EUROPEAN

BAKER & BISCUIT

Supporting the international baking & biscuit industry

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Technology
Bakery Belts and Beyond: Conveying Solutions Keep Operations Rolling

Ingredients
Testing the Waters

Snacking Trends
Health That Is Wealth

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Georgiana Ilie

Spring means renewal and that also brings forward many promises of new healthier habits, especially when it comes to food and movement. Fresh from the New Year's Resolutions abandoned in March, consumers look at this season as a new opportunity to improve their lifestyle and make more conscientious choices. And calorie- and nutrient-dense diet staples like bread, pastry and snacks are the first expected to change also and answer to these new consumer expectations. Truth is, there is nothing new this spring when it comes to the consumer's desire for foods that are lighter in sugar, salt, and fat. Bakers see this every year. What is different though is the many more options manufacturers have to answer to these needs. There are new ingredients that help with reducing sodium and creating reliable gluten-free and plant-based baked goods. There are also more and more traceability programs that improve the transparency of the systems that produce our most prized ingredients, like palm oil, cocoa, vanilla and more. They inform the climate-aware customer about how the product they want to buy is aligned with their values.

Technology also comes in with nuanced new features and allows bakers and manufacturers to create new products that are exciting for the consumer. In the depositing and topping equipment industry, for example, we have now technology that offers unparalleled consistency, speed, and versatility. Utilizing sophisticated engineering and precision controls, these machines are capable of depositing precise quantities of batter, fillings, creams, and toppings onto various bakery products with remarkable accuracy. That is very helpful to bakers specializing in snacks, which is the most important bakery trend of the Millennium. Mondelez' State of Snacking 2024 report confirms that 6 in 10 global consumers prefer to have several snacks along the day rather than eat full meals, which means the opportunities for food makers, and especially bakers, are only growing.

Science and technology offer our industry multiple respites that help us keep up with consumer trends and meet the public's expectations. You can read all about these innovations in this issue of European Baker & Biscuit and be ready for spring.

EUROPEAN BAKER & BISCUIT

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pladis Adds GODIVA To Its GBP3bn Portfolio Of Iconic Brands

pladis, one of the world's fastest growing snacking companies, has announced the integration of the GODIVA brand into its portfolio, where it will sit alongside other iconic brands steeped in history, including Ülker, BN, McVitie's, Carr's and Jacob's.

The integration of the GODIVA brand brings additional scale and consumer excitement to the rapidly growing pladis business in America and Greater China. It joins key brands Flipz and Turtles, which are both on significant growth journeys driven largely by innovation, winning market share. In fact, Turtles is on the cusp of becoming a $100m brand in America while Flipz has already broken this threshold at $125m for 2023.

This is the latest strategic move by pladis, adding to its £3bn total annual net revenues (prior to GODIVA's addition) and creating a 16,000-employee base worldwide. Since 2019, when Salman Amin joined pladis as CEO, the business has consistently grown, achieving a 40% net sales increase since 2018.

Grupo Bimbo Names New CEO And Executive Chair

Grupo Bimbo names Rafael Pamias CEO and former CEO Daniel Servitje becomes Executive Chair, effective May 1, 2024.

With these changes, the company is looking to improve its corporate governance and strategic supervision, while strengthening its structure to better face the complexity of the growth and expansion achieved over the past years, while ensuring the continuity of its Philosophy and Culture, Grupo Bimbo said in a press release.

The Executive Chair will focus on strategic decision making, ensuring the alignment of the true long-term view, as well as the interests of the shareholders and Board of Directors. The CEO will report directly to the Executive Chair and will be responsible for running the Company.

Rafael Pamias, who currently holds the COO and CSO positions, has more than 35 years of experience in business strategy and marketing in multinational companies such as Henkel and Danone.

BRIDOR Acquires Organic Bakery PANDRIKS

BRIDOR, subsidiary of LE DUFF Group, announced the acquisition of PANDRIKS Holding B.V., a company that makes organic and artisanal inspired bakery products. Founded in the Netherlands in 2012, PANDRIKS makes artisanal inspired bakery products. The company offers traditional bread made with noble ingredients and organic bread under private label (in-store bake-off) and through its own brand, SlooOW (home bake-off). The two state-of-the-art production facilities in Meppel (Netherlands) and Fulda (Bio Breadness – Germany) allow PANDRIKS to supply the main European retail chains as well as overseas customers. PANDRIKS has a turnover of EUR150m (2023) and 400 employees. Under the BRIDOR umbrella, PANDRIKS will continue its journey with both its brand and values being preserved. The integration of PANDRIKS will expand the Group's production capacity and bolster its product portfolio, particularly in the organic bakery market.

J&J Snack Foods Acquires Thinsters

J&J Snack Foods Corp., a leader and innovator in the snack food industry, announced its acquisition of Thinsters, the crunchy cookie made with real, simple ingredients, from The Hain Celestial Group.

Thinsters are thin, crunchy, bite-size cookies with simple ingredients and bursts of flavor. Oven-baked with real butter and real sugar, the deliciously crunchy cookies deliver big taste with less guilt. Thinsters is a popular and growing brand with best in category product quality.

"We are thrilled to add Thinsters to our growing portfolio of fun brands," said Dan Fachner, President & CEO at J&J Snack Foods. "This acquisition is a natural fit for us, complementing our already vast offering of cookies and baked goods. Thinsters' dedication to using high-quality, wholesome ingredients resonates perfectly with our growing customer base. We look forward to leveraging our strengths to expand distribution and introduce Thinsters cookies to a wider audience."

Bako Group Acquires Finlay's Food

Bako Group Limited announced the acquisition of James A.S. Finlay (Holdings) Limited (Finlay's Food), for an undisclosed amount. The deal was brokered by Oghma Partners, the corporate finance house to the consumer industries. Founded in 1976 and based in Craigavon, Northern Ireland, Finlay's Food has grown to be a leading name in the Irish bakery trade. The business manufactures and supplies ingredients to the bakery and general food industry, with its customer base extending throughout Northern Ireland and into the Republic of Ireland, as well as the wider UK, Europe and Asia. Founded 60 years ago, BAKO is recognised as a key organization within the UK bakery industry supply chain and is owned by over 694 shareholders, all of whom are bakers. BAKO provides independent bakers and caterers with a wide range of ingredients and finished products from quality suppliers, as well as its own BAKO Select branded range, through its depots in Preston, Durham and Wimbledon, employing 312 people across all three sites.

Givaudan, MISTA, Bühler Open New Extrusion Hub

Givaudan, the global leader in Taste & Wellbeing, MISTA, the world's leading food innovation platform, and Bühler, a global technology partner for the food, feed, and mobility industries, announce the opening of a state-of-the-art extrusion hub at the MISTA Innovation Center in San Francisco.

The opening of this new facility advances MISTA's capabilities in driving food innovation and highlights Givaudan's and Bühler's commitment to supporting the transformation of the food system.

This collaborative effort between Givaudan and Bühler offers companies the opportunity to conduct innovative and effective product development trials for their extruded products.

Equipped with a 30mm twin-screw Bühler extruder, the hub enables both high moisture extrusion, such as plant-based meat production, and low moisture extrusion, including snacks and cereals. Unlike smaller benchtop extruders, the results obtained at the facility can be translated to full-scale production equipment.

Koenig Group Launches Divider And Rounder Industrie Rex WE EC

The Koenig Group presented a new product to the baking industry: the Industrie Rex V AW EC dough dividing and rounding machine. The fully automatic dough dividing and rounding machine has a maximum dough throughput of 6.5 tons per hour and the Koenig "Easy Clean Design", performance and hygiene standards are optimally combined.

"With this innovation, we have built the machine of the future," says Koenig CEO Hannes Stelzer about the new development.

The performance features of the Industrie Rex V AW EC include:

- With an hourly output of up to 50,400 pieces per hour in 14-row operation, Koenig offers a new standard in the field of industrial dough processing.
- The weight range is 22 to 180g in one and the same machine thanks to simple and safe changing of the weighing chambers.
- Revolutionary "EC" Easy Clean Design saves time and resources through highly efficient cleaning and simplified maintenance for maximum line availability

Kerry Launches Tastesense Salt, A Sodium Reduction Solution

Kerry launches Tastesense Salt, a solution that delivers on salt and rich savory taste, without adding sodium, by retaining essential flavor properties and replicating salty impact, body, and linger.

According to a World Health Organization report on sodium levels, savory snacks are ranked within the top five food categories being targeted by World Health Organization members for salt reduction. While the global WHO benchmark for snacks is 500mg per 100 grams in potato-based chips, with pretzels higher in sodium at 720 mg per 100 grams, many markets exceed those levels. With such high sodium levels found in savory snacks globally, the challenge persists in achieving much greater sodium reductions, levels of 40% or more, without losing the salty flavor of the snack.

Available both as a singular solution for salted crisps and as part of more complex snack seasoning formulations, Tastesense Salt is supported by strong fundamental science that links taste receptors with proprietary product chemistry, salt morphology, proteolysis and fermentation.

GoodMills Launches TIP-TOP Ultra Clean Release Flours

GoodMills Innovation's TIP-TOP Ultra Clean range offers a solution to the long-standing issue of fine dust for bakeries and baking industries using release flours. The flours are hydrothermally treated to reduce the amount of dust they produce, with tangible benefits for employee health and safety, factory hygiene and production economics.

Companies that use TIP-TOP Ultra Clean flours can minimize their risk of exposure to respiratory diseases, whilst benefiting from reduced cleaning and maintenance and a mold-free environment.

Low-dust TIP-TOP release flours are hydrothermally treated, a physical process during which the fine fractions are aggregated into larger particles. These higher density particles settle quickly, keeping the working environment free from airborne particles. Measurements performed in bakeries have confirmed that TIP-TOP Ultra Clean produces up to 80 percent less respirable dust compared to common wheat flour[1]. This mitigates the risk of respiratory diseases such as baker's asthma, promoting a safer workplace.

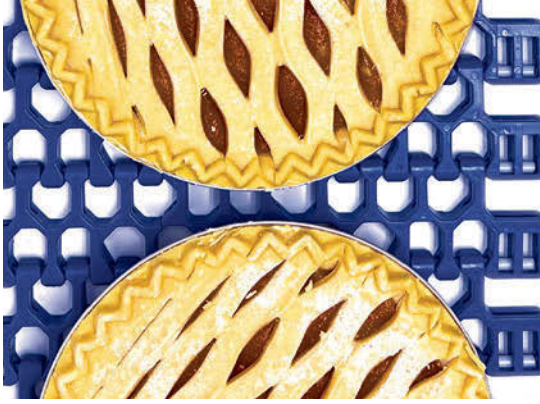
Ingredion's ATLAS: European Manufacturers Prioritise Clean Label Products

A new wave of decade-spanning research from Ingredion states that clean label products are set to dominate portfolios within the next two years making up over 70% — up from 52% in 2021.

The rise supports consumer preference for transparency and simplicity in ingredients, which is a key trend across the European food and beverage industry today.

The proprietary study, named ATLAS, was conducted in partnership with Clear Seas Research. It also found that 99% of European manufacturers see clean label products as essential to their business strategy, with 87% already incorporating these into their products. This reflects the industry's commitment to transparency and simplicity in ingredients, in line with increasing consumer demand for recognisable ingredients.

The study also demonstrates that the adoption of clean label strategies is linked to higher product quality, a more positive brand reputation, and attractiveness to new customers.



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Bakery Belts and Beyond: **Conveying Solutions Keep Operations Rolling**

One of the main problems belt manufacturers face when it comes to industrial bakeries is the diverse range of products being conveyed, from fluffy loaves of bread to delicate pastries and crispy crackers. Each baked good presents its own set of challenges, including weight, size, and fragility, necessitating conveyor belts that can accommodate a wide spectrum of requirements. Additionally, the high temperatures involved in baking processes demand belts that can withstand heat without compromising performance or safety.

By Tudor Vintiloiu

When it comes to choosing the appropriate conveyor belt for bakery applications, material selection is of utmost importance. Traditional options such as PVC and rubber belts, while cost-effective, may not be suitable for high-temperature environments or food-grade standards. Instead, materials like silicone, polyurethane, and PTFE (Teflon) offer superior heat resistance and compliance with food safety regulations, making them ideal choices for conveying baked goods.

Furthermore, the design of the conveyor belt itself plays a crucial role in ensuring optimal performance and product integrity. For instance, belts with low-friction surfaces help prevent sticking and product damage, particularly crucial when handling sticky dough or delicate pastries. Additionally, modular belt designs offer flexibility and ease of maintenance, allowing for quick belt replacements or adjustments as needed, minimizing downtime and maximizing productivity.

ASHWORTH'S COMMITMENT TO CUSTOMIZATION

In a recent interview with European Baker & Biscuit magazine, Ashworth experts, Bryan Hobbs and Jonathan Lasecki, shed light on their comprehensive portfolio, customized solutions, and unwavering commitment to customer satisfaction.

