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Technology
Extruders: The Pursuit of Consistency and Versatility

Ingredients
Flour Mixes, A Bridge to Better Nutrition

Interview
For Better Nutri-Score in Baked Goods, Science to the Rescue

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A Turning Point for Health Regulations

> According to WHO, replacing iTFA with healthier oils and fats is "cost-effective and feasible, and can be done without changing the taste of food or its cost to the consumer"

Tudor Vintiloiu

In May 2018, the World Health Organization (WHO) called for the global elimination of industrially-produced trans-fatty acids (iTFA) by 2023 and released a roadmap for countries to implement the prompt, complete and sustained elimination of iTFA from the food supply.

More than 40 countries now have "best-practice" trans-fat elimination policies in effect, protecting 1.4 billion people around the world.

In 2021, Brazil, Peru, Singapore, Turkey, the UK and the European Union all introduced such measures. The Philippines is among the first lower-middle-income countries to pass best-practice trans-fat elimination policies; others to have done so include Bangladesh, India, and Ukraine.

By June 2023, the sale of foods with more than 2 g per 100 g or 100 ml of iTFA will be banned in the Philippines. The circular prohibits the manufacture, use, importation, distribution, and sale of food sources, ingredients, and pre-packaged processed food products containing both partially hydrogenated oil (PHO) and high TFA content. Margarine, fried foods and doughnuts, crackers, biscuits, packaged pies, pancakes, and hot chocolate mixes will all be affected.

The United Arab Emirates (UAE) also recently announced it aims to reduce average salt intake by 30% and eliminate industrial trans fats from the food supply by 2030.

According to WHO, replacing iTFA with healthier oils and fats is "cost-effective and feasible, and can be done without changing the taste of food or its cost to the consumer". The food and ingredients industry has been supportive of such regulations, with some companies moving ahead of legislation.

"Elimination of industrially produced trans-fatty acids is a straightforward nutrition policy that will prevent heart attacks, save hundreds of thousands of lives, protect all people, reduce health inequalities and reduce pressure on already strained health systems," said WHO director-general Dr. Tedros Adhanom Ghebreyesus in an update last year. •

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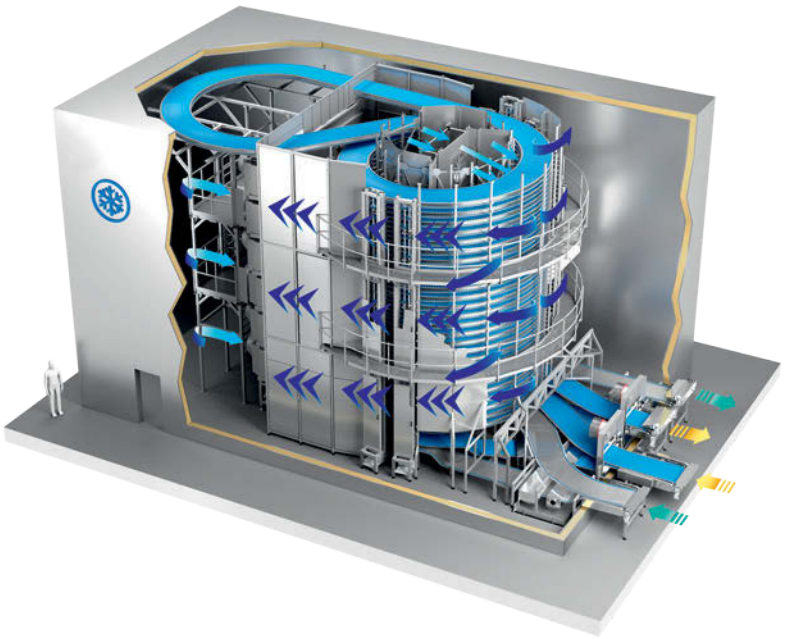

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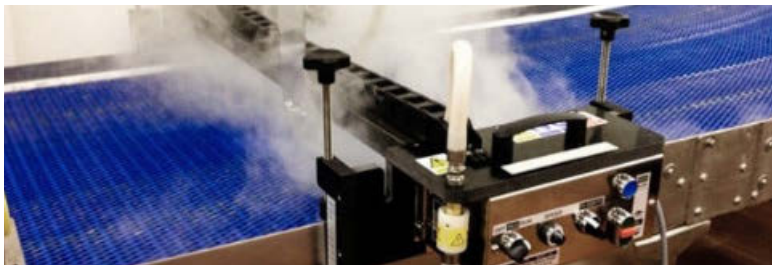
Goodway Technologies Opens Office In Dubai



Goodway Technologies, a global supplier of industrial maintenance and cleaning solutions, is opening an office in Dubai, United Arab Emirates. "Our innovative cleaning and sanitation solutions continue to grow in popularity and demand, and we are thrilled to have people and resources on the ground in Dubai to serve the Middle East," said Tim Kane, CEO of Goodway Technologies. "Global trends in packaged goods, healthier-for-you snacks, and more consumer options are driving an increased need to keep supply chains and production environments safe. Our team is committed to providing customers with high-quality solutions that make cleaning and sanitizing easier, faster, and more effective."

Goodway Technologies' line of cleaning and sanitation solutions are applicable for commercial bakeries, snack producers, and food and beverage processing and packaging facilities. These solutions offer technology and design that help increase sanitation performance while reducing labor and operational costs and production downtime.

Japan Wins The 2023 Pastry World Cup

Moe Takahashi, Naritoshi Suzuka, Yusaku Shibata, the three Japanese pastry chefs representing Japan at the 2023 Pastry World Cup, won the 18th edition of the competition during Sirha Lyon 2023. This victory rewards the technique and creativity of the creations proposed by the team. France and Italy 2nd and 3rd places, respectively.

"The level of the competition rises from one edition to the next, as evidenced by the very close results," said Pierre Hermé, President of the Pastry World Cup. "It is with great emotion that we award Japan, a country accustomed to the podium, which became world champion again 16 years later."

After finishing second on the podium for the last 5 editions, the team composed of Moe Takahashi, Naritoshi Suzuka and Yusaku Shibata brought the victory to Japan this year. This victory allows the country of the Rising Sun to win its first gold medal since 2007 and to add a third World Cup to their list of achievements.

