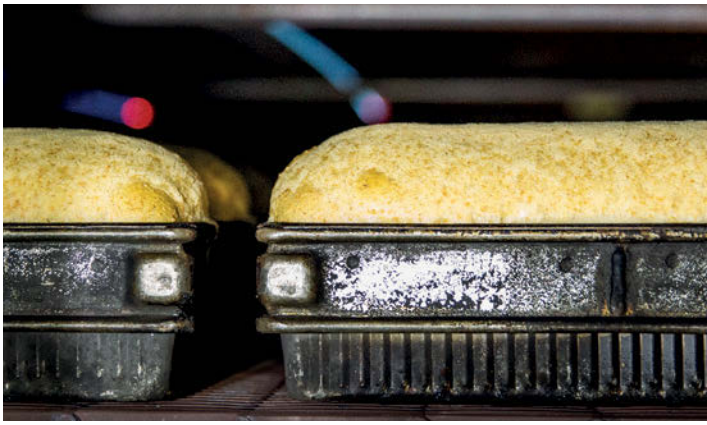

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End of Line, but Top of Mind

By Peet Geerlings, Bakepack

Bakepack – what's in a name – is the specialist of integrated solutions for bakery packaging in the total production architecture for 10 years. "Packaging is part of the final product in both physical, emotional and qualitative terms," says sales manager Peet Geerlings, so 'end of line' is a correct term logistically speaking, but if the requirements and wishes are included in the decision-making process from the first vision of the production environment, the full potential of industrial production can be exploited and provide both technical and financial benefits."

"We are not the only ones who know how to get a large loaf of bread sliced and then packed into a crate, but the connection of packaging to a specialized produced dough product from one turnkey approach is unique," Geerlings adds.

FAMILY MEMBER: INTEGRATION WITH KNOWLEDGE OF THE PROCESS

Such an integrated approach to the process requires specific knowledge of the product, bakery production and handling in the broadest sense of the word. All these facets come into play and they are well represented in the Verhoeven Bakery Equipment Family, where Bakepack, in addition to the labels BVT, NewCap and Vacuum Cooling & Baking, creates the synergy on the basis of experience, insight and a flexible approach when setting up a production environment. The cooperation between the family members – who all operate from one and the same location – in a joint project has a lot of advantages, especially if the customer

places the directing function from project management with us. "We are not the only ones who know how to get a large loaf of bread sliced and then packed into a crate, but the connection of packaging to a specialized produced dough product from one turnkey approach is unique. Thus, we are able to optimally align the individual elements of a production line without noise on the line, without conflicting interests, with the customer's interest in mind. One common clear layout of the production, compact and optimally arranged."

REDUCE OR REMOVE TRANSPORT MATERIAL

Alu trays – Geerlings clarifies this by citing some specific examples: "Recently we delivered a complete production line, where all Family members together played a role as supplier, each from their own discipline, acting together as a family in service of the customer. BVT delivered the layout line, NewCap took care of the total handling, Vacuum Cooling & Baking produced a special Vacuum Cooling installation and Bakepack was responsible for the formatting and packaging. By placing the mutual coordination and overall management in our hands, it did not become a collection of machines, but a real unit. With an additional advantage: By using our Vacuum Cooling machine, the product was so qualitative and so stable, that depanning of the pie could be done without an aluminum tray. We coordinated all elements optimally."

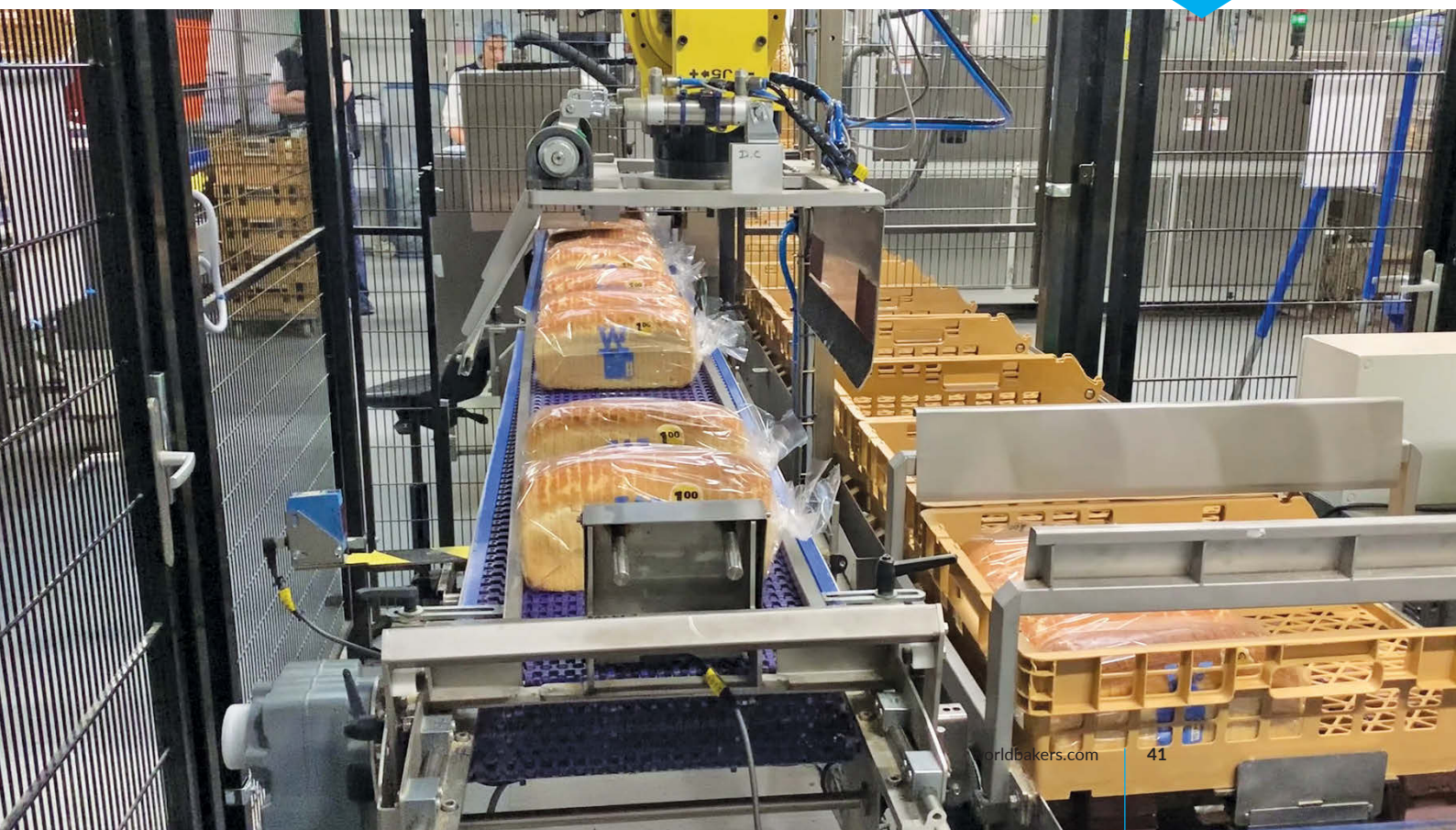
Reduce huge amount of plastic – "At another customer, a production line was developed where there was intermediate dough storage, hand laid on plastic. This meant processing kilometers of film per day. After studying the process, we were able to recommend and offer this customer a cheaper mechanical solution using recyclable paper instead of plastic. This not only led to financial savings, but it made a substantial contribution to the sustainability goals set.

Finally, an additional advantage: From our directing role, a customer also gains insight into the connection between the components. Everything from one position: mechanical as well as process and control. And creation of such a line from central direction is guaranteed to be realized and commissioned faster." •

BAKEPACK END OF LINE SOLUTIONS

Industrial bakers are often forced to purchase different packaging solutions that work separately from each other. Bakepack builds fully automatic and semi-automatic packaging solutions by developing or purchasing from A-brand suppliers and then integrating them into the production line. The in-depth knowledge necessary to arrive at an optimal design of this line -up to and including packaging- is present within the organization. The Verhoeven Bakery Equipment Family originates from 50 years of experience in Material Handling in combination with various, far-reaching specializations in the industrial bakery branch during the past 20 years (the labels provide solutions for the production of fresh dough products, bake-off products and products with a longer shelf life, fresh or frozen). Bakepack started by integrating packaging machines into production lines controlled by a single master control system. This led to tighter start-up times and a more efficient process. In addition, its 3D imaging vision systems have been developed for quality control and quality assurance.

Bakepack End of Line Solutions
Verhoeven Bakery Equipment Family
Oss, the Netherlands
www.verhoevenfamily.com



Taste the **Plant-based Rainbow**

Color and flavor are the building blocks of mouth-watering baked goods, but, as with everything lately, the consumers are scrutinizing their source and favoring the ones that have a natural, plant-based origin. Here's how bakers can reformulate with a cleaner label in mind to make sure they offer their clients the best of the two worlds: vivid colors and stunning flavors, as well as transparency.