One of Ashworth's standout offerings is their diverse range

of conveyor belts tailored specifically for bakery applications. As the experts explain, their portfolio boasts a variety of options, including the CB5 compound-balanced weave and Z belts, catering to a wide array of baked goods, from cookies and crackers to bread loaves. Additionally, their spiral belts for proofers and transfer belts for seamless product transition underscore Ashworth's versatility in meeting the unique needs of bakery operations.

But the journey doesn't end with product selection. The company emphasizes the importance of collaborative engagement with clients to identify the perfect fit for their specific requirements. Through detailed discussions and data collection, Ashworth's team delves deep into factors such as product type, process speed, and environmental conditions to offer tailored solutions. Whether it's modifying existing equipment or designing custom conveyor systems, Ashworth's approach is rooted in understanding and addressing the customer's unique challenges. Customization is key, and Ashworth prides itself on its ability to adapt to varying factory layouts and production demands. As the company representatives elaborate, the company's commitment to customization extends beyond belt dimensions to include pattern variations, turn radius considerations, and specialized features such as guard edges for product guidance. This attention to detail ensures seamless integration and optimized performance across the production line.

Ashworth also takes a proactive approach to service and maintenance. With comprehensive service programs and readily available spare parts, the company ensures minimal downtime and maximum

productivity for their clients. From routine inspections to equipment refurbishments, Ashworth's service teams are equipped to handle any challenge, ensuring smooth operations and peace of mind for bakery operators.
Discussing future developments, automation emerges as a central theme in Ashworth's vision of conveyor belt design.

TRIBELT'S BACKBONE BELTS

Tribelt's portfolio encompasses a range of conveyor belts, including eyelink belts, woven belts, and their signature Triflex belt. These "backbone" belts, as described by Tribelt experts, boast a proven track record in the industry, providing reliability and performance across various bakery applications.
Moreover, Tribelt's commitment to customization ensures that each belt is tailored precisely to the customer's needs, thanks to their unique ability to utilize spring production machinery in-house.
When it comes to the benefits and drawbacks of different conveyor belt types, Tribelt's experts point out that conveyor belts have no inherent drawbacks; rather, the challenge lies in understanding the customer's needs and offering a solution that addresses them effectively. Tribelt's approach focuses on asking the right questions to steer clients away from potential problems, ensuring seamless integration and optimized performance.
In terms of customization demands, Tribelt recognizes the importance of flexibility in factory layout planning. Their Triflex belt emerges as a versatile solution capable of navigating complex conveyor line configurations, including multiple turns and transitions between production units. This adaptability underscores Tribelt's commitment to meeting the evolving needs of bakery operations with innovative solutions.
Conveying certain baked products or ingredients poses unique challenges, particularly when dealing with small items like seeds. Tribelt addresses this challenge head-on with their OGB-LF belt, featuring specially reworked eyelinks to minimize gaps and ensure efficient product conveyance, even in airflow-intensive applications.
When it comes to upgrading and retrofitting existing equipment, Tribelt offers comprehensive solutions. In addition to their range of conveyor belts, Tribelt manufactures drive elements and special product carriers in-house, providing customers with a one-stop solution for enhancing their conveyor systems. Furthermore, Tribelt's expertise extends to trouble-shooting spiral tower systems, offering valuable insights and recommendations to minimize downtime and maximize efficiency.
Looking ahead, Tribelt is poised to introduce groundbreaking innovations to their portfolio. With plans to incorporate solar power energy into their belt production process, Tribelt aims to reduce their environmental footprint while maintaining their commitment to quality and reliability.

JONGE POERINK'S DELICATE HANDLING

Jonge Poerink Conveyors also offers a comprehensive selection of conveyor belts, meticulously designed to cater to the demands of the baking industry. Their portfolio ensures seamless product handling throughout the production line. Among their offerings are open or closed plastic modular panel belts, hybrid SaniLine belts, PU belts for small and delicate products, and stainless steel belts for knife-edge transfer conveyors near freezers or ovens.
According to the company, selecting the right conveyor belt is a strategic decision that can significantly impact production efficiency and product quality. By choosing the appropriate conveyor type, bakers can streamline their workflow, minimize product damage, and uphold the highest hygiene standards. Factors influencing the selection process include the specific application of the product and the desired production outcomes.
In response to the diverse needs of their customers, Jonge Poerink Conveyors prioritizes customization, focusing on three key aspects: ease of maintenance and repair, hygiene, and robustness. Production lines require conveyors that are easy to open and repair, facilitating quick access for cleaning and maintenance. Hygienic designs, featuring smooth, non-porous surfaces, are essential for food safety. Additionally, robust construction ensures durability, allowing conveyors to withstand the demands of bakery operations.
For customers seeking to enhance their existing equipment, Jonge Poerink Conveyors offers versatile solutions that are easy to extend and adapt. With a focus on longevity and flexibility, their conveyor systems provide reliability and efficiency for years to come.
In a nod to sustainability, Jonge Poerink Conveyors has introduced recycled plastic materials for its conveyor belts, marking a significant step toward environmental responsibility. By incorporating recycled materials without compromising product quality, they demonstrate a commitment to reducing carbon emissions and promoting a greener future.
The company believes the future of conveyor belt design is set to embrace recycling and sustainability as key features. As the industry continues to evolve, Jonge Poerink Conveyors is committed to delivering innovative solutions that prioritize environmental stewardship alongside operational excellence. •

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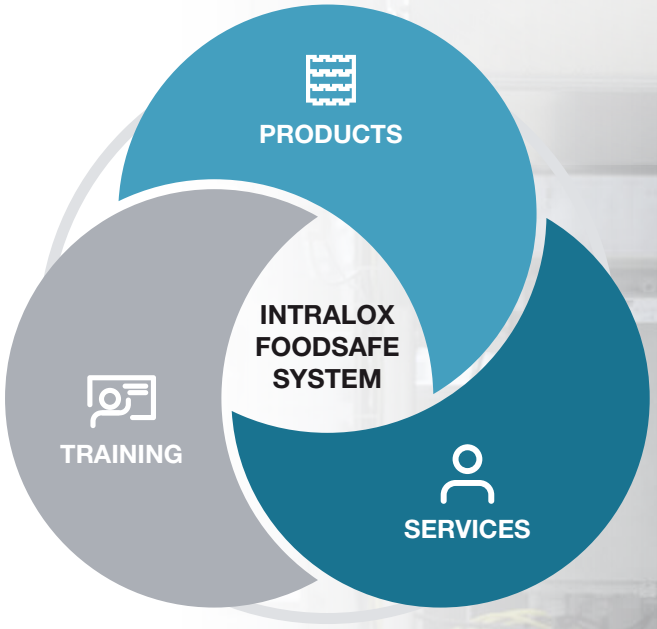

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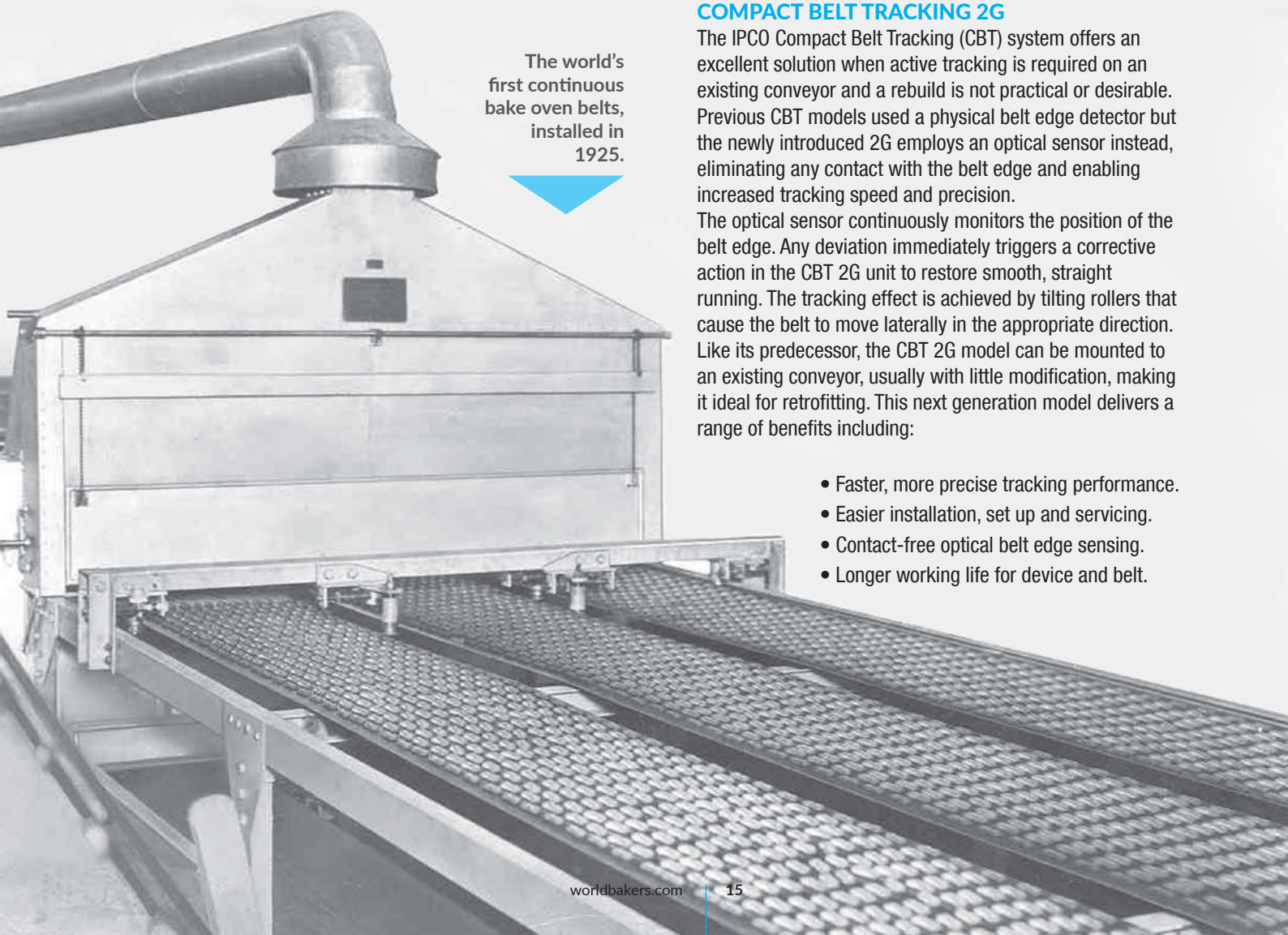
IPCO steel belt on a bake oven in Spain.

Steel Belts – An Enduring Technology That **Just Requires A Little 'TLC'**

Marko Leber, Global Product Manager, Food Belts, at steel belt company IPCO, looks at the enduring appeal of solid and perforated steel bake oven belts, and highlights three key prerequisites of a long and productive life: Tracking, Lubrication and Cleaning.

Next year will mark the 100th anniversary of the installation of the world's first steel belt in a continuously operating bake oven. Actually, to be strictly accurate, this milestone saw the installation of the first *three* such belts: the oven incorporated separate lines running at different speeds for the production of different biscuit and cracker products.
Since this first application in the food industry, the steel belt has gone on to become a mainstream processing technology used for everything from forming chocolate and conveying sugar mass to freeze drying coffee and sorting tomatoes.
And the qualities that made this conveying medium so well suited to the continuous baking process are as valid today as they were 99 years ago.
The benefits of a steel bake oven belt lie in its physical form: no other material can compare when it comes to a steel belt's baking qualities. Not only does it deliver reliable operation in applications where temperatures can reach as high as 400°C, but it does so with outstanding reliability.
Bake oven belts have to be able to withstand extraordinary stresses. They are tensioned, tracked, heated, allowed to cool, and turned around rollers thousands of times a day. And every belt includes a welded or riveted joint that must be just as capable of withstanding this treatment as the belt material itself.
Solid steel bake oven belts also deliver exceptional performance in terms of bake quality. Much of this is due to the excellent heat transfer and thermal conductivity of the belt, but stability is also key: a solid or perforated steel belt keeps its shape and stays flat as it passes through the intense heat of the oven, resulting in consistent product quality and easy discharge.
A well-engineered steel belt will be inherently flat and stable, and its consistent thickness ensures an even temperature across the width and length of the belt. The colour of the belt

is important too: a consistent, dark oxide layer maximizes heat transfer and again ensures an even bake.
There's also the increasingly important aspect of sustainability, so energy consumption is another key factor. Ovens can account for as much as 45% of a bakery's overall energy consumption and as much of 25% of this is used heating the conveyor belt. Solid steel belts are lighter than mesh belts – perforated belts even more so – and this translates into greater energy efficiency.
Each time a belt exits the baking chamber, it begins to cool and has to be reheated. A lighter belt has less metal to heat, cutting energy requirements by as much as 30 percent, and these savings are continuous. This weight advantage also means less power is needed to 'drive' the belt through the oven.
Hygiene is another area in which a steel belt offers real advantages. Being flat and smooth, a steel belt has no gaps, recesses or crevices in which carbon deposits could collect. This results in easier, faster cleaning compared with other belt types and also means less water consumption and reduced use of chemicals/detergents.
Finally there's the ability of the steel belt to deliver reliable performance year after year. A working life of 20 years is not uncommon, which compares extremely well with wire mesh belts, which typically last 4-5 years. Indeed, with good maintenance, a steel belt can last 50 years or more.
So as well as being an enduring technology, steel belts are also extremely durable in themselves. But getting the most from your investment in terms of performance, product quality and longevity relies on giving the belt the TLC it needs. And this means effective Tracking, Lubrication and Cleaning.