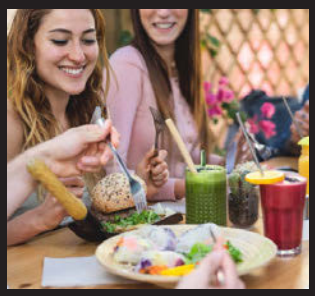
New Food Invest Asia Pacific Discussed Growing Investment In Alt Protein

More than 200 participants took part in the third edition of the New Food Invest conference series, which focused this time on the Asia Pacific region. The online conference was held on 15 February and co-hosted by global food awareness organization ProVeg International and business networking and investment platform Beyond Animal.

"It was a fantastic opportunity for plant-based companies and investors to get together, to fully understand the landscape in Asia for plant-based companies and, of course, to get involved in dealmaking to accelerate innovative products to market," Antje Raeuscher, co-head of ProVeg Incubator, ProVeg's alternative protein accelerator, said.

Focusing on the Asia Pacific markets, the conference covered the current state of affairs with alternative protein, sustainable finance and corporate investment in Asia as well as panels focusing on China and India and those ingredients of most relevance to the Asian market.

Roquette Invests In DAIZ, An Innovative Japanese Food Tech Startup



Roquette, a global leader in plant-based ingredients and a pioneer of plant proteins, announced its investment in DAIZ Inc., a Japanese food tech startup that has developed breakthrough technology utilizing germination of plant seeds combined with an extrusion process to enhance texture, flavor and the nutritional profile for plant-based foods. This partnership will allow Roquette and DAIZ to meet rising global demand for innovative and sustainable plant-based ingredients.

Plant proteins are one of the most promising answers to contribute to sustainability while providing healthy and tasty food. Thanks to DAIZ's proprietary technology initially developed for soy and now applied to pea, Roquette further strengthens its position as the pioneer in plant innovation and contributes to the development of disruptive solutions to better answer market needs.

In addition to meat alternatives, they will explore joint development in other applications such as fish alternatives or dairy, and other food sectors.

Siwar Foods & DELY Waffles Sign Exclusive Regional Agreement

Siwar Foods has signed an exclusive agreement with DELY Waffles to bring frozen waffles to KSA and the region.
The agreement will see Siwar introduce a range of frozen waffles under its own brand into the KSA & GCC market, focusing on retail and food services.
The 'toast and eat' waffle range, which comes in different varieties and flavors, makes use of traditional Belgian techniques to produce a superior tasting waffle. Aligned to Siwar's promise of bringing time saving food solutions to the market, the waffles can be heated and enjoyed in just 30 seconds.

DELY Waffles, specialists in the manufacturing of freezer fresh Brussels Waffles, are a family business that has mastered the know-how of frozen waffles for three generations.
Commenting on the partnership, CEO & Founder Loaye Al-Nahedh said: 'This will not only allow us to bring some of the world's best waffles to the region, but we will benefit from the leading innovation and R&D that DELY are known for, ultimately allowing us to anticipate consumer trends in our market, both in retail and food services."

Lesaffre Opens New Facilities In Australia

Lesaffre Australia Pacific inaugurated two new facilities: a Molasses Extracts Plant (MEP) on its production site in Melbourne and enhancements in the existing Baking Center in Mortlake Sydney, a showroom that trains in the art of breadmaking.
"Lesaffre has been present in Australia for almost 30 years, both commercially and through our yeast production plant near Melbourne. Through the setting up of this workshop for the valorization of our yeast derivatives, and the improvement of our Baking Center, Lesaffre is confirming a model that is part of its identity: to be a privileged partner to our customers and to offer them high quality products that respect the environment," says Jean-Philippe Poulin, Chief Operating Officer and Group Deputy CEO.
In addition to baking yeasts direct applications aimed at nutrition and health, its manufacturing process allows Lesaffre to collect derivative products rich in nutrients, which are then reprocessed by evaporation.

Barry Callebaut Announces New Chocolate Factory In India

The Barry Callebaut Group announced the groundbreaking of its third manufacturing facility in India. The new chocolate and compound factory will be located in the city of Neemrana, about 120 km southwest of Delhi. When finished, in 2024, India will become Barry Callebaut's largest chocolate producing market in Region Asia Pacific. With this announcement, Barry Callebaut's total investment in India over the last 5 years is projected to exceed CHF50m.

Since the opening of the first CHOCOLATE ACADEMY Center in Mumbai in 2007, Barry Callebaut has continuously invested in the Indian chocolate and cocoa market. Today, the company operates two factories in Baramati, producing high-quality chocolate and compound.

"As a global leader in the chocolate industry, India is a key market for Barry Callebaut in Region Asia Pacific. Our ambition in India is to become the market leader for high-quality chocolate and cocoa products," said Jo Thys, President of Barry Callebaut in Asia Pacific.

UAE Targets Trans Fats Elimination And Salt Cuts

The United Arab Emirates (UAE) has announced it aims to reduce average salt intake by 30% and eliminate industrial trans fats from the food supply by 2030, GulfNews reports.

The operational plan of the UAE's National Nutrition Strategy for 2022-2030 aims to cut high rates of cardiovascular diseases and obesity among adults and malnutrition among children. Improving breastfeeding rates, and reducing prevalence of stunting and wasting among kids below five are also covered under the strategy.

The plan aims to strictly control advertisements of unhealthy foods targeting children and unify the nutrition guidelines in school canteens across the country.

The UAE government is working with the WHO to reevaluate the advertising of unhealthy foods to children.

"We have worked on different specifications, like the specification to reduce the salt in bread," said Nouf Khamis Al Ali, director of the Health Promotion Department at the Ministry of Health and Prevention.

Ofi Opens A New Customer Solutions Center In Singapore

olam food ingredients, a global leader in naturally good food and beverage ingredients, opened its new Customer Solutions Center (CSC) in Singapore on November 15, 2022. The new facility will enable ofi to better collaborate with brands, grocery retailers and foodservice companies to create their next delicious and nutritious product for consumers.

A team of culinary and pastry chefs, food scientists, quality, regulatory and category experts will help ofi's customers develop new products and applications using ingredients from ofi's portfolio of cocoa, coffee, dairy, nuts and spices. These ingredients are highly complementary and can be combined into recipes and formats that meet consumer trends for exciting new flavors, health benefits, convenience, and plant-based solutions.

The Singapore CSC is well integrated with ofi's global network of 15 innovation centers and its Customer Solution Centers in Chicago, Amsterdam and Bangalore.