By Jo Ilie

Recent market studies came up with a new concept that describes how consumers make decisions about food. After the health-focused pandemic years, they haven't lost their interest in natural sourcing and reducing fat, sugar and salt intakes, but they also want their food to taste really good, just like before. This new trend is called 'mindful indulgence': choosing products that offer real indulgence and do good for their minds and bodies. The benefits can take various forms, from added functional ingredients, such as vitamins and minerals, to reduced/alternative sugar and salt, or high fiber content.

Colors and flavors play an essential role in offering the 'indulgent' part, because they can elevate the aspect and taste of any baked good. When they can also offer clean label claims - plant-based and natural, mostly - they don't interfere with the consumers' health objectives.

BRIGHT COLORS AND FLAVORS

"Consumers gravitate toward vibrant colors and bold flavors and are increasingly seeking out new flavor experiences," explains Hélène Moeller, Vice President, Global Product Marketing Flavors & Colors, ADM. According to FMCG Gurus, Flavors, Colors & Textures Report, 2021, globally, 56% of consumers say they like food to have bright and intense colors. Additionally, of the 43% of global consumers who are attracted to food and drink products with new and experimental colors, 66% describe these colors as fun and exciting, and 60% say they make products more appealing.

"As a result, we're seeing loud and bright shades and new and exotic flavors penetrate the market, bringing in a new wave of fierce expression to over-the-top baked goods, desserts and snacks," says Moeller. One key example she gives is the Barbiecore trend (pink and pastels) and other colors like blue, teal, purple and orange that help shift consumer moods toward brighter and lighter moments.

"We're also seeing different shades of blue matching consumers' desire for discovery, exploration and surprise. Fun and fantastical flavors pair well with blue tones, such as blackberry serrano, mint, birthday cake and fantasy taste profiles for fairies, dragons and more. Plus, «limited edition» is among the top five fastest growing year-over-year food and beverage claims, demonstrating interest in experiential eating occasions."

Another color the ADM experts identified is orange ('vibrant, bright and zesty') which is also associated with citrus and tropical fruits and continues to remain popular among consumers looking for products that may provide wellness support. "It can also add zing to biscuits and cakes." Similarly, lavender, as both a flavor and color, is emerging in the bakery category, evoking feelings of relaxation. Other botanicals, such as chamomile and lemon balm, are also quickly gaining popularity.

Inflation has put a lot of pressure on consumers in the past year and determined them to be very discerning in choosing their food, especially staples. According to Rich's survey on how consumer behavior has changed when it comes to bakery acquisitions, 46% stated that fruit inclusions connoted a 'premium' option, while 42% cited 'unique flavors' as a key factor. "Adding natural ingredients like fruit and vegetable purees to bread products is a great way to put an exciting, premium twist on a comforting classic," explains Johan Cerstiaens, Commercial Director, SVZ. "Spinach, red beet or butternut squash for example make especially good additions to tortilla dough, imbuing the recipe with an unexpected flavor hit as well as a burst of inviting color. Fruit breads featuring swirls of cherry or plum puree are another great example of this in action."

Another aspect of how tastes have changed is that, if in the past shoppers may have been put off by brightly coloured bread loafs, wraps or rolls due to the association with artificial colorants or e-numbers, now they are attracted to them. "As the recent trend for rainbow burger buns has shown that when consumers are reassured the color comes from a natural source, vibrant hues are something to be celebrated," says Cerstiaens. "Highly pigmented, natural ingredients like kale or red beet can provide a particularly eye-catching pop of color alongside a subtle flavor boost, without the need for any artificial additives."

"Consumers want to see ingredients they deem as being "closer-to-nature," and that includes flavors and colors," confirms Moeller. "However, flavors and colors present unique formulation challenges when using naturally sourced

ingredients. It can be difficult to create bold shades from natural sources that can also withstand different processing conditions. Plus, some natural ingredients may impart off-notes in flavor." And, as baking is a complicated process that implies many physical transformations, additional challenges can include issues with color interactions, solubility needs, processing conditions, packaging, taste and cost.

BOOSTING COLOR AND FLAVOR THE NATURAL WAY

In order to answer this challenge, ADM developed the Colors from Nature platform, which helps formulators tap a full spectrum of colors derived from natural sources to create visually appealing baked goods, such as biscuits, pastries, bars and snacks. "With our micronization technology, our Colors from Nature solutions have superb plating characteristics, stopping colors from streaking so powdered offerings like cake mixes are more uniform" says Hélène Moeller. "Our micronization technology is also available in liquid- or oil-soluble forms. Plus, our emulsion technology helps improve performance in fat and oil-based applications like frosting, providing stability, ease-of-use and eliminating staining of the packaging and manufacturing equipment while also improving taste and texture."

Naturally derived colors can sometimes impart off-notes and, to solve this challenge, ADM uses deodorizing and masking technologies, as well as a patented extraction technology, all of which support the creation of stunning shades without unwanted flavors or aromas. "For instance, we can attain vivid pinks, reds, purples, oranges, yellows, blues and greens from different botanicals, spices, fruits and vegetables, while delivering clean flavor. Our extraction technology not only eliminates off-notes, but it also removes proteins, sugars and starches to produce a true hue that can withstand even the most sensitive formulation conditions."

ADM couples these technologies with their vast colors library to address various formulation hurdles, including pH instability, solubility, color interactions, heat, light, packaging and shelf-life limits, to build consistent, vibrant colors. And they offer color formats spanning across multiple formats from water- and oil-soluble solutions, liquids, powders, dispersions, emulsions, spray dries and blends.

Another help comes from ADM's TasteSpark Mouthfeel and Masking flavor modulation technology, which supports both dairy or vegan formats and builds flavor and mouthfeel profiles that may be lost in reformulated sugar-, fat- or dairy-reduced systems. From decadent and creamy chocolate mousse to silky smooth icings on cakes, manufacturers can reduce the amount of dairy ingredients used and replace them with ADM' natural flavor technology to create a similar sensory experience to aid in reformulations or provide consumers with an indulgent experience for all types of bakery products. It also can mask potential off-notes in dairy, dairy-free or vegan creams or icings that may include plant-based protein sources. Masking may also be required if the baked good contains functional ingredients or ancient grains to make the overall profile more approachable for a mainstream consumer.

ELEVATED FLAVOR WITH SWEETNESS FROM FRUITS (AND EVEN SOME VEGETABLES)

Products with a high sugar content aren't likely to attract consumers looking for a more 'mindful' approach to diet and wellbeing, but bakers can still make sweet treats if they look elsewhere for the coveted sugar-free sweetness: most fruits (and even some vegetables) are well known for their fresh, sweet flavor profiles.

"Classics like raspberry, strawberry and peach remain extremely popular in cakes or as pie fillings, where their natural sweetness can be used

to replace added refined sugar in the recipe," says Johan Cerstiaens from SVZ. "More unusual options are also gaining popularity with sweet-toothed consumers searching for new taste horizons. To give an example, snack brands have been experimenting with root vegetable inclusions to give biscuits, cakes and even candies a high-fiber overhaul."
The latest innovations in juices, purees and concentrates can also help bakers hide vegetables in plain sight – delivering natural sweetness and nutritional benefits while letting other ingredients stay center of attention. SVZ' Carte Blanche range of white vegetable bases, for instance, gives bakers access to neutral, versatile and naturally low-sugar ingredients perfect for adding volume and improving texture, without spiking sugar content.

THE POWER OF WHITES

White is essential for those who want to achieve bright colors in their baked goods because it offers an immaculate base to build color on. However, conventional whites contain titanium dioxide, a naturally occurring chemical deemed safe for ingestion by the FDA and other national food agencies, but regarded with skepticism by consumers.
ADM's PearlEdge portfolio of white solutions provides manufacturers with an in-demand clean-label alternative to white colorants. "PearlEdge is created using raw materials derived from recognizable natural sources, including native corn starch, and is purposefully designed to support an array of solutions that meet distinct formulation needs across categories," explains Hélène Moeller. "It's the perfect solve for superior whitening, vital performance, uniformity and stability in a variety of applications, while also meeting consumers' clean label preferences." In both powdered and liquid emulsion forms, PearlEdge allows for precise formulations when developing applications such as confections, frosting, coatings, icings and more.

THE FINICKY RED

Several established companies and fresh startups have been communicating lately about their efforts to obtain powerful plant-based reds, a notoriously finicky color. Carmine, with widespread applications in food, drugs, textiles, and cosmetics, was historically derived from the shell of the cochineal bug. A bug, therefore not plant-based.
Among the innovators in this field is Chromologics, a startup that developed a proprietary fermentation production method that is environment-friendly, stable, and can ensure a cost competitive and sustainable supply to food and beverage manufacturers. Natu.Red, their first product in the pipeline, is pH- and temperature stable, tasteless, water soluble, and vegan. The company recently received EUR7.1m funding to advance regulatory approval, establish a commercial production line, expand the portfolio towards additional colors, and progress on commercial execution.

SOLUTIONS FOR BOTH LIQUID AND DRY APPLICATIONS

GNT, global provider of coloring foods, has developed separate solutions for dry and liquid applications in bakery, as colors don't behave the same way. Its EXBERRY Organics liquid-based range features yellow, orange, red, pink, purple, blue, and green options. EXBERRY liquids provide appropriate solutions for applications including beverages, confectionery, and dairy.
Recently, it has expanded its selection with a new range of powder products for dry applications. Based on the concept of coloring food with food, EXBERRY Organics are created from edible fruit, vegetables, and plants using traditional physical processing methods. They are certified organic in accordance with EU regulations and qualify for clean and clear label declarations.