The world's first continuous bake oven belts, installed in 1925.

TRACKING

A belt must run straight and true if it's to deliver a consistent bake quality and this depends not only on the quality of the belt but also on the associated components that make up the conveying system as a whole.
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 conveyor will track straight and true without the need for a tracking system.
Unfortunately conditions are rarely if ever perfect – temperature changes alone will cause the belt to track one way or the other – so steel bake oven belts require some form of tracking.

GUIDE ROLLERS

These offer the most basic solution and come in two forms, fixed and spring-loaded. Generally speaking, fixed guide rollers are not a good solution as they can wear down quickly, risking damage to the belt edge. Spring loaded guide rollers are less prone to wear and easily mounted to a conveyor frame. However, if either type is mounted closer to the drums than 10x the width of the belt, they will be incapable of correcting belt position and, sooner or later, will actually end up causing damage.

COMPACT BELT TRACKING 2G

The IPCO Compact Belt Tracking (CBT) system offers an excellent solution when active tracking is required on an existing conveyor and a rebuild is not practical or desirable. Previous CBT models used a physical belt edge detector but the newly introduced 2G employs an optical sensor instead, eliminating any contact with the belt edge and enabling increased tracking speed and precision.
The optical sensor continuously monitors the position of the belt edge. Any deviation immediately triggers a corrective action in the CBT 2G unit to restore smooth, straight running. The tracking effect is achieved by tilting rollers that cause the belt to move laterally in the appropriate direction. Like its predecessor, the CBT 2G model can be mounted to an existing conveyor, usually with little modification, making it ideal for retrofitting. This next generation model delivers a range of benefits including:

- Faster, more precise tracking performance.
- Easier installation, set up and servicing.
- Contact-free optical belt edge sensing.
- Longer working life for device and belt.

INTEGRATED ACTIVE TRACKING

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. This integrated tracking system provides tracking control and belt tensioning, and functions by pushing one bearing housing on the drive drum forward or backward, causing a slight angle of the drum relative to the belt. This drum angle steers the belt in the appropriate direction.

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.

LUBRICATION

A key task in the maintenance of any steel belt – but particularly in the bake environment – is the application of an appropriate lubricant. This minimizes friction, reduces wear on skid bars, minimizes risk of rust caused by condensation, prevents belt distortion and ultimately leads to a longer belt life. Another benefit is that it helps to maintain a regular belt colour for a more even bake.

One of the most effective ways of achieving this is by installing graphite skid bars, which automatically and continuously deliver a gradual deposit of graphite to the inside of the belt.

Graphite skid bars are available in soft and hard options. Soft graphite allows better deposition of graphite onto the bottom of the belt. Hard graphite has a more limited deposition effect, which can be desirable in applications demanding cleaner operation. Hard graphite is also more suited to higher temperatures.

If this type of skid bar cannot be used then graphite should generally be applied to the inside of the belt. The frequency of application depends on the type of oven and the products baked. When products with a high fat content are baked, the periods between applications can be relatively long, since fat will spread to the underside of the belt. When dry products are baked graphite should be applied more frequently. Indications of an urgent need for lubrication are when the belt shows a tendency to vibrate or slight wear of the belt is observed.

If graphite is not permitted for any reason, specially selected edible oils can be used instead. Be aware of the risk of rust on belts, which can occur when the oven is not working, especially when dry biscuits are baked in convection ovens.

CLEANING

Regular and effective cleaning is probably the most important maintenance task in relation to bake oven belts and on solid steel this is usually carried out using rotating brushes, with the application of scrapers as necessary. The brushes should be adjusted to apply gentle cleaning of the belt surface. Perforated bake oven belts require slightly different

A high power industrial laser makes belt cleaning significantly faster and easier.

treatment, with brushes used to clean the inside and outside the belt. If wet cleaning is employed, the washing unit can be either open to drain or equipped with a sludge pump. Ineffective cleaning will result in a build-up of carbon deposits on the baking side of the belt, leading to less than perfect products and, potentially, a risk to human health due to the presence of hazardous acrylamide.
The removal of these deposits can be difficult and time-consuming, usually involving the application of chemicals, dry ice or detergents and great deal of manual input. Following is a brief summary of the methods traditionally used.

CAUSTIC SODA

A solution of cornstarch and caustic soda is applied to a warm, slow moving belt using mops or brushes. The loosened carbon deposits can be removed with a hand scraper. Once clean, the belt is washed, rinsed, dried and conditioned. This process is less common these days due to restrictions over the use of chemicals.

DRY ICE

This method involves shot blasting the slightly warm belt with dry ice to remove carbon deposits. Again, it will need conditioning afterwards.

DETERGENT

Mainly used on belts with sugar-based carbon deposits, this method uses hot water, detergent and nylon scrubbers and, again, post-cleaning conditioning is necessary.

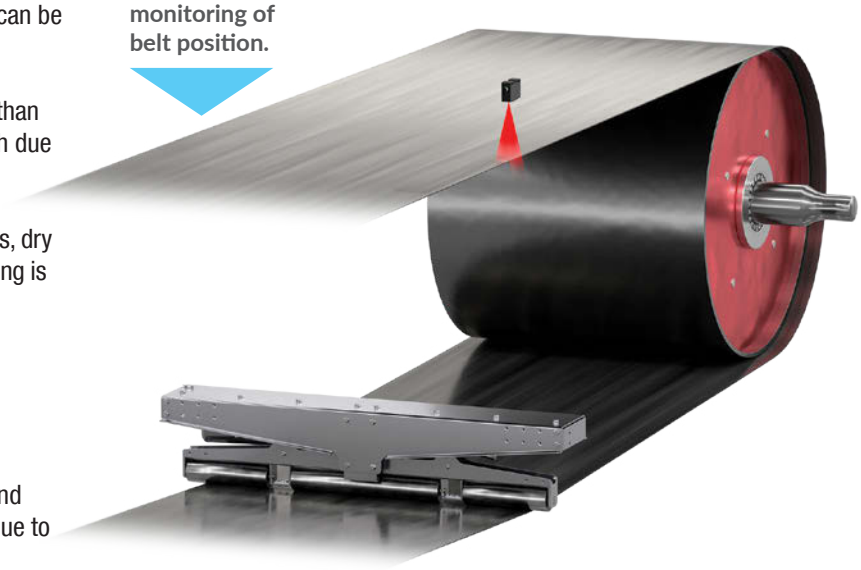
BAKING RELEASE AGENT

The release agent is spread in an even layer at the entrance to the oven, softening the carbon as it passes through the hot oven. Scrapers remove the carbon and the belt is cleaned with felt wipers on the bottom strand. It is not necessary to condition the belt after cleaning.
It has to be said that despite the inherent 'cleanability' of a steel belt, it can still be a dirty and time-consuming process. Thorough belt cleaning will require a halt in production, not only to the belt being treated but often to nearby lines too. This makes cleaning a costly process, one in which time really is money. But it is also a 'must', so the faster it is completed, the better.
As part of our support for the bakery industry, we have been looking at ways to speed the belt cleaning process for a number of years. Most recently, we have partnered with laser specialists to develop a laser-based belt cleaning system that delivers a dramatic reduction in cleaning time while usually allowing production to continue on adjacent oven lines.
The speed, efficiency and environmental benefits (no chemicals or detergents) of this technology are such that it is now our recommended method of belt cleaning.

LASER CLEANING

The system consists of a robust, transportable industrial laser unit with high pulse power. A mobile optic allows the beam to be positioned directly above the belt. The system is equipped with an external vacuum system to extract residues and fumes.

IPCO's new Compact Belt Tracking system uses an optical sensor for contactless monitoring of belt position.



The laser head is installed above the belt and the beam focused on an area approximately 75 mm wide. As the belt travels under the laser, carbon deposits are burnt off and collected by a vacuum system. Once the strip has been cleaned along the full length of the belt, the laser head is moved across to the next section.
Cleaning can be carried out at a rate of between 10-15 m2/hour depending on the level of build-up, and the entire process can be managed by a single IPCO engineer.
The key benefit is speed; a typical bake oven belt can be cleaned in a day, significantly faster than cleaning by hand or dry ice, which can take two days or more. And the results are immediate, with full production being able to recommence straightaway – none of the 'waste' batches normally associated with post-cleaning production – and product discharge is noticeably improved.
The process is non-contact/non-abrasive and the use of a high power laser delivers stable, even cleaning across the full width of the belt on the production side, leaving the surface structure of the belt completely unaffected. The belt will be brighter than before immediately after cleaning but will quickly return to its original, even colour.
There is of course more to belt maintenance than TLC alone; every conveyor component that comes into contact with the belt has the potential to impact on its performance. This is why we offer a complete range of components encompassing everything from frames and end stations to rolling supports and skid bars. But these three areas – tracking, lubrication and cleaning – are the foundations of best practice, and will make a significant difference to product quality, oven line productivity and the operational life of your solid or perforated bake oven belt.
If you would like to learn more about IPCO's belts, conveyor components or laser cleaning service, or discuss our service offering and Preventative Maintenance Agreements, please contact your nearest IPCO office. •

From Batter to Better: How Bakery Depositing Equipment Stacks Up

Depositing and topping equipment have undergone a remarkable evolution throughout the years, offering unparalleled consistency, speed, and versatility. Utilizing sophisticated engineering and precision controls, these machines are capable of depositing precise quantities of batter, fillings, creams, and toppings onto various bakery products with remarkable accuracy. From cakes and pastries to cookies and bread, the applications for this technology are extensive and varied.

By Tudor Vintiloiu

One of the primary advantages of modern depositing and topping equipment is its ability to handle a wide range of batters and toppings, accommodating the diverse needs of bakery manufacturers. Whether it's thick cake batters, delicate creams, or crunchy toppings, these machines are equipped to handle them all with finesse. Moreover, the versatility of these systems extends beyond the type of ingredients to the presentation of the final product. Bakeries can customize their offerings with intricate designs, patterns, and toppings, enhancing the visual appeal and consumer experience of their baked goods. This level of customization not only meets consumer expectations but also provides bakeries with a competitive edge in the market.

In terms of operation, automated systems can run continuously, significantly reducing production time and labor costs while maintaining consistent quality. Additionally, these machines minimize waste by accurately depositing ingredients, ensuring optimal utilization of resources.

The integration of smart technology has further elevated the capabilities of deposition and topping equipment. Advanced sensors and controls enable real-time monitoring and adjustments, ensuring precise deposition and topping even in the most demanding production

environments. Additionally, data analytics capabilities allow bakeries to optimize their processes for improved efficiency and quality over time.
European Baker & Biscuit looked at some of the leading equipment producers, and gathered insights on their most recent advancements in the field of depositing / topping equipment.