ANKO Launches Vegetarian Spring Rolls Automated Food Machine

ANKO Food Machine Company launches the SR-27 Automatic Spring Roll Production Line, suitable for large food factories, central kitchens, and large-scale manufacturers to help resolve production issues related to the global labor shortage and rising wages. ANKO's SR-27 has the capacity of producing 2,700 Spring Rolls per hour, and the unique filling system can process and extrude a wide range of ingredients. After loading the hoppers with raw materials, the automated production begins with a simple click. All the parts that have direct contact with food ingredients can be cleaned thoroughly and easily with water. The wrapping mechanism adopts handmade methods, and different parameter settings can be entered for processing fillings that consist of either all vegetables, cooked meat, or a mixture of vegetable and meat. Depending on the client's product requirements, this Production Line can produce high quality Frozen Spring Rolls, Deep-fried Spring Rolls and Fresh Spring Rolls.

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Extruders: **The Pursuit of Consistency and Versatility**

Extrusion technology plays an important part in the food industry, and the production of baked goods is no exception. Extrusion is a process that involves pushing or pulling a material through a shaped die to create a specific form. In the production of baked goods, extrusion technology has been used to create a wide range of products, including bread, crackers, cookies, and snack foods.

By Tudor Vintiloiu

Extrusion has gained popularity in the baking industry due to its high production rates, consistent product quality, and reduced production costs. This technology allows bakers to create products with complex shapes and sizes that are difficult to achieve using traditional baking methods.

There are various types of extruders used in the production of baked goods, including single-screw, twin-screw, and co-rotating intermeshing twin-screw extruders. Single-screw extruders are the most common type used in the baking industry. They are versatile, easy to operate, and suitable for a wide range of products. Twin-screw extruders, on the other hand, are more complex and expensive to operate. They are suitable for producing high-quality items, such as snacks and cereal bars, with consistent product quality.

One of the most common challenges producers face when using this technology is maintaining consistent product quality, particularly for products that require precise temperature and moisture control. Also, the process may cause changes in the chemical and physical properties of the ingredients, affecting the final product's texture and flavor. To overcome these hurdles, equipment producers are developing new technologies and equipment that allow for precise control of temperature, moisture, and pressure during the extrusion process. Moreover, equipment producers are incorporating sensors and other monitoring devices to help detect and correct any changes in product quality.

AUTOMATION

Automated extrusion lines are computer-controlled production lines that can manufacture baked goods with consistent quality and reduce production costs.

These extrusion lines use a combination of sensors, programmable logic controllers (PLCs), and human-machine interfaces (HMIs) to control and monitor the entire production process.

The use of sensors and control systems ensures that ingredients are accurately measured and mixed. This leads to a more consistent product quality and reduces waste due to over or underproduction.

Automated extrusion lines can also produce baked goods at a much faster rate than traditional methods, reducing production

time and increasing yield. A further increase in efficiency can be attributed to the fact that these automated lines require less labor to operate and maintain. They are using sensors and control systems to monitor the production process in real-time. This allows for quick adjustments to be made to the process, ensuring consistent quality and reducing waste. Diagnostic tools can quickly detect and fix any issues that may arise during the production process, reducing downtime and allowing for a preventive maintenance schedule to be implemented. The data being collected by the sensors during the production process can further be analyzed to identify areas for improvement and optimization.

Extruding systems are classified by their pressure rating in high, medium and low-pressure systems.

High-pressure systems, also known as cooking extruders, operate in the 2,800 psi range. These systems typically process course grit ingredients such as corn meal/grits and other added ingredients such as dehydrated potato products resulting in highly expanded snack products.

Medium-pressure systems operate in the 1,200 psi range and are capable of extruding dense low-moisture dough without cooking inherent to the high-pressure extrusion process.

Low-pressure systems operate in the 150 psi range with the main objective being not to change the physical characteristics and properties of the dough during the low-pressure extrusion process.

Completely redesigned to improve safety, efficiency and ease of cleaning, Reading Bakery Systems' Low Pressure (LP) Extruder enables consistent and accurate production of a wide array of products including hard pretzel shapes, sticks, braids, sushki and co-extruded products.

"RBS low-pressure extruders offer extrusion widths from 380mm to 2000mm to accommodate the nominal widths of customer's tunnel ovens and frying equipment. As customer requirements for efficiency, food safety and employee safety have increased, RBS continues to update our designs. The Low Pressure Extruder was recently redesigned to be safer, more efficient and easier to clean. The features of the redesigned LP Extruder include augers that deliver more product flow with less work to the product; new lightweight, seamless, single-piece hoppers that eliminate

RBS Low Pressure Extruder

harborage areas; pre-feed rolls made of plastics that are safe for food processing; an improved cutting mechanism with a longer service life; improved guarding for increased safety; and a band-cutter cam that is positioned away from the product zone to reduce contamination and provide easier maintenance access," RBS experts explain.

FLEXIBILITY IS ESSENTIAL

Product changeover is as simple as exchanging one compression head and die for another one with a different shape. Manufactured to deliver consistent, efficient production, each die forming unit in the LP Extruder features twin augers that meter a controlled flow of dough from the hopper, to the compression head, on through the forming die. According to the company, the efficient auger design delivers better product flow with less work to the dough reducing crystallization. As the dough is extruded through the forming dies, the bandcutter slices the dough off at the die face. This results in consistent and accurate product shape and weight every time. The rate of production and product thickness is controlled through a combination of the auger and bandcutter speeds.

"Co-extrusion systems can be added onto our Low-Pressure Extruder for filled snacks, including cheese, chocolate, peanut butter, and other fillings. Even braided twists and gluten-free products are another possibility with the LP extruder. Gluten-free dough varieties typically lack elasticity and extensibility characteristics when compared to wheat flour, resulting in poor flow of dough during the extrusion process. RBS's optional dough pre-feed systems can be added to overcome these extrusion and face-cutting challenges. Other ingredients, such as cassava and plantain flour products, are tested for usability, product quality and the like at our Science & Innovation Center in Sinking Spring, Pennsylvania. We proactively test these alternative types of snack ingredients to help our customers successfully adapt to changing times and the related supply chain troubles making it difficult to source certain flours," company representatives told us.

WIRECUT INNOVATION

Baker Perinks' TruClean servo-driven wirecut machine has been upgraded to run at up to 300 rows per minute to meet industry demand for higher output machines that maintain accuracy. The machine, which was featured at IBIE, will also incorporate the new TruWeight cookie weight control technology.

TruWeight Assisted Weight Control reduces variations in piece weights by individually adjusting the output from each die cup, providing significant potential for improved profitability on cookies and bars.