The new EXBERRY Organics powders include yellow, red, pink, purple, and blue shades and have been specifically developed to deliver optimal performance in dry applications such as instant beverages, seasonings, and cake mixes.

THE S-WORD

Sustainability plays an important part in a 'mindful' product makeover. According to data from Mintel, 80% of global consumers make a conscious effort not to harm the environment with their purchases. This, says Johan Cerstiaens, signals to bakery producers that naturalness, ethical sourcing and traceability are as crucial as health.
"Sustainability and ethical sourcing are unavoidable topics across the food industry, but have become particular focuses for the bakery sector as environmental concerns intensify. With grain shortages, rising energy costs and responsible farming all hot topics, producers need to prioritize sustainable ingredients sourced from reliable partners – not only for the sake of production continuity, but also to keep environmentally-conscious consumers engaged."
To support a public debate and accountability for ingredients producers, SVZ launched the c2030 initiative, where they asked the whole food and beverage industry to improve the sustainability of their business with tangible actions. They have as well committed to achieving 100% sustainable sourcing by 2030, a flexible and transparent infrastructure, an ethical approach to production, and a focus on nutritious, plant-based diets.
"Brands are taking a more proactive approach to communicating these efforts", confirms Moeller, "ensuring information is easily accessible and transparent – sparking greater consumer interest to feel connected to the food they eat and the communities they support, in addition to increased levels of transparency about the country of origin and provenance of products."
For instance, in Madagascar, ADM is vertically integrated to the vanilla farmer enabling the company to trace vanilla beans back to the farm of origin – encouraging more transparency throughout the food system. This supply chain produces quality vanilla ingredients with enhanced transparency and digital traceability, sourcing cured vanilla beans, including the Fairtrade and organic certified vanilla extract from Madagascar. ADM's impact goes beyond sourcing vanilla: they help farmers earn living wages, which they use to reinvest in other businesses, such as nuts and spices, animal feed, tourism and fisheries. It also helps provide basic necessities, including improved access to education, medical care and food.

THE ULTIMATE PURPOSE IS TO PLEASE THE CONSUMER

"Consumers need comforting indulgence more than ever in these turbulent times and their specific priorities are likely to shift further in the future," says SVZ' Johan Cerstiaens. "At the same time, the underlying tenets of «mindful indulgence» – sensory pleasure, health and sustainability – aren't likely to go anywhere. The main goal for bakery producers and their NPD projects therefore should be staying mindful." Mindful means keeping close watch on the latest color and flavor trends and the values shoppers want their food choices to reflect, to ensure their products are the guilt-free treats on everyone's shopping lists. Wherever the trend landscape shifts next, endlessly versatile fruit and vegetable ingredients will be there to help brands meet the moment. •

56%
of consumers say they like food to have bright and intense colors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Creating a More **Sustainable Path to Producing Snack Foods**

There is a distinct need within the food industry to find ways to reduce energy consumption, both to meet strict federal and international guidelines, and to address growing consumer demand for products that align with their core values regarding environmental processes. Industrial bakeries are challenged to adapt to the needs of their customer base by becoming early adopters of cleaner technologies.

By Reading Bakery Systems

Reading Bakery Systems (RBS) has developed a sustainable-design, electric-powered convection oven available for customer product trials at the RBS Science & Innovation Center. This new, electric-powered, 2-zone convection oven offers a parallel baking experience to a gas-powered oven, but with the added benefit of achieving sustainability goals such as energy efficiency and emission-reducing properties. Cameron Johnston, Director of Engineering at RBS, said, "It is our charge to develop innovative equipment and system solutions that meet the sustainability-focused guidelines of the future. Our equipment and systems are renown for operational efficiency, reliability, and longevity, so it is important that we lead electric oven adoption. We are truly excited to now offer customers the opportunity to test their products on the electric-powered version of our ovens."

REDUCING EMISSIONS AND ENERGY CONSUMPTION

The biggest driver of this new technology is the opportunity to reduce emissions and use less energy, but the resulting product needs to be identical as well. Before offering trials to customers, RBS ran organoleptic tests, piloted research, and development to prove product parity. This means that the same snacks can be successfully made on the electric-powered oven, with the same quality, textures, and taste. Operationally, baking with an electric oven is very similar to baking with a gas-powered oven. Control points and baking profiles are the same, resulting in no significant difference in chamber humidity. While the electric oven is slightly less responsive to settle from a temperature adjustment, the baking process is more energy efficient due to less products of combustion and less humidity needing to be exhausted.

INNOVATION ON DEMAND

The RBS Science & Innovation Center capabilities extend as far as the imagination of the user. Think of it as an innovation lab for experimenting with your next big idea, or for improving your current offerings. A fully equipped, licensed food processing and research & development facility, the Center fosters a unique spirit of collaboration so that you can test your product and process, using their equipment and expertise to ensure you've solidified the precise product you want to take to market and to make your commercial scale operation as efficient as possible.

RBS SCIENCE & INNOVATION CENTER CAPABILITIES

The Center features all the equipment necessary to test a variety of batch and continuous mixing concepts and forming processes. Additionally, a full array of machinery is available for forming snack products for baking; it also houses sheeting lines, gauging stations, rotary cutters, moulding, wirecut, and low- and high-pressure extrusion systems. Customers using the Center also have access to ultrasonic cutters, topping dispensers, and the Reading Thermal Scorpion® 2 Data Logging Measurement System, which is useful for analyzing product baking curve and product scaling.

SUSTAINABILITY + TECHNOLOGY = SUCCESS

When switching equipment to a more sustainable alternative, it's easy to find advantages that make the investment even more worthwhile than originally imagined. With the advanced, automated controls of the new electric-powered, convection oven at RBS, additional benefits include increased productivity, improved equipment performance, and of course, reduced energy and harmful emissions. In short, the dividends enjoyed by doing the right thing for the environment have a ripple effect that will ultimately result in creating a more favorable business profile. To learn more, visit www.readingbakery.com. •

Making Vanilla **Future-proof**

IFF has a portfolio of 15,000 vanillas, but the most important work is done not in the lab, but in the vanilla fields of Indonesia, India, and Uganda, where the next generation of sustainable flavor is growing, ready to take on the Golden Standard, the Madagascar bean.

By Eduardo Villagomez, Global Vanilla Product Leader, IFF

There's more than 400 molecules in a vanilla bean and vanillin is only one of them. Because of its intensity and its flavor profile it's a very common product, both as a natural compound and as a synthesized one. But when we talk about the vanilla supply chain, we always talk about the vanilla beans. And it is a very challenging topic. You might know that 85, even 90% of the vanilla of the world today comes from Madagascar. It's a single source for all of the vanilla in the world. That makes it risky in the sense that Madagascar is very exposed to the weather. This year, they already had two cyclones. Fortunately for the vanilla farmers, their region was unaffected. But if they ever get hit, it could have serious consequences. The crop could be destroyed.

THERE IS NO "ONE SIZE FITS ALL" SOLUTION

One of the things we're doing at IFF to address this risk is sourcing from different origins. It's nothing new, but we are doing it differently. For example, in Indonesia, we partnered with a whole community of farmers. They are growing the same variety as in Madagascar, but with some flavor differences that come from the fact that in Indonesia they pick the pods earlier and cure them in a different way. So we partnered with them providing guidance around agricultural and curing practices to get the flavor profile closer to the "Bourbon quality". It's not easy to determine such change because an early pick means an early revenue. So this new method is delaying their income for a couple months, but in the end it pays, because they're gonna get paid better for that vanilla than the other one they were producing. So by doing that, we are diversifying the source, but still maintaining the quality of the vanilla. Even though Madagascar is the gold standard of vanilla, there's very good vanilla from other origins.

We also work a lot in Madagascar, which will always have very strong social implications. Five or six years ago, IFF established the vanilla sustainability program in Madagascar, where we support the farmers directly. What we do differently is let them decide how to use the community-dedicated funds. In the past, we had some experiences where we were funding local communities and the result was not the best. For example, we helped build some health clinics and three months later, they were abandoned. So we took a different approach: we decided to ask the communities we work with what are their priorities. And then we can address those priorities, and they will make it happen because they need it. So they gather, they decide the priorities, and that's how it goes. In one community, there was this school and it had only two classrooms. They could only fit 25 students per room and they had 40 in each. The older kids needed to walk one hour each way or one and a half hours each way to go to their school. So the kids started dropping out of school. And they said, well, if you would help expand the school and renovate the school, then the older kids don't have to walk to another school. We already have the resources here. And that's what we did. In another community they needed to rebuild a bridge that was destroyed in a storm, and another one - water wells, so that they don't have to walk for 30 minutes to get drinking water. It's not the one size fits all solution. It changes by community and by priority.

Our goal at the end is make vanilla sustainable. Make it future-proof, make it available in the long term for everybody. Investing in creating healthy communities so that we would have a good partner in the long term. And there are many elements. There's environmental issues that may be addressed too. It involves training the farmers on good agricultural practices, how to get better yields of vanilla, and how to get better quality.