REPEATABILITY IS THE PRIZE

Rademaker serves industrial producers of bakery products, ranging from rich and luxurious pastries to enticing pizzas and topped baked goods. According to the company, consistency over time is a key feature of this type of equipment. "All Rademaker depositing equipment captures years of experience in handling various fillings and topping materials, ensuring highly accurate solutions that have stood the test of time and provide repeatable results. Servo controls with recipe management, combined with smart algorithms,

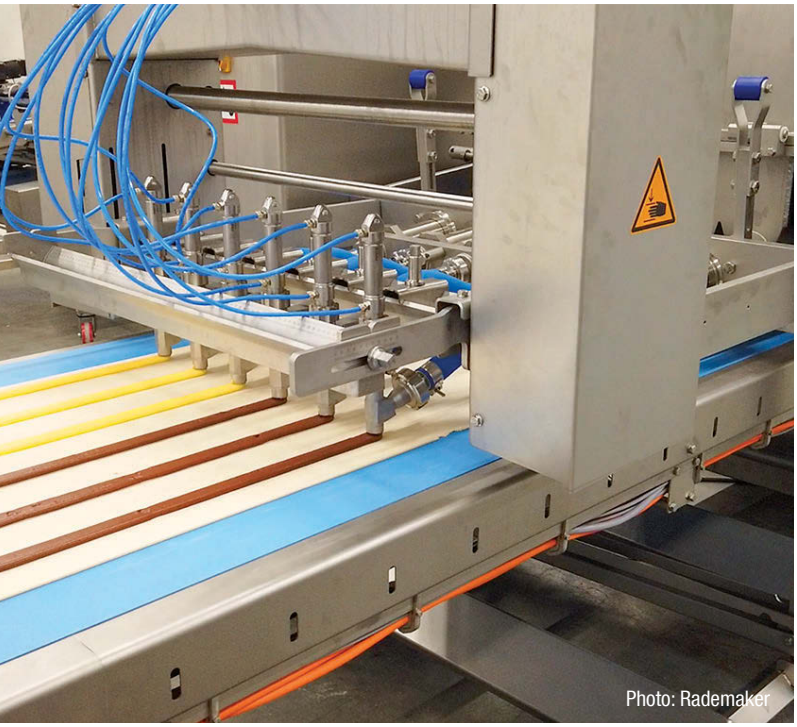


Photo: Rademaker

allow the equipment to follow specific parameters for each individual ingredient in a repeatable manner. This ensures that bakers minimize their give-away and provide high-quality, repeatable products," Wouter van der Veek, Product Manager for Pizza, Pie and Decoration, Rademaker explained.
When it comes to choosing the right depositing equipment, bakeries are presented with a range of options to suit their specific needs and production requirements.
Rademaker's portfolio includes all-round Mohnopump Depositors, which offer individual lane control for bakery fillings with particulates like fruit fillings, Piston Depositors designed to handle chunky fillings for pies or quiches, Smooth Filling Depositors for dosing fillings on high-capacity Croissant lines requiring minimal space, Gearwheel Depositors for tougher fillings such as chocolate, batters, and (waffle) doughs, and Target Depositors for high-speed applications, such as depositing a range of pizza sauces on industrial pizza production lines.

Fillings can be as versatile as the mind can imagine, requiring a multitude of solutions tailored to their specific characteristics and required shape. Having an extensive range of depositing solutions, nozzle types, and process knowledge ensures that customers receive the appropriate solution for their specific challenge.
"Rademaker Depositors are meticulously designed to accommodate customers' ingredients and fillings. Depending on the application, the most suitable solution is provided to ensure the highest level of weight control. Individually controlled nozzles further ensure minimal wastage of filling, adhering to the principle of "no product = no fill." This approach not only avoids unnecessary waste of expensive filling on the belts but also ensures precision. As standard, Rademaker Depositors are engineered for high-speed, high-capacity situations while maintaining precision. Advanced high-tech systems are employed during validation trials to confirm their performance," company representatives told us.
Looking ahead, Rademaker believes we will witness an increasing integration of application knowledge into equipment. Processing expertise and know-how will empower producers to transition into solution providers, becoming the go-to resource for customers facing challenges in retaining personnel.

VERSATILITY IS HIGHLY SOUGHT-AFTER

Handtmann is another leading provider of solutions for pumping, dosing, dough dividing, forming and cutting. All their equipment solutions come with a Handtmann portioning machine. The single machine is adaptable with different depositing devices. "With this flexibility, we are able to provide machines for a large variety of baked goods such as liquids, creams, rye doughs, wheat doughs, short pastry, marzipan, toppings or fillings. Product weights are freely adjustable from 0.5 g upwards no matter the application: using a hand valve, filling into tubs, containers,

trays, jars with our dosing valve or depositing directly onto dough sheets for multilane applications. Therefore, we are able to operate in a continuous dosing, strip dosing or spot dosing," the company representatives told us in a previous interview.
During the recent Anuga FoodTec trade show, Handtmann introduced their new DS 554 and DS 560 P depositing systems to the public for the first time.
The multi-lane DS 560 P model offers a high line output in the dosing of fluid, low-viscosity, high-viscosity, pasty, inhomogeneous and chunky filling products, above all thanks to its coordinated interfaces to packaging machines. The intuitive, easy-to-operate and servo-controlled lifting and lowering device in combination with servo-driven flow technology with integrated cutting function in the valves ensures drip-free and weight-accurate dosing. The valve, which can be flexibly used for all types of filling products, is available with the option of an outlet diameter of 16 or 32 mm with ejection piston, 8 mm with internally closing stamp or 32 mm with diaphragm. As a result, the high flexibility of Handtmann valve technology with its unique selling point allows the production of very different filling products and various portion sizes with just a few simple steps. This saves time and costs and facilitates the permanent expansion of the product range to be able to respond to current market trends.
The single-lane and flexible-in-use DS 554 depositing system comes into its own when dosing chunky, fibrous and inhomogeneous filling products with portioning accuracy to the gram.
"The two new systems are characterized by a high degree of variability and interface capability, innovative valve technology and intrinsic safety, but also by ease of operation via the control panel of the vacuum filler," the company commented.

AI-BASED DIGITAL SOLUTION FOR QUALITY CONTROL ON PIZZA TOPPINGS

AMF Tromp a business unit and brand of complete systems solutions supplier AMF Bakery Systems, has bet on AI for their Smart Applicator Solution for pizza production. By facilitating automated quality and quantity control for pizza toppings such as cheese, this AI-based software solution will enable pizza producers to minimize product waste and giveaway, reduce labor requirements, and operate more efficiently.
In conjunction with AMF Tromp's pizza production machines, the Smart Applicator Solution can be retrofit or newly configured for the AMF Tromp Waterfall Applicator, a machine that deposits toppings, such as cheese, onto pizza products. The Smart Applicator Solution rapidly takes images of each item on the production line. Cloud-based software using artificial intelligence (AI) then collects and analyzes these images in real-time to determine whether the quantity and weight of the cheese topping is correct. While analyzing, this software adjusts the applicator's speed and volume settings to deliver the optimal cheese distribution.
Using machine-learning technology, the Smart Applicator Solution optimizes this process over time, detecting and indicating any anomalies. Its baseline settings can also be used for quick production recovery or to make subsequent runs more effective. In this way, the Smart Applicator Solution accelerates production speeds and improves topping application accuracy by at least 3%. This results in pizzas with standardized topping distributions regardless of external influences, human interaction, or the sophistication of the AI technology.
This allows pizza producers to minimize the waste and giveaway of cheese – typically an expensive ingredient – as well as lowering their energy consumption. The automation enabled by the system can also reduce labor requirements and costs, since operators will not need to monitor cheese quantity or change the applicator machine's settings. In this way, the solution drives efficiency, sustainability, and profitability for pizza producers.

CONCLUSION

From standalone machines to fully integrated production lines, manufacturers offer a variety of solutions tailored to different scales of operation and product portfolios.
By combining precision engineering, automation, and smart technology, these systems empower bakeries to enhance their productivity, consistency, and creativity. As consumer preferences continue to evolve, investing in state-of-the-art depositing and topping equipment will be crucial for bakery manufacturers to stay ahead in the competitive market landscape. •

FOR **BAKERS** WHO VALUE **QUALITY AND EFFICIENCY.**

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Bake it Safe: X-Rays as the Secret Ingredient for Product Integrity

As consumer expectations evolve and regulatory standards become increasingly stringent, bakeries must employ sophisticated monitoring and inspection equipment to uphold their reputation and meet industry requirements.

By Tudor Vintiloiu

Among the arsenal of technologies available, x-ray inspection, metal detection, optical inspection, and checkweighing stand out as critical tools in safeguarding both product integrity and consumer well-being.

X-ray inspection systems, for example, not only recognize products that are contaminated with metal, glass, rubber, stones, plastic parts or bone splinters, they also enable inline quality checks such as weight determination, counting of components, detection of missing or defective products, fill level control and checking the integrity of closures.

As part of the HACCP concept (Hazard Analysis and Critical Control Points), they help to fulfill the increasing requirements of consumers, authorities and protect manufacturing companies from costly and brand-damaging product recalls.

"X-ray inspection systems recognize contaminated products by the fact that foreign bodies such as metal absorb X-rays more than the actual food product," says Liang Mengqi, Global Product Manager at Minebea Intec. "Hence, the success of foreign body detection depends on the density of the foreign bodies. For example, Minebea Intec X-ray machine could detect 2 mm metal wire inside of a yoghurt where the conventional metal detector has no chance. Because the metal detector will be stopped due to the aluminum foil from the yoghurt packaging. Minebea Intec offers a large portfolio of X-ray systems for the inspection of packaged products. Typical applications include cartons, boxes, bags, pouches, trays and portion packs, which can contain a wide variety of dry or liquid foods. To select a suitable X-ray system for the production, the product and its orientation need to be considered.

Systems with top-mounted X-ray generators are the most common in the food industry, where the X-ray beam hits the product directly from above. These inspection systems are usually installed at the end of a production line the packaged products. For purpose, the packs are positioned flat on the belt so that the X-ray beam could pass through as less pack thickness as possible, which attributes to the higher detection sensitivity. The Dylight and

Dymond models have been specially developed for these applications. They are characterised by a hygienic design and high detection sensitivity with low power consumption.
Systems with a side-mounted X-ray generator, where the X-ray beam reaches the conveyor belt from the side, are often used for the upright products such as a jar of baby food. In this case too, the product must be aligned so that it passes the detector system with the upright side facing the X-ray beam. For example, the Dymond S as a sideshooter X-ray, combines high detection sensitivity with low power consumption. The unit is optionally available with a so-called chicane belt. Ideal for those situations where only very limited space is available. Dymond D is a dual-beam X-ray inspection system that produces two X-ray images at a 90° angle. Whether it's tins, Tetra Paks or glass jars, multi-sided inspection provides maximum safety thus opening up a wealth of possibilities for manufacturers in product design.

FIGHTING WASTE

Katie Hope, Global Account Manager, Mettler-Toledo Product Inspection points out that the strategic use of product inspection technology is vital for combating escalating manufacturing costs and boosting productivity. A prime example is the current global scenario, where food manufacturers grapple with inflation impacting raw material and energy costs. While there is nothing that food manufacturers can do about these kinds of escalating costs, there are ways that inflationary pressures can be mitigated within the production facility and these need to be seriously considered by manufacturers.
In the case of a flour company, for example, incorrect fill levels, once identified by a dynamic checkweigher, can be quickly rectified through feedback control linked to the fillers. Alongside the potential savings through less product giveaway, manufacturers can reduce the risk of reputational damage and retailer fines through inadvertent underfill.

REDUCING ENERGY COSTS

The cost of energy is another big concern for manufacturers. Since there is no option but to use energy, the answer for food manufacturers is to use it more efficiently. Advanced x-ray inspection systems, for example, are now designed to operate at one fifth of the energy required by a traditional x-ray machine. Therefore, companies can look to tackle rising energy costs by being smarter in their consumption, while also benefiting from the innovative features of modern inspection systems, which can boost productivity in many ways. Another positive consequence is that the manufacturer can also tell a better corporate social responsibility (CSR) story regarding its more sustainable operation.
In practice, the integration of these monitoring and inspection technologies is tailored to the specific needs and processes of each bakery. For instance, a comprehensive quality assurance program may involve the sequential deployment of multiple inspection points along the production line, starting with metal detection at the raw ingredient stage, followed by x-ray inspection post-baking, and culminating in optical inspection and checkweighing during packaging.
Furthermore, advancements in automation and data analytics have revolutionized the capabilities of monitoring and inspection equipment in the baking industry. Integrating these systems with centralized control platforms enables real-time monitoring of production metrics, proactive maintenance scheduling, and data-driven decision-making. Additionally, the advent of machine learning algorithms holds the promise of predictive quality control, wherein inspection systems can autonomously adapt and optimize performance based on historical data and evolving production conditions. •

Testing **the Waters**

Bakers focus on flour, yeast or sourdough, but water can make or break a loaf of bread. Knowing your water means you can adjust your recipe and improve the final products of your bakery or plant.

By Jo Ilie

In a bakery, water fulfills many roles: it is a solvent for salt, sugar and other raw materials for dough preparation, preparation of liquid yeast, starter cultures. It helps the cleaning process for raw materials, equipment, and premises. It is used for heat: the production of steam necessary to humidify the air in proofing cabinets and ovens. It is also important in the technology of delayed baking of bread products or in freezing semi-finished products. Water is used during kneading to obtain an optimally developed gluten frame for better form and gas holding capacity and to obtain cold dough, which is the basis for slowing down the onset of the fermentation process, while fermentation should be minimized or completely absent. Therefore, the issues of the quality and quantity of water at any technological operation in bakery production are paramount to the consistency of the output. We are exploring in this article how water influences baking processes and how bakers and manufacturers can ensure the best quality of their water for certain processes.