The encapsulation module is another feature that can be fitted to any wirecut to expand the range of end products to include cookies and bars with completely enclosed fillings including chocolate, caramel, cream, peanut butter or jam.

The TruClean wirecut incorporates a patented two-axis servo system, which provides infinite variability to the cutting and return paths, enabling optimum cutting performance at high speeds or on difficult dough. Tailored profiles can be created for each individual product and loaded at the touch of a button.

This wirecut machine covers a wide range of cookie and bar applications for high-fat soft doughs. Cookies may be plain or carry inclusions such as chocolate, nuts, and fruit. Sizes range from mini to large, in a variety of shapes.

TO BE CONTINUED

Further innovation will take into account lowering production costs, which, in the case of processing plants, can be a very complex undertaking. Plant and production managers frequently feel forced to pursue competing goals under difficult conditions: stringent quality requirements coupled with ambitious cost targets, quickly fluctuating demands and changing operating staff are typical challenges. •

Baker Perkins TruClean Servo Wirecut

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A Fresh Coat **of Chocolate**

Enrobing is a process used in the food industry to coat baked goods with a layer of chocolate, icing, or other coatings. Enrobing gives the baked goods a smooth, even surface and adds to the overall appearance and taste of the product. In industrial bakeries, enrobing can be a critical part of the production process, and highly specialized machinery and technological solutions are used to ensure quality and consistent results.

By Tudor Vintiloiu

The enrobing process typically involves three stages: pre-treatment, enrobing, and cooling. In the pre-treatment stage, the baked goods are prepared for enrobing. This can involve trimming, slicing, or shaping the baked goods to achieve the desired size and shape. The baked goods are also often heated or chilled to achieve the optimal temperature for enrobing.
In the enrobing stage, the baked goods are coated with the desired coating. This can be done using a variety of methods, including curtain coating, roller coating, and spray coating. Curtain coating involves the use of a curtain of chocolate or other coating that falls over the baked goods, covering them completely. Roller coating involves the use of a series of rollers that coat the product with the desired coating. Spray coating involves the use of a nozzle that sprays the coating onto the goods.

In industrial bakeries, specialized machinery is used to automate the enrobing process. An enrobing line typically consists of a conveyor belt that moves the baked goods through the pre-treatment, enrobing, and cooling stages. Enrobing lines can be customized to meet the specific needs of different products. For example, some enrobing lines are designed for coating chocolate bars, while others are designed for coating biscuits or cakes. Lines can also be designed to accommodate different types of coatings, such as chocolate, fondant, or icing.
Another type of machinery used in the enrobing process is the tempering machine. Tempering is a critical step in the chocolate enrobing process, as it ensures that the chocolate coating is smooth, glossy, and has a good snap. Tempering machines use a combination of heating, cooling, and agitation to control the temperature of the chocolate and ensure that the cocoa butter in the

chocolate is in the correct crystalline form. Continuous tempering machines use a continuous flow of chocolate that is heated and cooled in a series of stages. The chocolate is then agitated to ensure that the cocoa butter crystals are evenly distributed, creating a smooth and glossy coating.
In complex operations, computerized controls are used to monitor and control the temperature flow rate, and thickness of the coating. These controls can be used to ensure that the coating is consistent across all the baked goods, and that the final product meets the desired quality standards.

CHALLENGES

Enrobing baked goods can present a number of challenges that bakers need to be aware of in order to achieve consistent and high-quality results. One of the main challenges is water migration, which can occur when the coating is applied to baked goods that have a high moisture content. This can lead to a soft or sticky coating, and can cause the baked goods to spoil more quickly.
To prevent water migration, bakers can take several steps. One approach is to use a barrier layer between the baked goods and the coating. This layer can be a thin layer of fat-based icing or a layer of fondant. These materials act as a barrier to prevent moisture from migrating from the baked goods to the coating.
Another approach to preventing water migration is to reduce the moisture content of the baked goods themselves. This can be done by using ingredients that are lower in moisture, such as dried fruits or nuts, or by baking the goods for a longer period of time to drive off moisture.
Obtaining consistent results is another challenge when enrobing baked goods. Consistency is important in order to achieve a uniform appearance and texture, as well as a consistent flavor. One factor that can affect consistency is the temperature of the coating. If the coating is too warm, it can be too thin or runny, and if it is too cool, it can be too thick or difficult to work with. Bakers can use temperature controls and monitoring systems to ensure that the coating is at the correct temperature throughout the enrobing process. Bakers can also adjust the viscosity of the coating by adding thickeners or thinners as needed, or by using different coating formulations for different products.
In addition, bakers can use different types of coatings to achieve different textures and flavors. For example, a fondant coating can provide a smooth, creamy texture, while a chocolate coating can provide a rich, indulgent flavor. Bakers can experiment with different coatings to achieve the desired flavor and texture profile for their products.

THE CHOICE OF COATINGS

Different coatings have different rheological properties, which affect their texture, viscosity, and other characteristics. Here are some of the main types of coatings used in enrobing, along with their rheological properties and suitability for large industrial operations:

- Chocolate: Chocolate is one of the most common coatings used in enrobing baked goods. It has a smooth, creamy texture and a rich, indulgent flavor. Chocolate has a relatively high viscosity, which means it is thick and resistant to flow. However, it also has a low yield stress, which means it can be easily sheared or cut. Chocolate is well-suited for large industrial operations because it can be tempered to ensure consistent quality, and it can be easily automated for high-speed enrobing.
- Fondant: Fondant is a type of sugar-based icing that is often used to coat baked goods like cakes and cookies. It has a smooth, creamy texture and can be flavored and colored in a variety of ways. Fondant has a relatively low viscosity, which means it is thinner and more fluid than chocolate. However, it also has a higher yield stress, which means it is less likely to flow or deform under stress. Fondant works for high-speed enrobing because it can be easily applied in thin, uniform layers, and it can be automated.
- Glaze: A glaze is a thin, translucent coating that is often used on pastries and donuts. It is typically made from a mixture of sugar and water, and may be flavored or colored as desired. Glazes have a very low viscosity, which means they are very thin and flow easily. However, they also have a low yield stress, making them easily deformed or broken under stress.
- Caramel: Caramel is a type of sugar-based coating that is often used on candy and other confections. It has a rich, complex flavor and a sticky, chewy texture. Caramel has

a high viscosity, being thick and resistant to flow. However, it also has a high yield stress, meaning it is resistant to deformation or breakage under stress. Caramel is also good for large industrial operations because it can be easily automated for high-speed enrobing, and it can be applied in thick, uniform layers.