SUSTAINABILITY AT THE CORE

We pay more for premium quality. That means changing the old mindset of pollinating every single flower to have more beans, because the bean quality is going to be better if you only pollinate 10 or 12 flowers. So that's the kind of thing that we encourage them to do. Another aspect of the initiative is helping farmers diversify their income. Most of them, in Madagascar, rely on vanilla for a living. And when prices go down, they struggle. So what we're trying to do is incorporate crops that grow well in Madagascar. Ginger is one of them, also patchouli, which is an ingredient we use for fragrance. They're not very labor intensive, they pretty much grow by themselves. So they don't need to dedicate a lot of time. And IFF buys those crops too.

In the end, everyone benefits if the farmer is happy and their children are happy and healthy.

85%

even 90% of the vanilla of the world today comes from Madagascar

IT STARTS IN WITH THE FARMER, IT ENDS WITH THE BAKER

În 2018-2019, there was a significant price increase for vanilla. Now we're on a downward trend and the prices are controlled, but they're still higher than average. The result was that many bakers who used to put vanilla extract in their product had to either reduce the amount or just completely stop it. Because they couldn't afford the product anymore. That is the main challenge or the main effect of increased vanilla prices in bakery. That is where we come in to help. We buy vanilla directly, but most of that vanilla is used in flavors that we blend. It's both in vanilla flavors and in other flavors. You can use vanilla extract in a strawberry flavor and a chocolate flavor, depending on the profile you want to get. But here it's where the talent of our flavorists come in. We get a brief from a baker: I want to have a vanilla flavor for a cookie and it needs to resist this specific baking temperature. We have tools and technologies that make the flavor resistant to that heat process. Second, depending on your flavor preferences, we are able to create a flavor that tastes like an extract. But it's more cost-efficient.

We have tools to incorporate other botanicals into the blend, not related to vanilla. We create natural flavors that are very, very close to the taste of extract and that are cheaper, more cost efficient. And that allows the baker to use them. By using different solvents, by using different technologies, we can make them more resistant to specific processes. Even vanilla is typically added after fermentation. It's the last ingredient before baking, most of the time.

VANILLIN, THE MORE AFFORDABLE OPTION, BUT NOT ALWAYS

Vanillin when used in baked goods is mostly artificial, but it's a very commonly used ingredient. It's out there and people demand it. Last year we went through a crisis of increasing prices for vanillin. It tripled in cost almost, and there were very severe shortages in the market. What we did was to revamp, enhance, and relaunch our line of vanillin extenders and replacers.

Extenders mean you can use a little bit of vanillin in the formula and other ingredients. And that solved a lot of problems for our customers. Some, for example, had contracts of vanillin in place. They had bought one ton of vanillin, but then their supplier could only deliver half of that. So we helped them to make that half a ton matter. We extended it to a ton. That's one option. The other option is to use our vanillin replacers in the product, and we just give you a final solution that is a one-to-one replacement, and you use that. Replacers, as its name says, are a product that has no vanillin. It's made with extracts and with other ingredients that mimic the taste of vanillin. That allowed us to create very cost-effective vanillin replacers.

VANILLIN IS VERY APPLICATION-SPECIFIC

Vanillin's taste is different if you have a cookie than if you have a brioche, if you have a fat filling or a coating. It performs differently. Again, as with sustainability practices, there is no such thing as a one-solution-fits-all. There's not one product that says "here you go, use it in everything". But we work with the customers to provide the solution that meets that specific profile. The final goal is to make sure that their final product tastes the same with your product as it used to do with the other ingredients they were using. People are paying a lot of attention to taste because after all, that's the final decision maker. And if anything changes, then it's a cost for the business. That is why we have more than 15,000 different vanillas in our portfolio.

THE FUTURE OF VANILLA IS RESPECT

We're doing research around different botanicals that are not vanilla, but taste like vanilla. And we already have two proprietary products at IFF that are botanicals that we discovered. We didn't discover the plant, but we discovered that it tastes like vanilla after processing. This will allow us to make more cost-effective natural vanilla flavors in the future.

That's what's next for vanilla. How can we expose more consumers to the real taste of vanilla, not vanillin, in a cost-effective way? By creating flavors that combine vanilla extract with other botanicals that complement and enhance its balanced flavor profile which is a favorite of consumers. So that's where most of our efforts are headed right now when it comes to vanilla.

We don't need to help market vanilla to push for more consumption. I think the consumer is willing to use it. It's just how do we make it more available to everybody? And that's a noble goal. And we have really beautiful examples here of how you can approach this in a way that's respectful to growers, to farmers, to the planet, to the bakers, and help everyone. •

If you only pollinate

10

or 12 flowers on a plant, you will get better quality beans than if you pollinate all of them

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Bagels at the Center

When she moved to Berlin in 2020, Alex Frons searched the city for bagels that tasted like the ones she grew up with in New York. Because she couldn't find them, she set out to make them herself. That's how this New Yorker ended up bringing the flavors and texture of her childhood to the German city.

By Jo Ilie

In a now famous 2003 article from The New York Times, Ed Levine, food writer and New Yorker, defined it like this: "A bagel is a round bread made of simple, elegant ingredients: high-gluten flour, salt, water, yeast and malt. Its dough is boiled, then baked, and the result should be a rich caramel color; it should not be pale and blond. A bagel should weigh four ounces or less and should make a slight cracking sound when you bite into it instead of a whoosh. A bagel should be eaten warm and, ideally, should be no more than four or five hours old when consumed. All else is not a bagel."

With a history of at least 600 years, if not more, the bagel is considered to have come from a Jewish community in Poland, one of the few places that didn't forbid Jewish people from baking bread. Whatever the origin story, this round and satisfying (boiled and) baked bread has been associated with

the Jewish community and even more so with the one in New York, where it became the breakfast and lunch staple of the city. The US bagel market is the largest in the world: total US sales for 2021, the last year with final stats, reached USD1.546bn, according to IRI research. Fresh bagel sales were up 12.1% from 2021, while packaged bagels showed less, but decent growth with a 4.3% increase.

New Yorkers have strong opinions - as exemplified in the opening quote - about what makes a good bagel and seem to be looking for one wherever they go, even in this gluten-free age. So is the case of Alex Frons, a New Yorker who moved to Berlin in 2020 and couldn't find anything remotely similar to the bagels she grew up with. "And I figured I wouldn't be the only one missing bagels," Alex says today. "So, I thought it would be a good idea to start a bagel business. And I initially wanted to hire someone to do all of the baking for us and everything. I started it with a friend of mine who is also American, whom I knew from university, but who's been living in Germany for like over 12 years. And he convinced me that no one would really know the type of bagel I wanted because they don't do bagels here."

That's how Masha's Bagels, a deli reminiscent of New York corner bagel shops, came up to be, in July 2021, by Treptower Park in Berlin. "We modeled it after a New York style delicatessen with bagels. In New York, you wouldn't necessarily find a place like Masha's where they do both like a bagel shop and do sort of a Jewish delicatessen things that we're doing like matzo ball soup and Reuben's and things like that. But we wanted to combine them to make it sort of a holistic New York experience."

Finding the recipe for bagels had its challenges, and not only because Alex is, in her own words, "an amateur baker." In theory, it couldn't be simpler. "New York style bagels traditionally are quite pure in their ingredients," explains the baker. "So it's just basically the same ingredients you would find in bread, like flour, water, salt and yeast. And then they have the added ingredients of malt, either malt powder or malt syrup that gives them the distinct flavor and chew. And then all bagels are boiled before they're baked, which also differentiates them from regular bread."

But the flour in Germany is quite different from the one in North America: it's a soft wheat flour and it has less protein than the one in the hard wheat flour traditionally used in the US. "That makes it a little bit challenging because there's a lot more gluten in flour in the US and North America in general," says Alex. "And gluten is the staple of bagels. So that was a little bit tricky. We used what we could find here that was as close as possible. But it was definitely the biggest challenge, I think, in replicating exactly what we wanted to do. We use pizza flour for that reason. And that's been working pretty well for us." Things got even trickier at the beginning of war in Ukraine, when they were affected by the flour shortage. They had to tweak the recipe to get the same results the clients expected. "But as long as we're using a flour with a high protein content, it seems to work pretty well."

Clients are coming to their shop from all over Berlin. "We have a lot of regulars who either live in the neighborhood or come to us specifically because of our bagels. And that's always very heartening to see." Some come every day, they have bagels for breakfast or lunch or "all day, basically". On the weekends, they have a lot of business from people who come for a sort of brunch experience, "even if it's not like traditional brunch."

There are two bestsellers. The first is what they call "New York classic", a bagel with cream cheese and smoked salmon (they cure their own fish and meats), tomatoes, onions, and capers. And the second one is a breakfast sandwich with bacon, egg, and cheese "that you would find at any deli or corner store in New York."

The backdrop hasn't changed much around them since they opened. The market is still dominated by German-style bagels, which are puffier with lots of dough in the center, more of a bread than a bagel. But they are not planning to fill this gap yet: "We don't have plans to expand just yet," says Alex. "What we would like to do soon is expand our catering operations. That's the most immediate plan. We've been taking the jobs and figuring it out as we go, but we'd like to sort of have a more organized catering operation, both with just bagels and cream cheese that we supply to offices, but also like our full breakfast and lunch menu."