WHAT WATER DOES:

Water is first and foremost a solvent: it dissolves sugars, salts, baking powder, and baking soda so they can perform their roles as fermentation regulators, tenderizers, stabilizers and leavening. It hydrates gluten, which is essential for dough network formation and starch gelatinization. Water activates the yeast and allows fermentation to happen. It helps adjust the temperature, both in the fermentation phase (cold/iced water can be added to slow down the process) and in the baking process, as steam injected in the oven allows the dough to rise in a controlled manner. Cold water is added to pie dough to keep fats solid while warm water is used to activate yeast.

The percentage of water in a batter or dough affects viscosity and consistency so much that the quantity of water can define whether it's a batter or a dough. The amount of free water can also impact shelf life and microbial growth.

HARD VS. SOFT WATER

Water naturally has calcium and magnesium and the amount of the two minerals determines that type of water: hard, medium hard and soft.

Hard water has a high mineral content, above 100 ppm. Its presence in doughs strengthens it and it increases the fermentation rate. The medium hard water has a mineral content between 50-100 ppm. The soft water has low mineral content and it produces sticky, soft and slack dough and decreases fermentation rate. The water best suited for baking is the medium hard one as it allows the baker more control of the process.

CHLORINE AND OTHER ADDED CHEMICALS

Depending on the laws governing water quality in each country, as well as on the natural quality of the water, water suppliers add different chemicals to make it safe and drinkable: chlorine, fluor, sodium hydroxide, citric acid, phosphoric acid, among many. Chlorine is one of the most ubiquitous chemicals - and one that is easily noticeable - and it can have an effect on the dough, particularly on the fermentation activity. Yeast, being a natural microorganism, is chlorine sensitive. Tests have shown that at a level of 10 ppm of chlorine in the water the yeast performance will be negatively affected in a dough system. A high level of chlorine could also affect the function of some flour components like enzymes.This will also affect the rheology of the dough as well as the fermentation activity. However, most treated waters won't have more than 4 ppp, according to Tap Score, a water filtration company that addresses in particular the needs of artisanal bakers.

PH LEVELS

The water's pH level affects yeast activity and gluten development. Acidic or alkaline water can inhibit yeast growth and cause inconsistencies in dough texture and flavor. Ideally, water pH should lie between 6 and 7 for optimal baking results.

TASTE

Last but not least, a bad tasting water will alter the flavor of the final product. But taste is not always bad. A certain combination of minerals can contribute to a distinctive taste of a baked product. For example, the way New York water influences the taste of New York bagels.

TESTING AND CHOOSING WATER

Understanding and controlling water composition can prove challenging, especially when dealing with distinctions in mineral content and pH levels in water sources across various locations. A new technology, water replication, made available by New York Watermaker, offers a solution to these challenges, allowing bakers to replicate specific water compositions used in renowned baking locations such as New York City or Paris. •

Keep the Flavor, **Save the Sodium**

WHO's recommendations for sodium reduction highlights bread as one of the most significant vehicles for salt in the overly-salted diets of Europeans and North Americans. But how can bakers produce tasty loaves without one of their basic ingredients?

By Jo Ilie

The World Health Organization has been recommending a daily intake of less than 5 grams of salt since 2012. Any more than this increases the risk of a range of health problems from heart disease to strokes. Yet most people are still consuming far too much – on average 9-12 grams a day. An estimated 3 million lives a year are lost due to people having excessive levels of sodium in their diets. Salt added at the table accounts for only 15% of the salt most people consume. Most of the salt is hidden in processed food, which now accounts for about 80% of the salt intake. WHO is now taking urgent steps to lower these levels of consumption and, for the very first time, sets targets for specific food categories.

The list includes bread (some loaves have as much salt per slice as a packet of potato chips) and savory snacks (one serving of pretzels can contain nearly a day's supply of sodium), among other processed foods. And the key to achieving these new standards is the reformulation of products to cut salt levels. Here are some of the available solutions that preserve or boost flavor, while adding less sodium.

FLAVOR FROM THE ATACAMA DESERT

Saltwell is an all-natural form of sea salt, sourced from an underground sea below the Atacama Desert. When the mineral-rich water evaporates, a unique grain is formed, offering all the function and sensory advantages of salt with none of the drawbacks. The raw grains are purified and made food grade quality at BRC certified facilities in Cyprus.

Through unique high-quality operations in Chile, Cyprus and Sweden, Saltwell meets strict international demands certified and approved by the global food industry. Saltwell contains 35% less sodium and it can be used as a simple 1:1 replacement, giving the products the same taste, but with significantly less sodium.

UMAMI BOOSTER TO IMPROVE TASTE IN LOW-SODIUM BREAD

"Salt is a critical ingredient in bread making and its reduction can have a negative impact on bread quality, from a technological to a sensorial stand point," says Jeremy Marichez, Innovation Manager Sensient Flavors & Extracts Europe.

In this context, Sensient has developed an economically competitive natural solution called Nacre, a clean label extract that helps compensate for the reduction in taste quality due to salt reduction while providing interesting functional properties for this type of application.

Nacre is a sustainable extract naturally produced from an upcycled wheat derivative by-product via minimal processing, which means it is a sustainable product having a low carbon impact. It also qualifies for low sodium, high protein, plant based and vegan labeling. It plays a significant role in the taste and flavor enhancement of salt reduced versions, boosting the positive flavor notes of such products.

"On a technological standpoint, Nacre has demonstrated several beneficial impacts in dough

making and resulting bread quality (kneading behavior, dough rheology, fermentation extent, loaf volume and crust coloring), usually impacted by the reduction in sodium chloride content," says Marichez.

MODULATORS TO MAKE FINISHED PRODUCTS MORE PALATABLE

Tastesense Salt from Kerry is a solution that delivers on salt and rich savory taste, without adding sodium, by retaining essential flavor properties and replicating salty impact, body, and linger. "Salt reduction isn't just an immediate brand imperative, it's a humanity imperative and essential to creating a world of sustainable nutrition," says Hugo Leclerq, Global Portfolio Director for Taste Fermentation – Sodium Reduction. "We are lowering sodium far beyond what anyone thought possible with our innovative Tastesense Salt solutions while maintaining delicious flavor." Available both as a singular solution for salted crisps and as part of more complex snack seasoning formulations, Tastesense Salt is supported by strong fundamental science that links taste receptors with proprietary product chemistry, salt morphology, proteolysis and fermentation. Kerry's proprietary in-house capabilities allow it to design multidimensional, novel taste ingredients from natural botanical extracts, peptides, and ferments (yeast and non-yeast based), as well as various by-products from valorization streams.

Commonly used to enhance flavors in savory snacks, sodium plays a critical role in shaping the overall flavor of a snack seasoning. If simply removed or reduced, its absence can leave the sensory profile out of balance, impacting the temporal sensation of when taste and flavor are perceived, as well as the perception of seasoning homogeneity. Rebalancing taste while achieving an equal or better consumer liking becomes extremely challenging depending on the percentage reduction and starting point. While small percentage reductions of up to 10% can be achieved by stealth reformulation, the starting point is relevant, going from 700 mg to 630 mg of salt may be easier to achieve than going from 500mg to 450 mg, furthermore the flavor tonality of the snack itself will also be a critical factor. To demonstrate key challenges in sodium reduction for savory snacks, Kerry's Sodium Reduction Simulator was created to assess overall, upfront, middle, and lingering taste challenges depending on flavor profile and desired sodium content.

TORULA, THE OTHER YEAST

Yeast is a unicellular microorganism that reproduces by budding and is classified in the fungus kingdom. Yeast species like Saccharomyces cerevisiae have been used for centuries, in their active form, to produce food and drinks such as bread and beer, thanks to their fermenting capability. When inactivated or partially hydrolyzed and inactivated, they become a very interesting, natural, and clean-label ingredient for the food industry. But Saccharomyces cerevisiae is not the only yeast that can be used for nutritional and flavoring properties. Torula is another type of yeast often used in foods. Its unique profile makes it a perfect savory ingredient. The umami contribution of Torula yeast already plays a relevant role in rounding up flavors to allow a mouthwatering perception when cooking with reduced sodium. Lallemand's Toravita line is specifically designed to guarantee a tasty and satisfactory salt-reduction experience and is based on Torula's properties. Toravita 054 is an autolyzed yeast from primary grown Torula, naturally rich in nucleotides, glutamic acid and other savory relevant components, it is a perfect ingredient to round up flavors. Toravita 028 SD and 029 SD are exclusive low sodium yeast autolysates which add a "salty" flavor without adding substantial sodium. The co-processed combination of ammonium chloride (028 SD), potassium chloride (029 SD), and Torula are significantly less bitter than sodium alternatives alone. They also provide the flavor enhancement characteristics common to all of our autolyzed yeast products.

ENZYMES FOR LOST GLUTEN HYDRATION

Salt reduction in bread recipes will negatively impact dough behavior during processing, and impact the shape and volume of baked bread. It can also result in a less fine and smooth crumb structure, and a bread with a shorter shelf life.

This happens for two reasons. One, reducing sodium in bread recipes leads to a loss of osmotic pressure. This influences fermentation and certain characteristics of the bread, such as crust color. Two, the reduction of sodium leads to poor hydration of the gluten. This is a prerequisite for gluten protein network formation.

It is this second part of the equation that makes the biggest difference. A weaker gluten network leads to decreased dough stability, reduced development, and a stickier dough that is harder to handle.

There are several enzymes that influence gluten development in bread. But to tackle the challenges of salt reduction, bakers need to address gluten hydration. Besides hydrolyzing water-unextractable arabinoxylan, hemicellulase also hydrolyses water-extractable arabinoxylan (WE-AX). This allows improved gluten hydration.

DSM developed BakeZyme FXP1500 hemicellulase with a high preference for degrading WE-AX. In baking trials, they found that 20 ppm of BakeZyme FXP hemicellulase restored softness, crumb structure, and volume in white tin breads with 30% less salt. The enzyme also improved dough extensibility, non-stickiness, and dough development, and tolerance over the control.

BakeZyme FXP1500 can be paired with yeast extracts that are proven and well-known ingredients that deliver delicious taste. DSM's Maxarome range of specialty yeast extracts include taste-building components that enrich overall flavor and intensify salty, meaty and umami taste – to meet whatever taste profile the baker needs.

SALT MICROSPHERES TASTE SALTIER

Salt Microspheres is a salt-reduction ingredient that tastes, labels, and functions like salt because it is salt. Offered by Tate & Lyle, SODA-LO Salt Microspheres can reduce salt by 25-50% in certain applications through its patented technology that turns standard salt crystals into free-flowing, hollow salt microspheres that increase the perception of saltiness on the tongue.

Tate & Lyle's sensory research shows that consumers perceive the flavor of products made with SODA-LO Salt Microspheres to be on par with products made with regular salt.

SODA-LO Salt Microspheres can be used in a variety of products. Significant sodium reductions of 25-50% have been demonstrated in: breads, Breadings, coatings, salty snacks, seasonings, crackers, biscuits, pizza dough or other bakery products, cookies, doughs. Research published in Food Science & Nutrition found that sodium reduction using Tate & Lyle's SODA-LO Salt Microspheres could potentially decrease sodium intake by 230-300 milligrams per day or about 7-9% of total sodium intake among the US population depending on age and gender group.

A second ingredient, Tate & Lyle's SODA-LO SB Microspheres, provides the leavening power needed in dough applications while reducing sodium bicarbonate up to 50%. Leavening ingredients in baked goods can contribute well over 50% of the total sodium in these foods, thus simply reducing the salt is not adequate to achieve significant sodium reductions. Since SODA-LO SB Microspheres is made from sodium bicarbonate, there are no off flavors or required label changes. The smaller particle size of the hollow microspheres is less dense than regular sodium bicarbonate, allowing superior dispersion within the dough matrix for desired leavening with less sodium. The many benefits of this ingredient include: reduced sodium bicarbonate level up to 50%, clean taste—no off flavors that are commonly associated with potassium or ammonium bicarbonates, same functional attributes of standard sodium bicarbonate (baking soda) and reduction of the entire baking powder system including leavening acid. SODA-LO SB Microspheres is ideally suited for food application systems with low moisture and/ or high viscosity and has proven successful in a wide-range of foods including crackers, cookies, soda bread, tortillas, and savory biscuits.

CONCLUSIONS

While salt is an essential ingredient in baked goods, reformulating for less sodium is not anymore the risky process it used to be with the development of safe ingredients that help both with taste and nutritional content, keeping in mind the bigger picture that reduced sodium is beneficial for consumers and society at large. •

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Angel

Angel Yeast Baking

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Free Sample

Traceability: Cocoa and Beyond

Cocoa, palm oil and vanilla are the most scrutinized bakery ingredients and global companies invested heavily in the past decade in creating traceability systems that would both help the local farmers and gain back the conscientious consumer's trust.