In general, coatings that have a higher yield stress are better suited for large industrial operations, as they are less likely to deform or break under stress. Coatings with higher viscosities are also easier to work with in large-scale operations, as they can be more easily controlled and applied uniformly. Chocolate and caramel are two examples of coatings that are appropriate for industrial operations due to their high yield stress and viscosity, while glazes and fondants are better suited for automated processes due to their low viscosity and ability to be applied in thin, uniform layers.

INNOVATION DRIVE

Dawn Foods is a company that has recently developed a highly freezable, thaw-stable, non-sticky donut glaze, which will allow bakery manufacturers to supply longer shelf life donuts that do not end up in a sticky mess inside the shelf ready packaging. The glaze uses a patent-pending proprietary formulation that prevents the migration of moisture from the glaze to the donut. According to the company, once applied, the glaze will remain stable and non-sticky for up to five days in packaging. Not only does this make it more appealing to the consumer, but also the donut itself will stay fresher for longer, maintaining its soft texture.

The glaze works well on large industrial scale production lines. It is vegan-suitable and free from food colors. It also does not contain titanium dioxide, commonly used in baking and cake decorating to turn fondant icing, modeling paste and white chocolate into a brilliant shade of white.

Dawn Foods said the new glaze would benefit both the bakery manufacturer and the retailer. Donut manufacturers now have the opportunity to explore more packaging design options, especially for individually wrapped products. And for the retailer, the selling opportunity becomes extended and more pleasant with mess-free donuts and an increased shelf life.

When it comes to enrobing equipment, Aasted's Energy enrobing line manages to reduce energy waste while keeping the temperature and thickness of the layer constant, giving products the same high quality with less energy.

According to the company, the Nielsen Energy Enrober was born to save energy, but they further discovered that there were other very important benefits created by the new and energy friendly processing method. The Nielsen Energy enrobing concept has its chocolate mass feeding directly injected to the consumption flow to ensure a constant flow of finished tempered chocolate mass. The new and innovative energy method gives a high quality to all final products and furthermore it is the cheapest method both investment and energy wise.

"The Nielsen Energy Enrober has a lot of benefits compared to the traditional enrobers: With its high working temperature it only allows the existence of high quality crystals and also ensures a more liquid and equal chocolate mass which makes it easier to handle the chocolate. Furthermore, because of the chocolate's liquidity there is no build up over time which minimizes the down time. This finally results in a high-quality product produced with less energy and less cost than what has ever been possible," the company explains.

Overall, the enrobing process is a critical part of the production process in industrial bakeries. Specialized machinery and advanced technological solutions are used to automate and constantly optimize the process, ensuring ever more efficient and consistent results. •

+5.26%

CAGR is the estimated growth of the global cocoa and chocolate coating market by 2028

‘It’s all in the Verhoeven Family’

Custom Made, Turnkey Solutions Under One Roof

Brothers and sisters, living under one roof with their parents. Not always the recipe for peace and harmony, let alone for team excellence. But unlike in real families, in business the family mentality can bring magic to the results. If different characters really become one, the perfect synergy of specialisms results in a winning operation.

Verhoeven Bakery Equipment Family, that is the full name of this dedicated branch of the Dutch machine constructors consisting of 4 specialized labels in the industrial bakery segment. BVT Dough Processing Solutions, NEWCAP Industrial Handling’s Solutions, VACUUM Cooling and Baking Solutions and BAKEPACK End of Line Solutions. Recently a 5th family member joined the operation, bringing decades of experience in the automation and control technology and architecture. Together the family represents skilled teams with a flexible mind to improvement of industrial baking under the company’s slogan ‘we make to bake’. Day by day the family team is working on next steps in the development of the bakery of the future. The market needs are growing and at the same time there is focus on higher demand of product diversification, increase of

production capacity, waste reduction and energy saving.
The 'all under one roof' operation of the Verhoeven Bakery Equipment Family is unique. From scratch the individual requests of clients are turned into total turn-key solutions. From engineering and designing to production and installation, all on the same location. The full understanding of the needs of clients is a vital part of the total process and requires and is best served with an open mind partnership from the start. Which are the exact desired end products, the capacities, the dough making, process requests, process parameters, shapes, fillings, toppings, packaging, etc., etc. What is the available space and what is the budget space determining the final options?

TRULY CUSTOMIZED SOLUTIONS AND PRODUCTION

"The solution is developed with the clients best end product on top of mind," says BVT's Maarten van der Coer, "When all the information is clear, product and space wise, we can start to develop the customized (turnkey) solution, because we have all disciplines under one roof. We almost always find a way to combine products/process/capacity with the available space in the factory. After baking, we can cool in different ways, spiral, racetrack, cooling rack or by integrating Vacuum Cooling and Baking in the process, all made in our factory at Verhoeven Bakery Equipment Family."

PIZZA AND FLATBREAD LINES

Every solution has its pros and contras, but we look what is the best for the final product, the space, and what fits in the budget. After the cooling, with Bakepack we can design fully automated packaging solutions. This means system integration for all primary, secondary, and tertiary packaging. So, for instance for every pizza or flatbread line we can design a turn-key project. We develop new machines and if needed we include the missing features when a customer requests something different or new.
As an example, we engineered a pizza line for a capacity of 12.000 kg dough/h (40.000 pieces/h) and we produced make up lines for all kinds of dough with different TA's, for different shapes solutions, etc., etc. All over the world you have different processes to produce pizzas or flatbreads. We can manage this by varying the components in the line like the proofers (pre- and/or final proofing). We have solutions for proofing on the belt (belt), proofing a ball (swing), proofing prepressed pizza's (belt or peel board) or even the cut pizza's (belt). A proofer with air conditioning with steam or with pressed cold water moistening or even with ultra-sonorous moistening, all depending on the request of the customer. Most of the line is produced in house, except for the oven. The ovens are integrated in the line. We don't have ovens in our product portfolio, but we work together with strategic partners and align the final choice with the preference of the customer."