Alex would love to open a second location at some point, but those plans are on the back burner as she is expecting a child. "So that's the first order of business. Maybe next year, once I have a little bit more time to think of the next steps, we'll be thinking about maybe a different place." One with a bigger kitchen, where the chef making matzo ball soup doesn't step on the toes of the baker who slices gravlax for sandwiches. But, for sure, one where bagels will still be the center. •

Traceability Is **a Means to an End**

Consumers increasingly require greater transparency about the products they buy and that changes the way companies look at their supply chains. This is especially relevant for food manufacturers, as certain crops - palm oil, cocoa, milk - require support to become sustainable.

By Jo Ilie

The moral value of food is a new addition to our relationship with the nourishment that keeps us going. In times of scarcity, which characterizes most of our history, it was enough for food to just be. When we had abundance - which was a result of industrial agriculture, food safety measures in place and global distribution - we became more discerning, because we needed sound criteria to help us make choices. Sometimes, that was price, other times, emotional connection to a product. More and more, in the past 20 years, the moral value assigned to foods became a strong reason to favor one ingredient above others. Consumers want to know where their favorite foods come from and they want to know they were ethically produced, so that they also feel good about themselves as end-users.

And the food industry listened, albeit it is a long and complicated process to ensure traceability of ingredients produced half a world away from where they are processed and transformed into, for example, delicious chocolate.

"More than ever, our customers are requesting greater transparency into the supply chains behind the products they buy," says Kate Clancy, Group Sustainability Director for Cocoa & Chocolate at Cargill, one of the largest food companies in the world. "We see the greatest interest in our cocoa, palm and soy supply chains, but interest in sustainable, ethical sourcing extends across all our supply chains." Their customers – and their consumers – want assurance that raw materials are sourced in a sustainable, environmentally friendly way, with high regard for social standards and ethical economic practices.

In Cargill's case, the process of becoming transparent started with setting sustainability goals in 2017. These include reducing absolute greenhouse gas emissions (GHG) in their operations by 10% by 2025, against a 2017 baseline, then reducing GHG in their extended supply chain by 30% per ton of product by 2030, against a 2017 baseline. Other objectives are to achieve sustainable water management in all priority watersheds and to transform their agriculture supply chains to be deforestation-free. Training on sustainable agricultural practices and improved access to markets for 10 million farmers by 2030 was included, as well as respecting internationally recognized human rights.

In practice, these goals took different forms. They mapped which technology they could use and for what purpose. "For example, in our direct cocoa sourcing network, GPS/polygon mapping of farms and digital barcodes that electronically track individual bags of cocoa beans are helping us achieve first-mile traceability," says Clancy. "We also track and document financial transactions, including using mobile solutions to pay cocoa farmers when possible, so that we can trace back cocoa payments and have visibility into how sustainability premiums are invested."

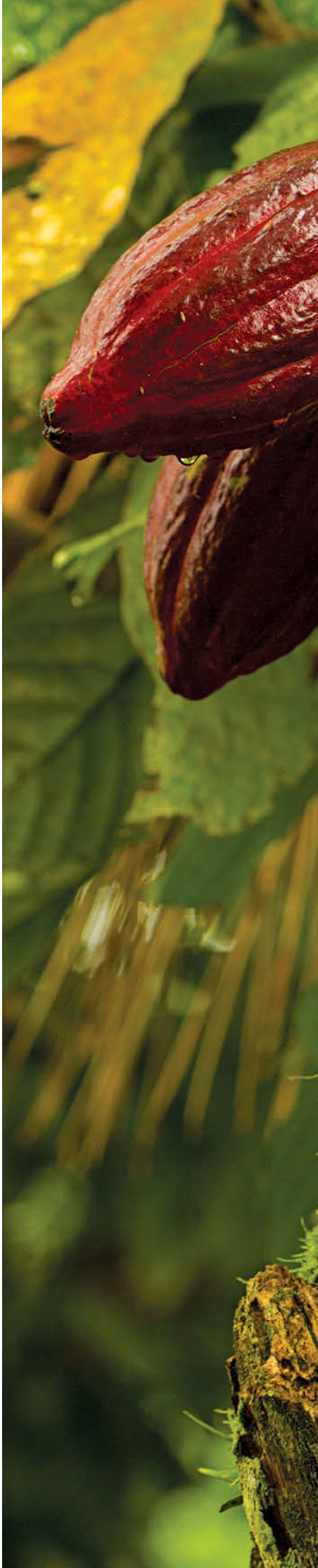
A similar approach comes from Kerry, a major ingredients company. Maarten Butselaar, Responsible Sourcing Senior Manager, explains: "Given our from-food-for-food heritage, the greatest impacts associated with our products often lie with agricultural production. While it can present social and environmental challenges, agriculture can help reduce poverty, raise incomes and improve food security for 80% of the world's poor."
As part of their vision to create a world of sustainable nutrition, they are supporting their suppliers to drive more sustainable practices, ensuring that 100% of priority raw materials are responsibly sourced by 2030. "In 2022, we set out and communicated our requirements for suppliers across categories linked to deforestation and we continue to work directly with supply partners and other third parties on programmes deployed at farm level."

TRACEABILITY PRACTICES HELP PREVENT CHILD LABOR

For Cargill, the investment in technology and partnerships resulted in them seeing the sources of our cocoa and oil palm "like never before." The monitoring benefits farmers, too, says Clancy, as it helps provide greater assurance to the market, consumers and regulators that cocoa and palm is grown in a responsible and sustainable way.
"Importantly, traceability helps us to develop targeted intervention programs," she explains. "GPS mapping of the cocoa farms, overlaid with maps of forests, allows us to focus our activities where it is most needed to protect and restore forests. In addition, we've partnered with PUR Projet to support on-farm restoration and forest protection in buffer zones of important conservation areas. Cocoa farmers like Ouatara Shaka are at the center of our work. He's one of the nearly 22,000 cocoa farmers in our supply chain who have started adopting agroforestry practices that reforest areas while also supplementing farmers' incomes." This intervention has led to more than 1.2 million trees planted on farms that, as they grow and develop, have the potential to sequester nearly 137,000 metric tons of carbon dioxide equivalent by 2040 – and demonstrates how cocoa farming and forests can co-exist, says the expert.
A major concern when it comes to cocoa production is child labor. Monitoring every step of the process allowed Cargill to understand more about where the risk comes from and thus they are able to create partnerships with the International Cocoa Initiative, CARE, Save the Children, governmental agencies and others to address the root causes of child labor. These efforts include helping families secure birth certificates so their children can attend school, supplying school materials and equipment, rehabilitating and expanding school infrastructure and supporting nutrition programs.
In the same effort to reduce child labor, ofi (olam food ingredients) has an ongoing report called Cocoa Compass where it quantifies the volume of child labor. In the latest edition they found out that over 80% of the 11,194 instances of child labor identified in 2020/21 (-6% compared to 2019/20) involved children undertaking hazardous tasks on the family farm. 86% of these children were also attending school, and only 3% of children reported having dropped out of school to work on the farm, but they were often involved in more than one type of hazardous task, such as carrying heavy loads, digging holes, removing tree roots, burning plots of land, handling agrochemicals, and more. Remediation actions included helping 429 children getting birth certificates, building or rehabilitating 102 classrooms, distributing over 20,000 school kits, and offering scholarships to over 250 children. All these are expected to help families keep children in school and protect them from child labor.

THE HOT POTATO OF PALM OIL

Palm oil is probably one of the best-known and most debated ingredients in the food industry. Due to the negative impacts on the environment, wildlife, and human rights, many food companies have been steering away from incorporating unsustainable and traditional industrialized sourced palm oil into their products. But it's an essential ingredient. In 2022, the supply chain interruptions in sunflower oil caused by the war in Ukraine, in soy oil caused by drought in South America, and in canola oil caused by drought in Canada showed that no continent can rely on only one source of oil and palm should be a legit option. And the way to that is making it sustainable.
In Cargill's palm supply chain, they map the fresh fruit bunch supply base of palm oil mills and identify areas of higher risk for not meeting environmental and social sustainability criteria. They also use plantation location data to conduct remote monitoring of palm plantations and adjacent



areas using satellite technology to help ensure there are no signs of deforestation or planting on peat lands.

Beyond technology, they work with local farmers to create better partnerships.

"One example of this work is the Siak and Pelalawan Landscape Program, where a coalition formed by Cargill and eight other companies working together with the Consortium of Resource Experts, known as CORE —which includes Daemeter and Proforest—help smallholders adopt sustainable agricultural practices," says Clancy. "In 2021, 15 villages committed to participate in conservation activities, 1,215 oil palm smallholders were mapped and identified using smallholder business registration guidelines, 1,160 people were trained on good agricultural practices, and 53 palm oil mills were engaged - a 300% increase from the 2018-2019 baseline year."

Palm oil producers can now obtain a certification of their good practices from AIB International Certifications Services. AIB can perform benchmarked Global Food Safety Initiative certification audits for the global food supply chain and can offer Roundtable on Sustainability Palm Oil Supply Chain Certification services. The certification service can be offered in any country in the world, except China.