By Jo Ilie

The traceability programs put in place in the last decade are starting to show results as other new initiatives popup, covering more and more supply chains and ingredients. Here are some of the developments of the last six months, all showing progress is possible at global scale when all interested parties work together toward a common goal.

PURATOS AND BELCOLADE'S CACAO-TRACE IS ON TRACK

The latest annual report of the Cacao-Trace sustainable cocoa program from Belcolade and Puratos shows how the initiative is on track to achieve its ambition by 2030 of reaching up to 50,000 farmers and helping all of them achieve a living income. The report highlights milestone achievements in 2023, and important progress in the journey to improve sustainability across the chocolate and cocoa-based product chain. Cacao-Trace made its most significant contribution to-date to cocoa growing communities, reaching over 23,000 farmers and their families, across eight countries, in 2023.

Puratos and Belcolade launched the Cacao-Trace program in 2013. In 2023, the program collected a EUR2.4m Chocolate Bonus, which will be shared with farming communities in 2024 – either as cash donations or via community projects. The Chocolate Bonus, which corresponds to a EUR0.10 (10 cents) bonus for every kg of high-quality chocolate sold to Cacao-Trace customers, directly benefits the growers of Cacao-Trace high-standard cocoa beans. Over the past year, the Chocolate Bonus continued to strengthen community projects in Côte d'Ivoire, Papua New Guinea and Uganda, and for the first time in 2023, Cameroon and the Democratic Republic of Congo.

In addition, the report has revealed never-seen-before figures for the Cacao-Trace Quality Premium: the financial reward cocoa farmers receive for the high-quality beans they produce, regardless of how much chocolate is sold. In 2023, EUR1.5m Quality Premium was paid, aimed at increasing farmers' income and improving their living conditions in the long term.

"The Chocolate Bonus is one of the cornerstones of our Cacao-Trace program, so being able to increase the amount collected every year has had an enormous impact on the communities where we operate," said Youri Dumont, director of the chocolate business unit at Puratos.
The report also highlights the progress being made to improve agroforestry in key cocoa-growing regions. In 2023, 199,302 trees were planted, taking the total to 626,322 towards the program's target of 3.44 million trees by 2030. Replanting trees is a key element of the program's strategy, to help safeguard cocoa cultivation and restore biodiversity.

CARBON CREDIT TRACEABILITY FOR CACAO AND AGRI FARMS

ReSeed, a leader in nature-based carbon credit solutions, and Dengo Chocolates, a leading Brazilian chocolate, started working together by integrating Dengo's cacao farmers in Brazil into ReSeed's Farm Fresh Carbon Credit Program.
ReSeed partners with smallholder farmers around the globe, bringing carbon credits directly from farmers to the market. Founded in 2022, ReSeed's carbon credits are the first credits with traceability from beginning to end of lifecycle.
Chocolate ranks number two on the list of foods with highest environmental impact, with the majority of the impact attributed to deforestation. Meanwhile, the majority of smallholder farmers, responsible for 75% of the world's cocoa, live at or below the poverty line. ReSeed and Dengo partnership with smallholder farmers aims to create an additional revenue stream, carbon credits, that simultaneously incentivizes environmentally-beneficial regenerative agricultural practices.
The sale of carbon credits holds the potential to significantly improve the livelihoods of Dengo chocolate farmers, with 50% of carbon credit sales going directly to farmers and 30% to on-the-ground farmer support teams. As more credits are traded in the region, there will no longer be a need for additional deforestation to generate extra income for small farmers and traditional communities.
Dengo Chocolates, who has a special focus on social impact and sustainability, has so far onboarded 75 farmers onto ReSeed's Carbon Credit Program at their first partnership period. The farmers will easily be able to track data about the carbon collected and stored in the soil on their land, which ReSeed turns into carbon credits with auditable, third-party verified data and satellite imagery. The first carbon credits associated with Dengo cacao farmers will be available for sale in H2 2024.
ReSeed also partnered up with FoodChain ID, a pioneer in global sustainability certification, to increase transparency in measurement and verification of sustainable practices in the global agri-food supply chain.
"Currently, less than 1% of carbon credits sold on the market are sourced from agriculture," said Vasco, CEO and co-founder of ReSeed. While the food and agriculture industry currently contributes over one-third of the total global greenhouse gas emissions, according to the United Nations. ReSeed, with its AI-powered digital ledger transparency platform, collects and processes data for carbon credit measurement protocols to allow monetization and incentivization for farmers deploying sustainable practices in the field.
FoodChain ID, with over 25 years of experience in global sustainability certifications, serves as the exclusive verifier for the carbon credit partnership under ISO 14065 accreditation. FoodChain ID's independent technical experts will perform yearly audits of farm practices under international sustainability standards, adding third-party credibility to the measurement of carbon sequestration in soil.

HUBS FOR SUSTAINABLE SMALLHOLDER FARMERS IN INDONESIA

Bunge and Musim Mas Group announced a collaboration to promote the use of sustainable practices among smallholder palm farmers in Sambas, West Kalimantan, Indonesia.
The collaboration, co-funded by Bunge and Musim Mas through 2025, aims to train more than 1,000 independent smallholders in sustainable production of palm oil.
The partnership aligns with the Agriculture Sector Roadmap to 1.5 degrees convened by the Tropical Forest Alliance, designed to halt commodity-linked deforestation in line with the 1.5 degrees pathway while enhancing the livelihoods of smallholder farmers and supporting the sector's transformation toward forest-positive land-use management.
"By adopting sustainable farming practices, smallholders can increase their yields and reduce their dependence on expanding into the forest areas," said Ben Vreeburg, Bunge Senior Director of Sustainability
Sambas is also the first smallholder hub on the island of Kalimantan for Musim Mas. Musim Mas trains local government Village Extension Officers (VEOs) in these hubs. The VEOs, equipped with this knowledge, then share their expertise with smallholder farmers within their communities over time, resulting in enduring, long-term impacts.
The training covers good agricultural practices, business management, and NDPE (No Deforestation, No Peat, No Exploitation) approaches to palm production. The program helps smallholders increase yields and earnings from their existing farmland, improve their understanding of the environmental impacts of their activities, and foster responsible practices.
Musim Mas builds on its experience in developing and implementing smallholder programs, having engaged over 42,000 independent growers since it started its programmes in 2015, including a notable partnership with the International Finance Corporation (IFC), a member of the World Bank Group.

CONCLUSIONS

Traceability programs are becoming more and more diverse, answering to the local needs of the farmers who produce the coveted bakery ingredients, as they are the key players that need to be co-interested in conservation, but also protected from predatory practices and earn living wages. The future will surely bring more diversity and impact. •

In UK and Ireland, **Consumers Took the Hit**

Supply chain woes, the war in Ukraine and Brexit lead to significant increases in the price of bread, affecting the shopping decisions of the most vulnerable populations in the UK and Ireland. But there are many market segments that thrive.

By Jo Ilie

While the political and economical problems of the past five years took their toll on the manufacturing costs of bread in UK and Ireland, which lead to much higher prices for the mass-market products, the baked good market's value increased by 8% in UK and 11% in Ireland thanks to new market segments that thrive: pemiumization, plant-based, nutrition-forward. The market analysts at Euromonitor International looked at all the factors that influenced the two baked good markets in 2023 and what's in store for bakers the following years.

Baked Goods in the United Kingdom

- Retail value sales increase by 8% in current terms in 2023 to GBP8.9bn
- Cakes is the best performing category in 2023, with retail value sales rising by 9% in current terms to GBP2.7bn
- Retail sales are set to grow at a current value CAGR of 4% (2023 constant value CAGR of 2%) over the forecast period to GBP10.9bn

HIGH PRODUCTION COSTS CHALLENGE RETAIL VOLUME SALES OF BAKED GOODS

According to Euromonitor International, the performance of baked goods has been particularly hit by the supply chain crisis, as wheat shortages are putting severe pressure on production costs. The tight global supplies of raw materials have in turn forced manufacturers and retailers to increase their prices. With consumers seeing their budgets increasingly restricted, retail volume sales of baked goods declined in 2022, and the negative trend is expected to continue in 2023. Despite the negative performance in volume terms, double-digit price increases are set to support the category's growth in current value terms. This pressure is particularly evident in bread, forcing price-sensitive consumers to trade down to cheaper options; hence, private label offerings saw their combined share further increase in 2022, and this is set to continue in 2023. The growth of private label is also attributed to the positive performance of discounters, in which private label prevails, which have gained extra share in the market. Reducing the size of their offerings without reducing prices ("shrinkflation") has also been one of the actions adopted by manufacturers as a way to tackle inflationary pressures.

DESPITE THE COST-OF-LIVING CRISIS, THE DESIRE FOR PREMIUMIZATION REMAINS STRONG

Despite the cost-of-living crisis forcing many consumers to trade down, there is also a desire for premium products offering added-value, for which consumers are willing to pay more. As a result, sales of artisanal bread are growing, with more and more manufacturers investing in sourdough bread, or using alternative flours such as whole grain. Unpackaged flat and leavened bread are also expected to record growth in 2023. Increasing consumer awareness of healthy nutrition has contributed to the development of such products, as consumers perceive them as more nutritious and higher quality.


Sales of Baked Goods in United Kingdom
Retail Value RSP - GBP million - Current - 2009-2028
9,357
Forecast
12,000
10,000
8,000
6,000
4,000
2,000
0
2009
2023
2028
Passport
© Euromonitor International 2024
Sales Performance of Baked Goods in United Kingdom
% Y-O-Y Retail Value RSP Growth 2009-2028
13.2%
Forecast
15%
10%
5%
0%
-5%
2009
2023
2028
Passport
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RETAIL VOLUME SALES PROJECTED TO RETURN TO GROWTH AS INFLATIONARY PRESSURES EASE

Following two consecutive years of strong inflationary pressure, from 2024 onwards price increases are expected to start easing. With deflation being a less likely scenario, prices are set to continue growing, but at a more moderate pace. Consequently, as consumer finances gradually improve, so will demand for baked goods. As a result, over the forecast period 2023-2028 marginal growth is expected in retail volume terms, with the unpackaged categories in bread, cakes, and pastries outperforming overall baked goods. Packaged and unpackaged leavened bread are expected to contribute the most to the absolute volume gains in baked goods, with the significantly smaller category of flat bread also set to record steady growth.

With bread being an affordable staple food, demand for more premium offerings is expected to attract innovation in this space, as consumers are expected to remain willing to elevate the quality of their at-home consumption occasions.

Baked Goods in Ireland

- Retail value sales increase by 11% in current terms in 2023 to EUR1.5bn
- Dessert mixes is the best performing category in 2023, with retail value sales increasing by 13% in current terms to EUR32m
- Retail sales are set to grow at a current value CAGR of 6% (2023 constant value CAGR of 4%) over the forecast period to EUR2.1bn

RISING PREFERENCE FOR PLANT-BASED AND VEGAN BAKED GOODS LEADS TO INNOVATION

According to Euromonitor International, baked goods have seen a significant shift in consumer preferences, with an increasing demand for plant-based and vegan alternatives over traditional products. This trend is primarily fuelled by the growing awareness of the health and environmental benefits associated with plant-based diets.

Shift towards premiumization, even within discounters

Driven by a desire for novelty and a gourmet experience, Irish consumers have demonstrated a willingness to pay more for premium and innovative products that offer new flavors, textures and formats. In response to this, major retailers, even discounters, have introduced premium ranges of baked goods.

SIGNIFICANT INCREASE IN BREAD PRICES AMID ECONOMIC AND POLITICAL TURMOIL

Ireland saw a significant increase in the cost of bread products in 2023, with prices jumping by more than 30% over the year in some supermarkets. This price surge was attributed to the impact of Brexit, higher input costs, soaring energy prices and skyrocketing costs of raw materials due to the Russian invasion of Ukraine. These factors led to the price of bread climbing at a rate up to four times that of general inflation.

Certain sliced pans and soda breads commonly found in supermarkets saw even steeper price hikes of up to 60%. This significantly impacted household budgets, with just two sliced pans a week costing over €60 a year more. Manufacturers have warned that these price hikes will likely remain for the foreseeable future.