FULLY AUTOMATED CUSTOM-MADE LAVASH LINE

Van de Coer continues enthusiastically while giving an example: "Turn-key management is one of our fields of excellence. When the line is to be manufactured and installed in the factory of the customer, we have one contact person for the whole turn-key solution. This project manager will manage all communication with the customer, but also provides the utilities and buildings information to build together with the customer. Thanks to these integrated approaches we have no hand-over discussions. Everything is designed in balance to the request of the customer, with one responsible person for the realization. For a customer in the Middle East we designed, produced and delivered, a fully automated Lavash (bread paper) -line (1000 kg/h) from mixers to pallet based on specific requirements. A make-up-line with a width of 1400 mm with an end dough thickness of 0,5 mm., baking with indents in a special designed high temperature oven, to a cooling tunnel, to a cutting and stacking unit for making pieces for 150x100x0,7mm and stacks 10-15 or 20 pieces in a bag, bags in a box and boxes on the pallet. Our solutions start with the open mind to the best solutions, so the options are endless for all industrial requests from 800k/h up. Verhoeven Bakery Equipment Family is "the" specialist in "Turn Key Solutions" in industrial bakeries worldwide. Be it Pizza, Focaccia, Naan Bread, Flat Bread, Barbari, Taftoon, Lavash, etc. etc., our family will handle it." •

Verhoeven Bakery Equipment Family
(dedicated bakery branch from the Verhoeven Family of Companies)

Specialized labels:

- BVT Dough Process Solutions
- Newcap Industrial Handling Solutions
- Vacuum Cooling & Baking Solutions
- Bakepack End of Line Solutions

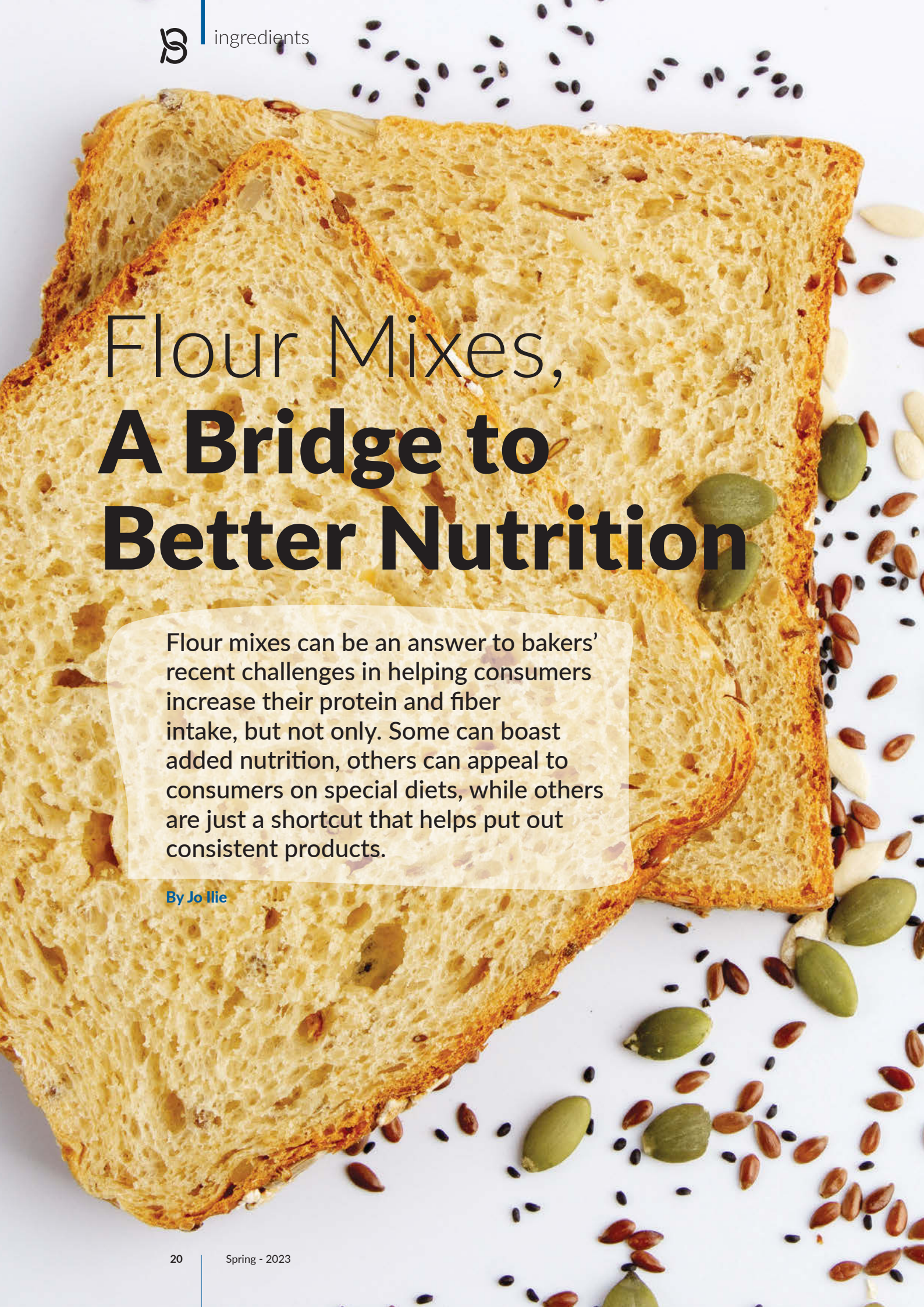
Oss, The Netherlands
www.verhoevenfamily.com


Thin Crisp


Naan Bread


Focaccia


Filled Pizza



Flour Mixes, **A Bridge to Better Nutrition**

Flour mixes can be an answer to bakers' recent challenges in helping consumers increase their protein and fiber intake, but not only. Some can boast added nutrition, others can appeal to consumers on special diets, while others are just a shortcut that helps put out consistent products.

By Jo Ilie

Flour mixes are ready-made dry mixes made of a blend of flours, functional ingredients such as leaveners, starches, and flavors. Other ingredients are often added to help reduce calories or provide additional nutrients, such as protein, fiber, and carbs. Their purpose is to ease the baker's job by providing consistent building blocks to their recipes.

There are two types of mixes. A mix is a ready-to-use solution that contains all the elements required to prepare finished products, with the exception of water, yeast and salt that the baker needs to add during kneading. The other type is called a premix or concentrate and it is used in a 10% to 50% quantity (as opposed to the mix, which is a 100% quantity). It contains only a little base flour and it is mostly made of functional ingredients. The baker therefore has to complete a premix with flour and then add water, salt and yeast when kneading.

MIXES WITH LESS CALORIES, LESS (SATURATED) FATS, AND LONGER SHELF LIFE

Puratos' mixes are in line with what consumers have been asking for lately. Its Puraslim line, for example, dedicated to soft and sweet bread, is a range of mixes and improvers that increase the cost-efficiency of bread production while keeping bread fresh. Bread made with Puraslim has fewer calories and less saturated fats and it does not need added fat.