BEYOND COCOA AND PALM

Traceability is important for less than global supply chains too. In Kerry's case, which is based in Ireland, that meant getting independent carbon footprinting certification across all Irish milk volumes, but it didn't stop there. "We have launched the Evolve programme to incentivise carbon reductions at farm level and improve the resilience of farm enterprises," says Maarten Butselaar, Responsible Sourcing Senior Manager.

"Targeting a 30% reduction in carbon intensity [carbon emissions per action] by 2030, Evolve helps to address risk in the region where it is deployed, provides an industry-leading template for supplier engagement in other regions and delivers less carbon intensive inputs that can meet consumer demand for more sustainable products."

The road ahead is not easy, as competing forces, climate change and political instability can influence the efforts made from traceability, but the blueprint of good practices has been drawn and food producers know what works to help them achieve their goals. •

Taking **the Biscuit**

The world has a large and expanding market for snack foods, the range of which continues to widen. Snacks are eaten on a range of different occasions, with more consumers increasingly inclined to view them as replacements for meals or 'mini meals' in themselves, rather than simply as a between-meals option.

By Jonathan Thomas

Evidence from the past couple of years suggests that the snack foods sector was one of the main beneficiaries of the pandemic, as consumer eating patterns changed and more people sought out reassuring and/or comforting products in times of stress. Other important market drivers include the desire to eat more healthily, as well as greater consideration of the environmental impact of foods.

According to the latest edition of Mondelez's State of Snacking report (which surveyed the opinions of consumers in 12 countries and was published early in 2023), 71% of consumers snack at least once a day, with the snacking habit most deeply ingrained amongst the younger age groups. Despite the rising cost of living, 75% of people always find room in their budgets for snack foods, a figure that increases to 80% for millennials. The research also found that snacks are increasingly replacing main meals during a typical day. In 2022, over 60% of consumers claimed to eat snacks for breakfast (up from 50% two years earlier), while a similar percentage turned to snack foods as an option for both lunch and the evening meal.

Cookies and other sweet biscuits remain one of the most popular snack options for consumers. According to the Mondelez research, 65% of consumers claimed to eat these foods at least once a day in 2022, up from 60% three years earlier. Sweet biscuits appear to be more popular as a snack than their savory counterparts, with the percentage of consumers eating savory biscuits or crackers every day rising from 51% to 55% during this time. As can be seen from the table below, cookies and sweet biscuits now represent the second most popular snack option, trailing only bread, rolls and wraps.

Biscuits (both sweet and savory) represent one of the most well-established foods worldwide, with a heritage dating back to Roman times. Traditional biscuits are usually made using ingredients such as flour, fats (e.g. butter), eggs and chemical leavening agents (e.g. baking powder or soda) and are baked to a low moisture content. Sweet biscuits typically feature ingredients such as sugar, cream, jam, chocolate, dried fruit, nuts or icing during the manufacturing process. Many of the sweet biscuits sold throughout the world are referred to as cookies, which are usually baked until crisp or just long enough to remain soft. A significant overlap exists between cookies and sweet biscuits, although some key differences do exist.

In western markets such as Europe and North America, sweet varieties account for the greater percentage of overall biscuit sales. The remainder of the market comprises savory biscuits, a sector that includes products such as crackers. Flavors typically encountered within the savory biscuits market include salt, pepper, cheese, seeds and certain herbs, with garlic and rosemary two of the more common examples. As consumer tastes evolve, the boundaries between sweet and savory biscuits have begun to blur. In parts of the world, consumers have demonstrated a greater interest in biscuits combining sweet and savory flavors. This trend has been most evident in the Asian region – in the South Korean market, for example, biscuits flavored with sugar, coconut and oyster have appeared.

Although consumer expenditure on biscuits has for the most part held up in recent months, markets such as the UK have reported declining sales of lower-cost products, as consumers become choosier in their spending and limit purchases to more indulgent alternatives. Biscuit manufactures are also experiencing an increase in the cost of key ingredients such as flour, sugar and vegetable oil, caused by disruptions in the global supply chain. The market may therefore witness price rises over the coming months as these costs are passed on to consumers.

SWEET BISCUITS

Global sales of cookies were boosted during the pandemic as consumers

Table 1: Most Popular Snacks Eaten (%), 2019-2022

	2019	2022
Cookies/sweet biscuits	60	65
Savory biscuits/crackers	51	55
Cakes/sweet bakery products	49	51
Crisps/popcorn/pretzels	48	53
Bread/rolls/wraps	73	79

Source: Mondelez State of Snacking report

snacked more frequently, with demand increasing by up to a third. According to data from Grand View Research, the global cookies market is expected to reach just over USD44bn by 2025, with annual growth averaging more than 5%. Although the world's largest markets for sweet biscuits and cookies can be found in the more developed regions of North America and Europe, future growth is expected to be higher in countries such as China and India, due to the continued urbanization of the population in these countries, as well as rising levels of disposable income.

With annual sales worth over USD11.6bn, the US has the world's largest market for sweet biscuits and cookies. An estimated 95% of the US population eats cookies at least once per month, while a fifth of all people eat three or more during a typical day. The US market is interesting in that distinctive regional preferences exist in terms of consumer preferences for cookies and sweet biscuits, as is illustrated in the table below. As can be seen, residents in the state of Maine display a liking for varieties such as chocolate chip and oatmeal raisin cookies, whereas people from Oklahoma and Montana tend to prefer products made with peanut butter.

The UK represents another of the world's largest markets for sweet biscuits and cookies. According to data from Nielsen, sales increased by almost 2% in 2022 to GBP1.7bn. This represents almost 79% of the total biscuits market in the UK, with savory biscuits and crackers making up the remainder. Much of this growth has been driven by the fact that more biscuits are being eaten on-the-go or during lunchbox occasions in the post-pandemic environment, as well as the emergence of more convenient formats such as mini-sized packs.

Chocolate-covered varieties represent one of the most popular forms of sweet biscuits worldwide. One of the global leaders is KitKat from Nestlé, which is sold in more than 80 countries. The brand is now available in various formats besides its traditional two and four-finger varieties, examples of which include KitKat Chunky and KitKat Pops. Much of the brand's innovation involves the launch of novel flavors – some of the more unusual throughout the world include Blueberry Muffin, Birthday Cake, Melon and Cheesecake. In Australia, the brand has recently been extended with new flavors drawing upon local ingredients, namely Tasmanian Mint and Southern Australian Orange. In the UK, forthcoming plans for the brand include a vegan version of KitKat, as well as a new KitKat Chunky White featuring Lotus Biscoff, an iconic biscuit from the Belgian-based firm of the same name.

Chocolate also represents a popular accompaniment to digestives, a form of sweet biscuit widely sold in markets such as the UK where household penetration is around a third. In the UK, the market leader is the McVitie's brand from pladis, sales of which exceeded GBP408m in 2022. The same year saw the launch of new Galaxy-branded chocolate digestives from Mars in Milk Chocolate and Orange flavors, in response to a perceived lack of brand choice within the sector.

The new Galaxy-branded biscuits are manufactured by Fox's Burton's Companies (FBC) UK, which was created in 2022 via the merger of the former Fox's Biscuits and Burton's Biscuit Company. Prior to this, Ferrero had acquired both companies separately. Another leading supplier is Mondelez, which introduced the Lu brand (which leads the French market and can be found in over 100 countries) to the UK in early 2022. Mondelez is also strong in the breakfast biscuits sector owing to the BelVita brand, of which around 9 billion are manufactured every year. In the summer of 2022, the UK range was extended with new healthier biscuit bars in response to the recently introduced regulations restricting the promotion of foods high in sugar, salt and fats.

SAVORY BISCUITS & CRACKERS

Much of the recent growth within the global savory biscuits and crackers market can be attributed to the introduction of healthier varieties, specifically those positioned as free from artificial additives and ingredients, as well as gluten-free options and products fortified with ingredients such as whole grains, ancient grains, protein, fiber and seeds. Many types of savory biscuits and crackers are also popular with consumers seeking to lose weight, given that they increase the feeling of satiety and therefore reduce the inclination to eat.

Savory biscuits and crackers also benefit from their suitability as carriers for various toppings – these are limited only by the imagination and typically include foods such as cheese, pate, sour cream, smoked salmon, vegetables (e.g. tomatoes, olives, etc.) and popular spreads. For younger consumers especially, these can be shared with family and friends using social media platforms such as Instagram, therefore adding to their appeal. Although they are

usually most often eaten as snacks, savory biscuits and crackers also represent popular lunchtime options. Although health and nutritional claims remain a key feature of the category, more effort is now being made to appeal to a wider audience. In the UK, the leading brand Ryvita (which is owned by Associated British Foods) underwent something of a makeover during the summer of 2022. As part of a new GBP3m campaign, Ryvita attempted to distance itself from the diet culture with which it has traditionally been associated. Instead, it is now placing more emphasis upon taste and enjoyment, as well as addressing a range of different eating occasions. To illustrate the greater overlap with the sweet biscuits sector, which now exists, the Ryvita range in the UK now includes Fruit Crunch. This range of biscuits features currants, oats and seeds and is promoted as being suitable for sweet (rather than savory) toppings. Gluten-free is also a common health claim within the market, even though relatively few people have coeliac disease – in the US, for example, around 1% of the population suffers from this condition. However, a higher percentage of people now limit their gluten intake, for reasons such as health concerns. A gluten-free version of the Wasa crisp bread brand (which appears in 40 countries worldwide) is available, while one of the leading suppliers in the UK is Nairn's, leader of the country's market for oatcakes with annual sales worth around GBP20m. Its supplies gluten-free wholegrain crackers in flavors such as Cheese, Super Seeded and Cracked Black Pepper, while its range was extended early in 2023 with new gluten-free Sourdough Flatbreads. These were described as larger than crackers but just as light and crispy, and suitable for a range of toppings.