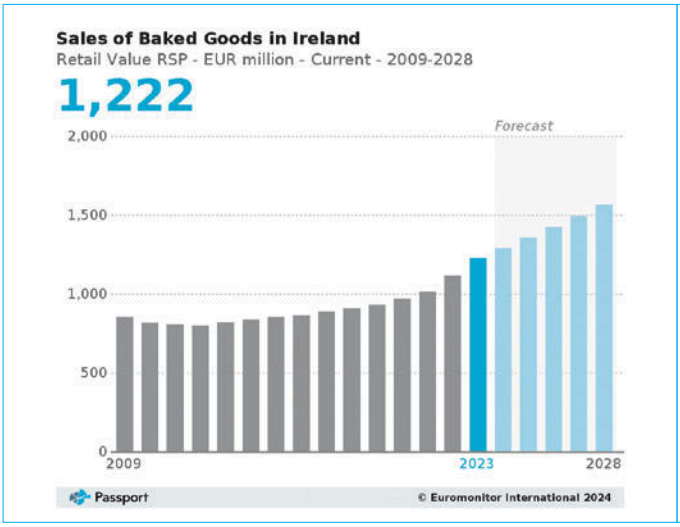
HEALTH AND WELLNESS TREND WILL CONTINUE TO DICTATE DIRECTION OF TRAVEL

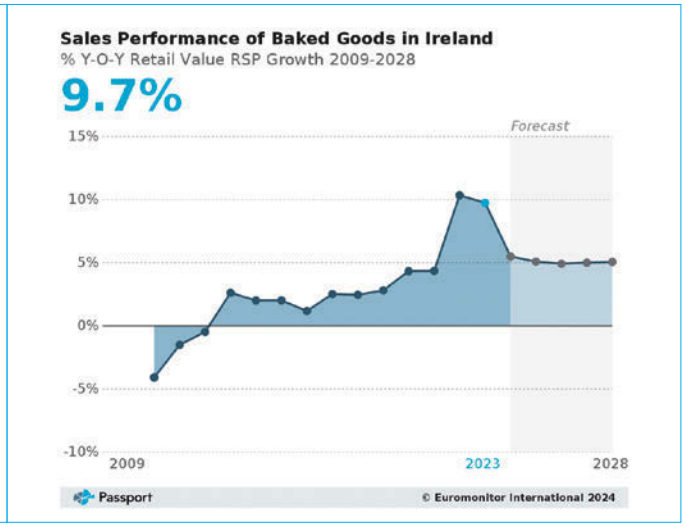
The health and wellness trend is expected to continue to shape the Irish baked goods industry. Local consumers are becoming increasingly health-conscious, seeking baked goods that satisfy their taste buds and contribute positively to their health and wellbeing. This shift in consumer preferences is anticipated to drive innovation in the category, with manufacturers focusing on developing products that offer functional benefits.

In response to this trend, an increasing number of products containing high levels of protein and fiber, reduced sugar and gluten-free variants are expected to emerge. As consumers continue to prioritize health and wellness, manufacturers that successfully tap into this trend by offering innovative, health-focused products are likely to gain a competitive edge. •

Market analysis based on data provided by Euromonitor International.

EUROMONITOR INTERNATIONAL





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Health That **Is Wealth**

Consumer health concerns remain one of the most important drivers in the global market for bakery products such as bread, cakes and pastries. Although indulgence remains a key selling point for many bakery goods, more people are now actively seeking healthier alternatives to fit in with their diets and lifestyles.

By Jonathan Thomas

The trend towards bakery products carrying health claims has largely been responsible for the large-scale product reformulation which has occurred within the industry in recent years, with manufacturers having reduced or removed ingredients such as sugar, salt and saturated fats, as well as artificial additives to address the growth in demand for clean-label bakery goods.

Another driver of product innovation from a health perspective has been the growing prevalence of certain diets, with vegan and gluten-free two notable examples. It should be remembered that many of the consumers who regularly buy into this category are also seeking foods which chime with their social beliefs and attitudes. In the case of vegan and plant-based diets, these are frequently adopted due to concerns over animal welfare and the belief that eating meat is morally wrong. In the case of gluten-free foods, many products are promoted as being more sustainable – for example, rice and potato flours (which are popular ingredients within the sector) have a lower environmental impact than conventional varieties, which often use significant quantities of water and fertilizers.

THE ROLE OF INFLUENCERS

Influencers on social media websites such as Instagram and TikTok are playing an increasingly significant role in attracting consumers to the gluten-free and vegan/plant-based bakery sectors. This is chiefly because consumption in both sectors remains heavily skewed towards the younger age groups such as millennials, who represent the most frequent users of these digital forms of communication.

One of the most notable examples in the gluten-free sector is Laura Strange, a London-based provider of many gluten-free recipes. Boasting around 218,000 Instagram followers at the time of writing, Laura Strange also runs The Gluten Free Guide, which supplies information on gluten-free foods, travel and lifestyles. In the US, meanwhile, Danielle Walker has 479,000 Instagram followers and writes the Against All Grain blog. She provides a range of recipes for people following various diets, examples of which include dairy-free and paleo, as well as gluten-free. Some of the leading social media influencers for vegan and plant-based diets include broadcaster Fearne Cotton, TV star and model Lucy Watson and Niomi Smart, who has over 1 million Instagram followers.

GLUTEN-FREE BAKERY PRODUCTS

According to Future Market Insights (FMI), the global market for gluten-free foods was worth USD5.87bn in 2024. Within the next decade, the market is forecast to increase in value by an annual average of around 7%, reaching almost USD11.6bn by 2034. Separate data from Grand View Research predicts

that the global gluten-free foods market will increase by an average of almost 10% per annum over the period between 2022 and 2030. Much of this growth should be driven by greater consumer awareness of gluten intolerance and coeliac disease, coupled with the wider range of products available for people following gluten-free diets.

The world's leading markets for gluten-free products include Western European countries such as the UK, France, Germany and Spain, as well as the US and Canada, although much of the recent growth has been highest in the Asia-Pacific region. In the UK and Europe, for example, it is estimated that coeliac disease affects 1% of the total population, although this figure should be treated with caution since only 36% of people with the condition have been clinically diagnosed. Furthermore, the percentage of people suffering from some form of gluten intolerance is thought to be higher, with 6% of the US population believed to fall into this category. Symptoms usually associated with coeliac disease and/or gluten intolerance include wind, bloating, constipation, vomiting, headaches, tiredness, mouth ulcers and sudden or unexpected weight loss.

Bakery products represent one of the largest sectors of the global market for gluten-free foods. According to Grand View Research, the gluten-free bakery market was worth USD1.82bn in 2022, equivalent to around 30% of the total gluten-free foods category. Between 2022 and 2030, annual market growth is forecast to average almost 11%, reaching a value of around

USD4.15bn. Leading product sectors include bread, cakes, cookies and pastries, although gluten-free varieties can now be found in most areas of the bakery goods industry. Although bread represents the largest sector, much of the recent growth within the market has been highest for gluten-free sweet and savory snacking products such as cakes, pastries and biscuits.

Although the global market is now in a relatively buoyant state, the development of gluten-free bakery goods has not been without difficulties from a manufacturing perspective. Most consumers expect certain tastes and textures from bread and other bakery products, which are strongly associated with wheat flour. Furthermore, gluten provides structure and elasticity during the baking process, which can often be difficult to replace. This has proved especially problematic for bakery goods such as gluten-free flatbread, which is prone to tearing. Another potentially problematic issue with gluten-free baking has been the fact that large holes can sometimes appear in the dough, caused by the greater variance in the formation of air bubbles.

To overcome these problems, manufacturers of gluten-free bakery goods have been turning towards ingredients such as starches and alternative flours, examples of which typically include rice flours, coconut flours, chickpea flours, potato flours and oat flours. Starches are popular since they can mimic the moisture-retaining capabilities of gluten, as well as offering properties such as gelling, thickening and texturizing. In some instances, suppliers have combined native starches or flours in their search for an acceptable alternative to wheat.

Gluten-free bakers have also been experimenting with microencapsulation technologies to address the difficulties many products have in retaining moisture. These in turn have assisted in extending the shelf-life of gluten-free bakery foods, which acts as a further draw to consumers. On a related note, the sector has also witnessed greater interest in various food packaging technologies to help extend shelf-life, one example of which is modified atmosphere packaging (MAP). It should also be noted that many gluten-free bakery consumers expect packaging to address sustainability concerns, such as being fully recyclable. During 2021, European supplier Dr Schär partnered with flexible food packaging manufacturer Niederwieser to develop the market's first gluten-free bakery packaging made from certified circular plastic. This was introduced for its gluten-free sandwich buns.

Certification is an important issue within the market for gluten-free bakery products, with many consumers demanding transparency within the supply chain and subsequent assurances that gluten is not being used as an ingredient. One of the leading examples of certification is the crossed grain symbol developed by Coeliac UK, a UK-based charity which supports people suffering from coeliac disease. The symbol, which is recognized both in the UK and internationally, consists of a small circle with a grain stalk slashed through its middle. Although it is not a legal requirement for gluten-free foods to carry this symbol, the packaging must by law include some statement notifying consumers that the product is free from gluten. For bakery goods to be labelled gluten-free, they must contain 20 parts per million (ppm) or less of gluten.

The global market for gluten-free bakery products features several leading manufacturers, examples of which include General Mills, Kellogg, Warburtons, Hain Celestial and Dr Schär. However, it should be noted that the market also features a sizeable number of small to medium-sized companies and startup firms, attracted by the recent growth in demand for gluten-free options.

Warburtons represents one of the leaders within the UK market, supplying a range of products from its dedicated gluten-free bakery at Newburn on Tyneside. Early in 2023, the company extended its range with Cinnamon & Raisin Sliced Fruity Buns, largely in response to consumer demands for greater variety within the gluten-free sector. The company's gluten-free range now encompasses a widening range of bakery products, including bread, rolls, wraps and crumpets. Another UK-based supplier of gluten-free bakery products is Mrs. Crimbles, which forms part of Ecotone UK alongside other brands such as Clipper teas and Kallo rice cakes. The Mrs. Crimbles range includes gluten-free products such as coconut rings, macaroons, brownies, crackers and bakewell slices.

One of Europe's leading providers of gluten-free bakery products is Dr Schär, which is headquartered in Italy's South Tyrol region and operates 18 sites in 12 countries. During fiscal 2023, the company experienced an increase in turnover of 16% to EUR561m, having invested EUR48m into its business. The year's major development was the acquisition of Semper from Hero Group, which dramatically increased the company's presence within the Scandinavian

market for gluten-free bakery products. At the time of the acquisition, Semper had an annual turnover of SEK1.5bn, while the deal included a gluten-free crispbread facility in Korsnäs in Sweden.

The company's plans for the short-term include the modernization of two German manufacturing sites at Dreihausen and Apolda, as well as the centralization of its US activities at its Swedesboro facility in New Jersey. During March 2024, its US business extended its gluten-free bakery range with a new Marble Cake, as well as soft-textured muffins in Classic, Chocolate and Chocolate Chip varieties. Meanwhile, Dr Schär continues to increase its geographical reach in parts of the world such as South America and the Middle East, which gives some indication of the untapped potential of the market for gluten-free bakery goods.

PLANT-BASED/VEGAN FOODS

Bakery products aimed at vegans and people following plant-based diets are also entering the mainstream and have therefore become an important sector for many manufacturers of bakery goods. This consumer base is diverse and sometimes difficult to define precisely – at its broadest, for example, it could be considered to include vegans, vegetarians, pescatarians and flexitarians. Consumers following these diets tend to naturally gravitate towards foods carrying additional health claims, such as being organic or free from artificial additives and ingredients. As the market has developed, it has steadily overcome some of the previous barriers to growth. In the past, the sector was associated with a limited range of products, many of which did not score highly in terms of taste. The market was also hampered by the higher prices typically commanded by bakery goods suitable for those following a plant-based diet, which were attributed to factors such as the cost of ingredients. However, this situation has changed in recent years, with more companies having entered the market (therefore improving the choice of products on offer) and advances in technology having helped to lower prices at the retail level.

Many of the simpler breads on the market (i.e. those made from flour, water, salt and yeast and little else) are suitable for vegans and the more stringent followers of plant-based diets, even if they are not specifically marketed as such. However, bread varieties which include ingredients such as eggs, milk and butter (e.g. brioche rolls) are not. Some of the more popular bread varieties with these consumers include those positioned on a health platform, such as sourdough and bread made with whole grains or ancient grains.

The replacement of ingredients such as butter and eggs is generally more apparent in bakery industry sectors such as cakes and pastries. Various starches and gums (e.g. xanthan gum) are popular replacements for eggs and milk in these categories, as they can act as binders and assist in creating a moist and sticky consistency. The use of cooking oils such as sunflower or coconut oil as a replacement for butter is also relatively commonplace, while flaxseeds have found favor as egg replacements due to their binding qualities. Elsewhere, many of the leading biscuit brands in western markets are suitable for followers of plant-based diets. During 2021, Burton's Biscuit Company of the UK launched a new version of its Maryland Cookies brand targeted specifically at vegan consumers. These were manufactured without whey powder and were launched in distinctive green colored packaging. •

How Many Bakers Does It Take to Bake a π?*

Pie is celebrated worldwide on March 14 because of the funny juxtaposition of the word pie and the abbreviation 3.14 for the date, with is also short of Pi (π), the mathematical number. A nerd joke became a pretext to innovate and celebrate a dish as old as time.