The Puratos bakery mixes include Soft'r Melting, a technology that allows you to create a melting texture for medium and sweet bread applications. Soft'r Melting is a mix of flours and improvers that can claim a "clean(er) label" and enhances the freshness of sweet bakery products by increasing the softness, moistness, short bite and resilience of baked goods, from the beginning until the end of shelf life. Fiber Plus, another product, can claim the "high in fiber" label. It's a premix - you only need 30% in the recipe and you add flour, water and yeast. With the same mix, bakers can make all types of breads such as dinner rolls, loaves and artisan style breads that provide 6g of fiber per 50g of bread (2 slices).

Intens Puraslim, one of the improvers that works with these mixes wasrecently launched and can reduce up to 50% of in-dough solid fat in sweet bread and pastry recipes. It can be added to doughs that have a minimum of 10% fat, such as cinnamon rolls, brioche, parathas or Japanese milk bread.

Intens Puraslim features a patented enzyme found in Yellowstone National Park that can provide a more pleasant short bite at high temperatures. Puratos researchers discovered this enzyme and its ability to improve the texture of bread through their Innovation Inspired by Nature approach, which focuses on enzymes as a natural resource in developing better-for-you bakery solutions.

In a recent sensory study, Puratos found that consumers were unable to differentiate between two cinnamon buns when tasting both a full-fat bun and a 50% reduced-fat cinnamon bun made with Intens Puraslim.

"From Puratos' proprietary global consumer study, Taste Tomorrow, we know that 39% of consumers check nutrition labels on baked goods for fat content," said Sean Hart, R&D Manager for Bakery Mixes & Improvers at Puratos USA. "But typically, they expect baked goods with lower fat to have a different taste. At Puratos, we were determined to create a product that helped manufacturers reduce fat and costs, without changing the consumer's experience in these indulgent baked goods."

Ingredients like Intens Puraslim can benefit bakers by saving on costs—particularly given volatile butter and margarine prices—and improving operational efficiencies with reduced mix time and elimination of refrigerated ingredients.

Puratos' ultimate mix in terms of added nutrition is the Puravita Ancient Grains Mixed, an all natural blend of grains and seeds to be added to all types of bread recipes. Rich in fiber, with a limited salt amount, made with natural ingredients (grains and seeds), it can claim the health benefits of eating grains and seeds without compromise on taste.

ADDED NUTRITION FROM NUT FLOURS

ofi, a global company that specializes in secure supply of traceable and sustainable ingredients, has created a range of nut protein powders and flours that allow bakers to bring the nutritional advantages of almonds and cashews into baked goods. Protein powder and natural flour offer many versatile applications that cater to the growing consumer demand for healthier, gluten-free snacking products that are packed with nutrients.

Nut flour can add a 'health halo' to products without compromising on flavor, texture or mouthfeel, providing a source of mono-unsaturated fatty acids, minerals, protein and fiber, and offer low-carb, non-GMO and gluten-free alternatives for formulating baked goods. Moreso, a nut flour can be used by itself or in combination with grain flours, allowing bakers to create a wide variety or finished products for different diets and expectations.

"For example, combining wheat flour with a nut flour or nut protein powder allows for higher-protein formulation in dough-based products such as bread and pizza bases," says John Martin, Vice President Innovation at ofi. "This introduces the added nutritional benefits of the nut flour without compromising the elasticity that grain flour brings."

Traditional nut flours have more protein than wheat flours. Almond protein powder contains 35-41g of protein per 100g of product, while cashew protein powder contains 25-30g. This is a significant increase when compared to the average protein content of wheat flour, which is 10-14g per 100g.

In addition, each nut protein powder offers unique formulation benefits. Almond protein powder offers excellent moisture retention, creating an impressive mouthfeel without the dry, chalky texture that is often associated with many wheat-free baked goods. Its neutral taste also means it does not require any masking agents or flavorings, helping to support clean label positioning. As another example, cashew protein powder has an extra-fine grind that offers a smooth, melt-in-the-mouth texture for biscuit and cookie applications, which is difficult to replicate in other gluten-free products.

MIXES FOR VEGAN BAKERY AND SPECIAL DIETS

Over the years, ADM, one of the largest nutrition companies, developed a wide range of flour mixes and premixes that cater to the increased variations in diets.

It's recently launched Vegan Farmhouse Cake Mix, for example, only requires the addition of water. Bakers can use this mix to create a wide range of vegan friendly cakes and muffins. They can also add dates and walnuts, cherries or raisins and sultanas to the mix to obtain an even larger variation. With the addition of just water, cinnamon and grated carrot, the mix can be used to make a vegan carrot cake, one of the most popular taste profiles in the world.

Another mix dedicated to special diets is the Luxury Eggless Sponge Cake Mix, which offers the same versatility and advantages of a regular sponge cake mix, but without the allergenic egg, which can cause health problems to children and adults with digestion challenges. The mix produces light, even textured sponge cake mix, allowing bakers to tap into an ever growing demand for egg free products.

Bakels, a New Zealand ingredient producer, created mixes and concentrates that address other dietary needs, such as the Low Glycemic Index (GI) Multiseed Bread Concentrate. This premix has been developed to allow any baker to offer consumers who are mindful of carbs (for medical or lifestyle reasons) a healthy and tasty alternative. It contains a combination of wheat flour, rye flour, sunflower seeds, linseeds and pumpkin seeds, which together with wheat bran and oat flakes produce a darker style bread with a coarse open texture and that extra nutty bite. As this mix is a concentrate, only flour, yeast and water is required to produce a range of breads and rolls.

Bread products using the Multiseed Bread Concentrate can claim the Low GI label because they have been tested and awarded low GI status, with a value of 54 on the GI scale. Being low GI, Multiseed Bread Concentrate slowly releases sugar into the blood, providing a steady supply of energy, leaving the consumer satisfied for longer.

With more knowledge about nutrition, but just as well with more diet fads, the consumer taste is bound to diversify in the following years. Flour mixes, whatever they are made of, allow bakers to outsource research and development to ingredient and nutrition companies and answer faster to their consumers' evolving taste. •

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For Better Nutri-Score in Baked Goods, **Science to the Rescue**

Between public health pressure to bridge the fiber gap and a constant change in eating habits, food producers face many challenges. On top, the Nutri-Score labeling looms heavy on products that are heavy in sugar, salt and fats. One of the solutions available, though, is to explore using ingredients designed specifically to target these issues. Norbert Klein, Head of R&D Loryma, answered our questions about one such solution from their portofoliu.