Manufacturers also appear to be making more effort to actively pair their savory biscuits with some of the more traditional toppings, as a way of further increasing their appeal. During the first quarter of 2023, the Ritz brand teamed up with Philadelphia cheese to promote and emphasize the synergy existing between the two products. According to Mondelez, the Simply Better with Philadelphia campaign stressed the versatility of the soft cheese brand, incorporating extensive in-store, digital and social media visual imagery.

Flavor innovation is also in evidence within this sector, driven by the continued popularity of many types of ethnic cuisine. Flavors based on popular herbs and spices are well-represented within the market for savory biscuits and crackers – examples include rosemary, chives and black pepper. One example from North America is the Wheat Thins brand, which forms part of Mondelez. These crackers, which contain up to 60% less fat than rival brands, are available in flavors such as Sundried Tomato & Basil and Cracked Pepper & Olive Oil. In the UK, the Scottish-based Stag Bakeries supplies savory biscuits made with Hebridian seaweed, which creates a novel taste profile. •

Table 2: Regional Cookie/Sweet Biscuit Preferences in the US, 2022

TYPE	TOP THREE US STATES BY PREFERENCE
Chocolate chip	Maine, Alaska, South Dakota
Oatmeal raisin	Vermont, Maine, Idaho
Peanut butter	Oklahoma, Montana, West Virginia
Biscotti	Rhode Island, Connecticut, New York
Shortbread	Hawaii, Vermont, Alaska
Butter	Vermont, Maine, Alaska

Source: Boost Agency

British and Irish Consumers **Favor Bold Flavors**

UK and Ireland baked goods markets face two different sets of challenges that have to do with each one's unique post-pandemic road to recovery and the economic realities affecting the world.

By Jo Ilie

The trends that shape the bakery business everywhere are also influencing the British and Irish markets. The lifting of pandemic restrictions changed once more the home-centered habits people had acquired in 2020 and 2021. The preoccupation with health and nutrition favors ingredients and products that are less loaded with sugar, oil and salt. Inflation and supply chain challenges affect both the buying habits and production. Here's what it looks like for each country, in a market analysis by Euromonitor International.

UK: RETAIL VOLUME SALES STAGNATE DUE TO INFLATIONARY PRESSURE

According to the market research company, while retail sales of some baked goods benefited from the pandemic due to home seclusion over 2020, the easing of lockdown restrictions in 2021 signaled the gradual return to normality. In retail volume terms, baked goods recorded a notable decline due to greater mobility outside of the home among local consumers, who subsequently replaced home cooking with eating out, contributing to the gradual recovery of foodservice. With consumers spending less time at home, the need for quick recipes, such as homemade sandwiches, was reduced, leading to declining sales for packaged flat and leavened bread. Similarly, packaged cakes and sweet pies and tarts recorded negative growth in 2021, driven by reduced occasions for indulgence at home, while slowing enthusiasm for home cooking translated into reduced demand for dessert mixes and frozen baked goods. On the other hand, unpackaged products returned to growth, benefiting from greater demand for artisanal and fresh options that can be consumed on the go.

Retail volume sales of baked goods sales are set to stagnate over 2022 - to a total estimated market value of EUR 9.8bn - driven by strong inflationary pressure and the implementation of the HFSS regulation in October, thereby limiting the in-store and online presence of packaged cakes, pastries, sweet pies and tarts. Labour shortages, the energy crisis, and the increasing cost of raw materials across the entire supply chain are leading to strong price increases in baked goods. The situation has been further deteriorated by the war in Ukraine, considering subsequent global shortages of wheat and vegetable oils, important elements in producing baked goods. In turn, inflation limiting consumers' disposable incomes is leading to declining demand for packaged leavened bread, cakes and pastries, whilst sustaining current value sales. On the other hand, unpackaged options maintain moderate growth, recovering from the 2020 impact, yet in actual terms they continue to underperform compared to pre-pandemic levels.

IRELAND: INNOVATIONS ATTRACT INDULGENT CONSUMER AS THE SEARCH FOR FLAVOR HEIGHTENS

According to Euromonitor International, customers purchased a variety of baked goods in 2022, an estimate of EUR 1.3bn in 2022, with many searching for novel offerings and tasty flavors. Producers have embraced this trend. For example, Irish cake makers Ginger Bakers teamed up with Cumbrian brewery Lakes Brew Co to create a limited-edition chocolate and stout sponge. The collaboration between the duo is further cemented with the use of a signature design on their respective products, both featuring a work called Langdale Dawn created by Cumbrian artist Paul Bennett.

In the search for more indulgent experiences, some consumers have spent more time

browsing websites and social media, looking for recipe inspiration. Bold flavors and textures were high on the agenda across all product offerings, with classic cakes and traditional bakes coming to the forefront, being 'Instagram worthy'. This was particularly the case for those offering bright colors and patterns. This boldness for design was also reflected in flavor, with marketing lines "hints of' and "infused with" declining in favor of 'say hello to bold' taglines, which are becoming mainstream in supermarkets.

PROBLEMS FOR LOCAL BAKERS IN IRELAND AS CONSUMERS MIGRATE TO SUPERMARKETS

In 2022, raising costs of production, raw material and labor primarily affected the smallest bakeries and local baked goods producers in Ireland. These players were forced to either reduce their profit margin or increase prices. This meant many customers left their establishments in favor of larger retailers, with supermarkets being able to operate on lower margins, maintaining profits due to the volume sold.

PRODUCTS THAT FOCUS ON HEALTH BENEFITS STIMULATE SALES IN BAKED GOODS

Consumers also increasingly sought out natural and organic products for breakfast. As they were looking for healthier alternatives to their regular meals and quick breakfasts, which were often unhealthy ones, the variety of breads with added value and ingredients such as seeds and minerals increased, garnering more of a presence on Irish tables at breakfast time. Baked goods producers have expanded their portfolios by increasing sales of flatbread, as consumers demanded a larger variety of formats and flavors. •

*The value for 2022 is estimated because only data up to October 2022 is available at the time of the analysis.

Market analysis based on data provided by Euromonitor International.

EUROMONITOR INTERNATIONAL

Passport

Retail value (EUR m)					Forecast*
Geography	Category	2019	2020	2021	2022
Ireland	Baked Goods	1.123,2	1.179,1	1.236,1	1.344,0
Ireland	Bread	787,8	824,6	860,3	937,4
Ireland	Cakes	227,2	239,8	254,3	274,6
Ireland	Dessert Mixes	23,0	24,0	25,1	28,1
Ireland	Frozen Baked Goods	16,2	16,6	17,2	18,8
Ireland	Pastries	56,7	61,3	65,9	70,8
Ireland	Dessert Pies and Tarts	12,3	12,8	13,3	14,3
United Kingdom	Baked Goods	8.918,6	8.882,4	9.020,1	9.833,2
United Kingdom	Bread	4.256,0	4.306,5	4.316,1	4.711,9
United Kingdom	Cakes	2.767,4	2.594,9	2.661,8	2.914,0
United Kingdom	Dessert Mixes	133,6	144,5	148,6	159,0
United Kingdom	Frozen Baked Goods	179,5	193,5	197,0	212,3
United Kingdom	Pastries	922,5	967,1	1.012,6	1.092,5
United Kingdom	Dessert Pies and Tarts	659,7	675,9	684,1	743,6

Year-on-year growth (%)				Forecast*
Geography	Category	2019 - 2020	2020 - 2021	2021 - 2022
Ireland	Baked Goods	5,0	4,8	8,7
Ireland	Bread	4,7	4,3	9,0
Ireland	Cakes	5,6	6,0	8,0
Ireland	Dessert Mixes	4,5	4,6	11,8
Ireland	Frozen Baked Goods	2,4	3,3	9,3
Ireland	Pastries	8,1	7,5	7,4
Ireland	Dessert Pies and Tarts	3,9	3,9	7,7
United Kingdom	Baked Goods	-0,4	1,6	9,0
United Kingdom	Bread	1,2	0,2	9,2
United Kingdom	Cakes	-6,2	2,6	9,5
United Kingdom	Dessert Mixes	8,2	2,8	7,0
United Kingdom	Frozen Baked Goods	7,8	1,8	7,8
United Kingdom	Pastries	4,8	4,7	7,9
United Kingdom	Dessert Pies and Tarts	2,5	1,2	8,7

Source: Euromonitor International

Sustainability in Focus **This Spring**

The European trade shows are waiting for exhibitors and visitors with business opportunities and forums where they can talk about their challenges.