By Jo Ilie

While pie can mean a million things - including, in the US, pizza or, in Greece, phyllo buns drenched in milk - it is mostly understood as a flaky crust (made from butter/lard and flour/cookies) that is easily broken by a fork's tines, filled with fruit, veggies, eggs, meats, custards and more. Basically, everything can be baked into a pie. With different toppings or bases come different names: crumble, cobbler, tart, galette.

In the US alone, the (shelf stable and frozen) pie market was estimated at USD2bn in 2022 and it is believed that it is driven by strong emotions of nostalgia and comfort. Pie appeals to all: baby boomers and retirees, millennials, Gen Zs. Outside the home, pie is the third-most common dessert offered on restaurant menus, according to Datassential. Some of the most famous - and historically resilient - pies include apple pie (French or American style), mince pie (a British delicacy that contains no ground meat, in spite of its name), cherry pie (a favorite of Queen Elisabeth I), rhubarb pie, chicken pot pie, quiche lorraine (a French savory dish), pumpkin pie (an autumn staple) or lemon meringue pie (with its American star, Key Lime pie).

The last decade brought forth a plethora of new recipes, from rediscovered Depression-era flavors like water pie to upscale New York restaurant innovations like crack pie (from Momofuku Milk Bar). Novelty (for pie) ingredients like purple potatoes, vinegar, matcha, black sesame, or miso found their ways into fillings. Tik Tok trends raised some of them to prominence. Here are some of the most famous ones and how they fared when they made it into bakeries or shelves.

MILK BAR PIE (FORMERLY CRACK PIE)

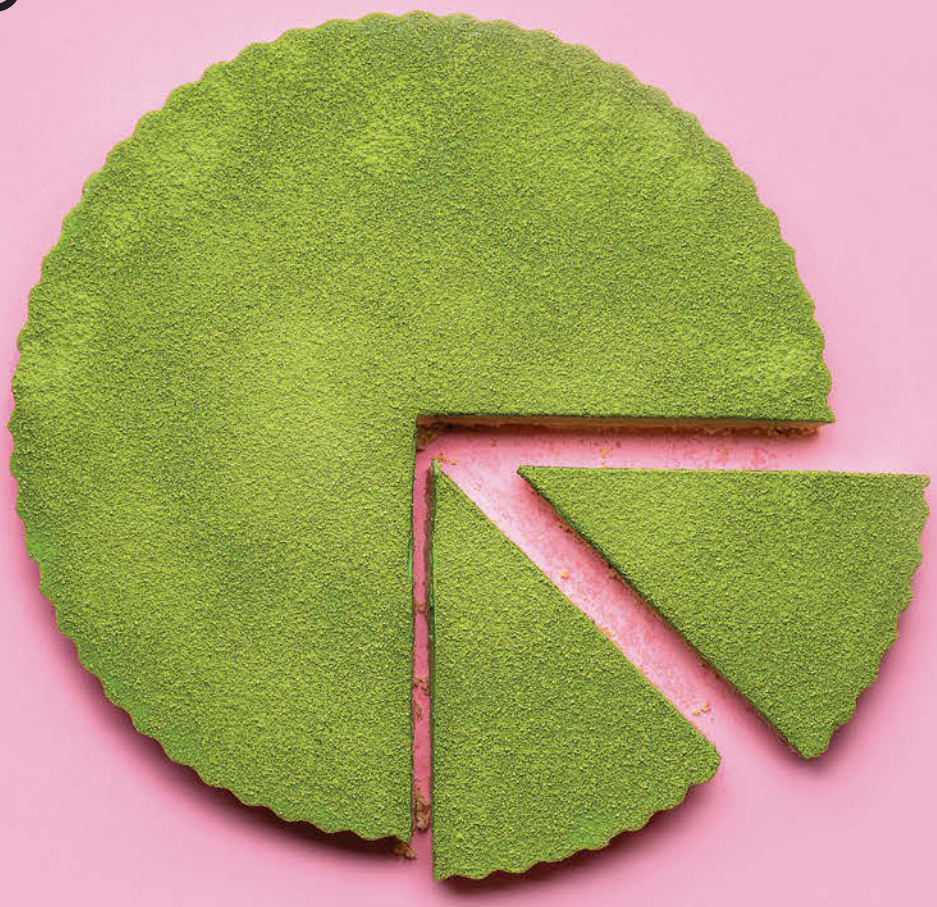
One of the most revolutionary pies invented in the past decade is the Crack Pie created by Christina Tosi from Momofuku Milk Bar in New York. Made from extremely affordable ingredients - oats, powdered milk, corn meal and a few other pantry staples -, the pie was first a dish for the family meal (the staff meal) at the famous restaurant opened by David Chang. It caused such a stir, Tosi said, that it became a menu item. Initially it was called Crack Pie, a joke about how addictive it was (crack is a type of cocaine), but following social criticism about how the name derided the struggles of those facing real addictions, it was renamed Milk Bar Pie. It is still one of the most popular items at Momofuku Milk Bar - it costs USD53 and it's delivered all over the US - and its recipe is public on the restaurant's webpage, for those with the patience and skills to reproduce it at home.

WATER PIE

Sounds like a joke, but this is proof bakers can make delicious things out of anything. Made from a deep-dish pie crust, water, sugar, flour, butter and vanilla, all baked together, the water pie has been a darling of the internet in the past years, especially after some Depression-era or retro baking Tik Tok accounts started testing it and promoting it as a very affordable - and significantly less complicated than the Milk Bar Pie - dessert that can be made by anyone at home. Some other versions popped up too: Sprite Pie, for example, just replaces water with the lemon-lime flavored beverage. While this is a quintessential home baking recipe, craft bakeries started making it and selling it in shops or online, such as Unbutton Pies in Las Vegas, Nevada, where it costs USD15. From the same vein comes the Old Fashioned Vinegar Pie, which counts on vinegar to give the final product an acidic kick without using citrus, which was not available during harsh economic times. The custard is made of eggs, sugar, butter, vanilla and vinegar and is baked directly into the crust. This, however, hasn't made it into bakeries, probably because of the not very appetizing name.

ASIAN FLAVORS

Matcha, black sesame and miso became more popular as Asian cuisine made its way into the mainstream of Western world. They create new flavor profiles and offer exciting new experiences to adventurous eaters.



MATCHA PIE

On a wave of health-conscious desserts arrives the Matcha Pie, an essentially simple custard pie flavored with matcha, the coveted powdered green tea from Japan. Its prominence rose at the same time with the one of matcha latte, a milk drink featured by lifestyle, nutrition and social media. While it looks deceptively simple, actually achieving a balanced flavor - with the freshness of green tea, but without the bitterness - requires delicate calibration and skills for bakers and manufacturers. Because good quality matcha is an expensive ingredient, matcha pies are premium products that sell for around USD50 in upmarket bakeries such as Elijah Pie in Singapore, My Vegan Pie in San Diego, California, or Four&Twenty Blackbirds in Brooklyn, NY. But the flavor can also be found in shelf stable form in convenience stores and supermarkets, such as the handheld matcha pies from Orion or in KitKat wafers available in APAC.

BLACK SESAME PIE

Black sesame is one of the most sought-after aromas in 2024. You can find it in rolls, mochi or cookies, while black tahini (sesame paste) gets featured more and more in bakeries and restaurants. It gives a striking aspect to desserts and it adds an charcoal-like taste, although not unpleasant. Black sesame pies or tarts are basically custard tarts (flan) that are colored with powdered black sesame. The taste and the color pair well with forest fruit such as raspberry, making for a very inviting desert. Black sesame pie even made its way into the menus of established raw bakeries, such as Rawsome Treats in New York, where it can be ordered for USD70.

MISO PIE

Miso, a fermented soy paste that brings an umami boost to many savory dishes and is especially preferred in vegan and vegetarian cuisine for its ability to add depth of flavor, is also a novel ingredient in the realm of sweet bakery. Much of its welcome is owed to the same Momofuku restaurant that invented the Crack Pie, but since then it started appearing next to other ingredients in exciting new products like the Miso Pecan Pie available at Upgrain bakery in Singapore for about USD55, the Miso Apple Pie at Salt & Charm in Wilmington, North Carolina, or the Miso Chocolate Caramel Pie at Doughboy in Sheffield, Great Britain. The ubiquitous ingredient is popping up everywhere.

HANDHELD PIES

While handheld pies of any kind have always been available, the lifestyle changes of new millennium, with more people living in urban areas and choosing on-the-go breakfast and lunches, as well as the snackification of food - people favoring more snacks during the day instead of regular meals - favor these handy bits of food in both supermarkets and street bakeries across the world. And manufacturers are taking note.
Willamette Valley Pie, for example, has unveiled the BerryFields natural snack brand extension. The frozen baked goods specialist, known for ready-to-bake pies, cobblers, crisps and hand-pies, made the products available at Whole Foods Market stores. Serving up four grams per unit, they can go right from freezer to lunchbox in the morning and be thawed and ready to eat when lunch time arrives. Three flavors, each complimented with protein-rich almond butter tucked in a soft pastry made with real butter, are currently available: Mixed Berry, Strawberry and Grape. •

***3.14, of course.**

2024 FEATURE PLANNING

1 JANUARY/FEBRUARY
Anuga FoodTec Special Edition
Ad closing: Feb 14/Publishing: Feb 29

TECHNOLOGY
Sheeters & Laminators / Smart Bakery Systems

PROCESS
Designing &Comissioning / Production Lines / Cutting and Forming / Scoring

SPECIAL FEATURE
Boosting Productivity

EXPERT VIEW
Low Pressure / Extruded Snacks

FOOD SAFETY
Hygienic Equipment Design

INGREDIENTS & NUTRITION
Flours / Shelf-life Optimization / Botanicals / CBD

PACKAGING
Secondary packaging

MARKETS
Germany

SNACKING TRENDS
Expanded / Extruded / Snacks

CRAFT BAKING
Freezers, Display Freezers & Coolers

SUPPLY CHAIN & LOGISTICS
Storage & Warehouse Management

PRODUCT SPOTLIGHT
Pizza / Laminated Dough-based Innovation

TRADE SHOWS
AB Tech Expo, Sirha Europain, Pro Sweets + ISM

2 MARCH/APRIL
Includes Asia Pacific Overview Print Supplement
Ad closing: Mar 28/Publishing: Apr 14

TECHNOLOGY
Conveyor Belts, Topping / Filling / Glazing

PROCESS
Inspection & Monitoring / Product Diversification

SPECIAL FEATURE
Energy Saving & Process Optimization

EXPERT VIEW
Sustainable Packaging Materials

FOOD SAFETY
Sanitation & Allergen Management

INGREDIENTS & NUTRITION
Oils & Fats / Flavors & Colors / Water

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 / Pies & Tarts

TRADE SHOWS
Food Expo Greece, Pizza Expo, IFE, Anufood China, SIGEP China

3 MAY/JUNE
SnackEx Special Edition
Ad closing: May 14/Publishing: May 28

TECHNOLOGY
Turnkey Lines / Software & Sensors

PROCESS
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 / Free-from Alternatives

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 / Cookies

TRADE SHOWS
Food and Drink Expo, Thaifex - Anuga Asia

4 JULY/AUGUST
Includes North America Overview Print Supplement
Ad closing: July 11/Publishing: July 28

TECHNOLOGY
Freezing Equipment / Extruders

PROCESS
Depositing / 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 / DRI & EU regulations

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 / Cakes

5 SEPTEMBER/OCTOBER
Includes Middle East Overview Print Supplement
Ad closing: Sept 19/Publishing: Oct 03

TECHNOLOGY
New Oven Technologies

PROCESS
Extrusion / Handling / Pick & Place

SPECIAL FEATURE
Product Quality Management

EXPERT VIEW
Plant-based Formulation & Production

FOOD SAFETY
IoT in Food Safety Management

INGREDIENTS & NUTRITION
Sweeteners / Emulsifiers / Antioxidants

PACKAGING
Robots / Cobots

MARKETS
Italy

SNACKING TRENDS
Enrobed / Filled Sweets

CRAFT BAKING
Pastry Equipment

SUPPLY CHAIN & LOGISTICS
Cold Chain

PRODUCT SPOTLIGHT
Frozen Pastry / Sourdough Bread

TRADE SHOWS
Fi Asia, Pack Expo

6 NOVEMBER/DECEMBER
Fi Europe Special Edition
Ad closing: Oct 29/Publishing: Nov 12

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 / Starches

PACKAGING
Active Packaging

MARKETS
France

SNACKING TRENDS
Wafers

CRAFT BAKING
Small Footprint Technology

SUPPLY CHAIN & LOGISTICS
Software Solutions

PRODUCT SPOTLIGHT
Winter Holiday Treats / Meringues

TRADE SHOWS
Free From Functional Food Expo / Health Ingredients. Gulfood Manufacturing

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