By Jo Ilie

ISM 2023 & ProSweets 2023

April 23-25, Cologne, Germany

ISM 2023 has established itself as the number one trade fair for the confectionery and snacks industry. Through its comprehensive range of products the event attracts over 1800 exhibitors and approximately 37 000 professional visitors from around the world. ISM 2023 is the largest exhibition for industry suppliers in the branch in Europe and offers a range of presentations from experts and social events so you will have the knowledge to create the best experience for your customers. Many focus areas will be addressed at the expo and top professionals will present their products: chocolate and chocolate products, sugar confectionery, biscuits, snack foods, trend snacks, natural snacks, breakfast snacks, ice cream, deep-frozen confectioneries / raw pastes.
ProSweets Cologne takes place parallel to ISM. ProSweets covers the entire industrial value chain of the snacks and sweets industry and is especially designed for suppliers.

Vitafoods Europe 2023

May 9-11, Geneva, Switzerland

Vitafoods Europe 2023 takes place online from May 1-12 and in person at the Palexpo Convention Center in Geneva, Switzerland from May 9-11. The show will offer some new features such as a Sustainability Resource Center and Startup Innovation Challenges, as well as some previous content offerings through the Future of Nutrition Summit on May 8 and the Vitafoods Europe Conference on May 9-10. The trade show will focus on the challenges and opportunities in nutraceuticals, as well as applications of the latest scientific research in trending health areas. A returning event will be the Vitafoods Insights Theater, which offers free-to-attend expert sessions that dive into current global consumer trends, updates on regulatory and supply chain issues, as well as insights into delivery formats and packaging.
The trade show will also host the Future of Nutrition Summit, a paid-for one-day summit, will discuss trends and technologies that will shape the nutrition industry in five year's time.

TUTTOFOOD 2023

May 8-11, Milan, Italy

TUTTOFOOD is the B2B exhibition for the entire agri-food ecosystem. Global and innovative, it is the reference point in the world for producers and distributors of quality products from the entire food and beverage supply chain, who meet buyers such as: distributors, importers, proximity stores, gourmet stores, food service, chefs.
This edition focuses on reducing food waste and on sustainability. In addition to the business opportunities at the exhibition, the heart of this all-round meeting of supply and demand is Retail Plaza by TUTTOFOOD, a unique format developed in collaboration with Business International, Fiera Milano's content company, in which the major Italian and global retail brands interact with companies and other stakeholders in a close dialogue that is difficult to achieve in other settings. Also confirmed for TUTTOFOOD 2023, the partnership with the Retail Institute, which has helped identify the burning current topics, which will also be addressed from a sustainability point of view: these include supply chain innovation, the opportunities offered by digital transformation - such as the metaverse - or the Green Retail approach. •

2023 FEATURE PLANNING

1 JANUARY/FEBRUARY
Ad closing: Jan 16/Publishing: Jan 30

TECHNOLOGY
Sheeters & Laminators / Smart Bakery Systems

PROCESS
Calibrating Production Lines / Cutting and Forming

SPECIAL FEATURE
Scaling Up Production

EXPERT VIEW
Low Pressure Extruded Snacks

FOOD SAFETY
Hygienic Equipment Design

INGREDIENTS & NUTRITION
Flours / Shelf-life Optimization

PACKAGING
Secondary packaging

MARKETS
Italy

SNACKING TRENDS
Expanded / Extruded Snacks

CRAFT BAKING
Freezers, Display Freezers & Coolers

SUPPLY CHAIN & LOGISTICS
Storage & Warehouse Management

PRODUCT SPOTLIGHT
Pizza

TRADE SHOWS
SIRHA Review, AB Tech Expo Review, Food Expo Greece Preview

2 MARCH/APRIL
Ad closing: Mar 30/Publishing: Apr 13

TECHNOLOGY
Conveyor Belts / IIoT: Process Control Systems

PROCESS
Inspection & Monitoring / Flexibility in Production

SPECIAL FEATURE
Energy Saving & Process Optimization

EXPERT VIEW
Sustainable Packaging Materials

FOOD SAFETY
Sanitation & Allergen Management

INGREDIENTS & NUTRITION
Oils & Fats / Flavors & Colors

PACKAGING
Packaging Automation

MARKETS
UK & Ireland

SNACKING TRENDS
Savory vs Sweet Biscuits

CRAFT BAKING
Kneaders & Mixers

SUPPLY CHAIN & LOGISTICS
Traceability

PRODUCT SPOTLIGHT
Traditional Bakery & Ethnic Sweets

TRADE SHOWS
Food and Drink Expo Preview, ISM 2023 (Koln) - preview, Anuga Preview

3 MAY/JUNE
Ad closing: May 22/Publishing: June 05

TECHNOLOGY
Turnkey Lines / Software & Sensors

PROCESS
Cooling & Freezing, Vacuum Cooling / Seasoning

SPECIAL FEATURE
Smart Production & Industry 4.0

EXPERT VIEW
Efficient Product Transport: Conveying Systems

FOOD SAFETY
Trainings and Program Implementation

INGREDIENTS & NUTRITION
Plant-based Bakery / Enzymes

PACKAGING
Packaging Design

MARKETS
Scandinavia

SNACKING TRENDS
Pies & Cakes

CRAFT BAKING
Dividers / Rounders

SUPPLY CHAIN & LOGISTICS
Supply Chains & NPD

PRODUCT SPOTLIGHT
Plant-based Bakery Products

TRADE SHOWS
Free From Functional Health Ingredients - June 6-7, 2023

4 JULY/AUGUST – IBA Preliminary Report
Ad closing: Aug 01/Publishing: Aug 15

TECHNOLOGY
Frying Equipment / Energy Saving

PROCESS
Topping & Glazing / Mixing & Hydrating Ingredients

SPECIAL FEATURE
Sustainability: Challenges & Outcomes

EXPERT VIEW
Oils, Fats & Dough Rheology

FOOD SAFETY
Certifications, Regulations & Compliance

INGREDIENTS & NUTRITION
Dough Improvers / Inclusions / Pulses

PACKAGING
Sustainable Materials

MARKETS
Spain & Portugal

SNACKING TRENDS
Sandwich Breads / Flatbreads

CRAFT BAKING
Deck and Rack Ovens

SUPPLY CHAIN & LOGISTICS
Handling & Transport

PRODUCT SPOTLIGHT
Donuts

TRADE SHOWS
Pack Expo Las Vegas Preview

5 SEPTEMBER/OCTOBER
– IBA 2023 Special Edition
Ad closing: Sept 18/Publishing: Oct 02

TECHNOLOGY
New Oven Technologies

PROCESS
Extrusion / Depositing

SPECIAL FEATURE
Product Quality Management

EXPERT VIEW
Plant-based Formulation & Production

FOOD SAFETY
IoT in Food Safety Management

INGREDIENTS & NUTRITION
Sweeteners / Emulsifiers

PACKAGING
Robots / Cobots

MARKETS
Germany

SNACKING TRENDS
Enrobed / Filled Sweets

CRAFT BAKING
Pastry Equipment

SUPPLY CHAIN & LOGISTICS
Cold Chain

PRODUCT SPOTLIGHT
Crackers

TRADE SHOWS
Process Expo Chicago Preview

6 NOVEMBER/DECEMBER
– Europain 2024 Special Supplement
Ad closing: Nov 07/Publishing: Nov 21

TECHNOLOGY
Dough Dividers/ Rounders, Mixers & Kneaders

PROCESS
Conveying / Hygiene & Sanitation

SPECIAL FEATURE
Sustainable Sourcing of Ingredients

EXPERT VIEW
Pans, Trays, Racks & Bakeware

FOOD SAFETY
Process, Product & Staff Protection

INGREDIENTS & NUTRITION
Yeast & Sourdough / Proteins & Fibers

PACKAGING
Active Packaging

MARKETS
France

SNACKING TRENDS
Wafers

CRAFT BAKING
Small Footprint Technology

SUPPLY CHAIN & LOGISTICS
Software Solutions

PRODUCT SPOTLIGHT
Frozen Pastry

IT'S ALL IN THE FAMILY

we make to bake

Verhoeven Bakery Equipment Family has a long and successful history of tailor-made development, engineering and production for the food industry. In the bakery market the family labels have established a strong position due our innovation and creative turnkey solutions. We sell high end production lines and state-of-the-art machines. Developed and made by a wonderful team of dedicated people. They make us proud. We would love to show you why.

MAKE UP
Laminating
Sheeting lines
Universal lines
Donut lines
Pie lines

HANDLING
Conveying
Robotizing
Depanning

PRE-CONDITIONING
Product conditioning
Proofing

END OF LINE
Packaging solutions
System integration

CONDITIONING
Cooling / Freezing
Vacuum Cooling

BVT DOUGH PROCESS SOLUTIONS | VERHOEVEN FAMILY MEMBER
NEWCAP INDUSTRIAL HANDLING SOLUTIONS | VERHOEVEN FAMILY MEMBER
VACUUM COOLING & BAKING SOLUTIONS | VERHOEVEN FAMILY MEMBER
BAKEPACK END OF LINE SOLUTIONS | VERHOEVEN FAMILY MEMBER

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