By Jo Ilie

Why was it important for Loryma to develop a resistant wheat starch like Lory Starch Elara?
The way we eat is changing. In the past, it was normal to have three meals per day, with maybe a light trifle in between, but that was then. Today, however, hectic lifestyles mean these main meals are increasingly being replaced by lighter bites and snacks. But we all know that, on the whole, snacks aren't the healthiest of food choices due to their high sugar and salt content, and lack of dietary fiber. Yet consumers are now seeking health and on-the-go convenience simultaneously, which means manufacturers are under increasing pressure to respond to such demands. And here's where our functional wheat ingredients such as resistant wheat starch Lory Starch Elara can help. As the main nutrient of resistant starch, dietary fiber can support digestion and provide satiety for a longer time. Due to the lower caloric value compared to native starch, resistant starch can also reduce the energy level of baked goods while increasing fiber content. Therefore, it's an excellent addition to our portfolio of wheat ingredients, which also includes many technologically processed nutrients such as hydrolysed or textured wheat protein.

How can Lory Starch Elara help to achieve a better Nutri-Score for bakery products?
The Nutri-Score is a highly visible label for nutritionally beneficial products, enabling consumers to make healthier food choices in-between food groups. The application of Lory Starch Elara increases the fiber content while decreasing the energy level: as these are two decisive categories within the Nutri-Score scale, a better rating can thus be achieved, depending on the recipe used. For manufacturers wanting to go a step further and push the protein level too, we have various wheat-based solutions. According to the type of dough, either hydrolysed or textured wheat protein can be added, as well as wheat gluten. By improving the fiber and protein content, while moderating the caloric value of a traditional muffin, a Nutri-Score D can be converted into a Nutri-Score A.

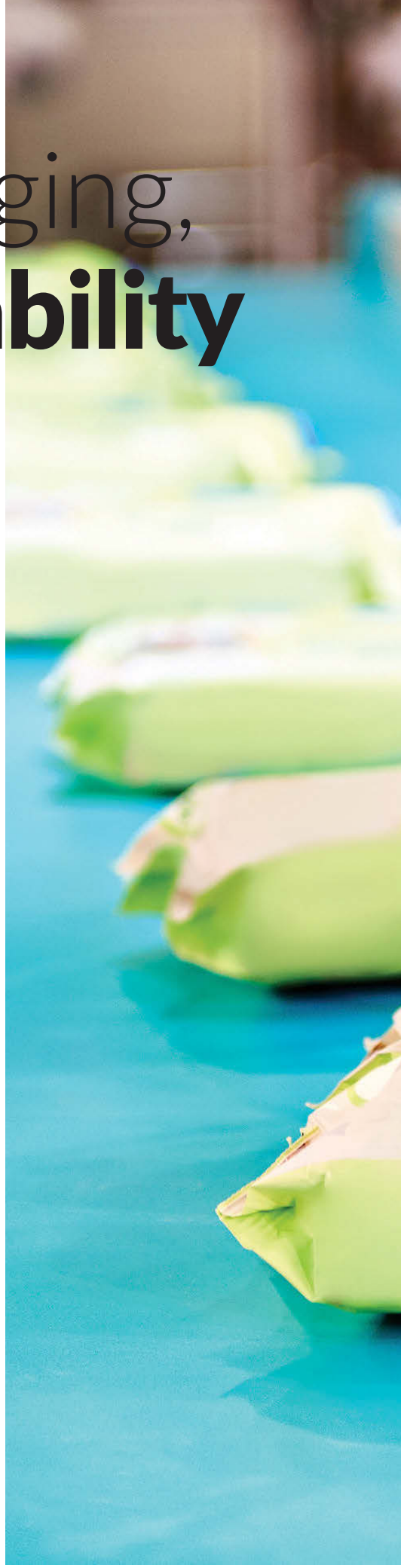
How can bakers reformulate with Lory Starch Elara? Can you give us several examples (for bread, croissants and cakes) of how recipes can be reformulated?
It's important not to overlook technological aspects such as texture and flavor when optimizing the nutrient profile of bakery products. Partially replacing the flour with Lory Starch Elara in dry, crumbly pastries such as shortbread is a relatively easy task. The starch has a particularly low water-binding capacity, which contributes to a crumbly texture. However, to achieve a moist dough for muffins or yeast loaf, for example, we add extruded wheat flour, pregelatinized wheat starch and wheat gluten. Thanks to a special manufacturing process, the extruded wheat flour Lory Flour can bind eight times more water than the conventional alternative, and is also cold-soluble. These properties help maintain the moistness of the dough, while Lory Starch Elara increases the fiber level of the product. Normally, bread contains a portion of native starch from the applied flour, which is not bound by water and therefore can be replaced by Lory Starch Elara. With the addition of small amounts of wheat gluten, the texture of the bread can be maintained. Theoretically, these methods can be used for nearly every bakery product. You just have to look how much of the flour can be replaced with resistant starch, and what ratio of texture-giving ingredients such as gluten or extruded flour is required. Turning croissants into healthy snacks is a challenge because of their high amounts of saturated fats, but the addition of Lory Starch Elara means they at least get a fiber boost.

What type of support do you offer manufacturers in the reformulation process?
We love to work together with our clients on their products. They have the option to individually adapt one of our developed application concepts, or create their own product recipes with us in our testing center. Either way, we assist them with our long-standing expertise every step of the way. Our most important goal is to work out solutions as a team in order to create healthy and delicious products.

What's next in the field of resistant starches?
Resistant starches are important ingredients because of their dietary fiber content, with several European nutrition organizations recommending a daily intake of about 25-35g. In some countries, however, most people don't reach this target. A diet rich in fibers can have a positive impact on digestion and satiety. Therefore, the reformulation of products is a major topic that we will be dealing with for a long time to come, and not only in the bakery market. Lory Starch Elara can also be used for other applications such as Asian noodles, pasta product fillings and cereals. In addition, resistant starch can be further extruded, which in turn creates additional possibilities. So there really are countless opportunities for the use of resistant wheat starches. •

Photo: Crespel & Deiters Group

Second in Packaging, **First in Sustainability**



Secondary packaging has many advantages for manufacturers, but one overseen attribute is its in-built sustainability.

By Jo Ilie

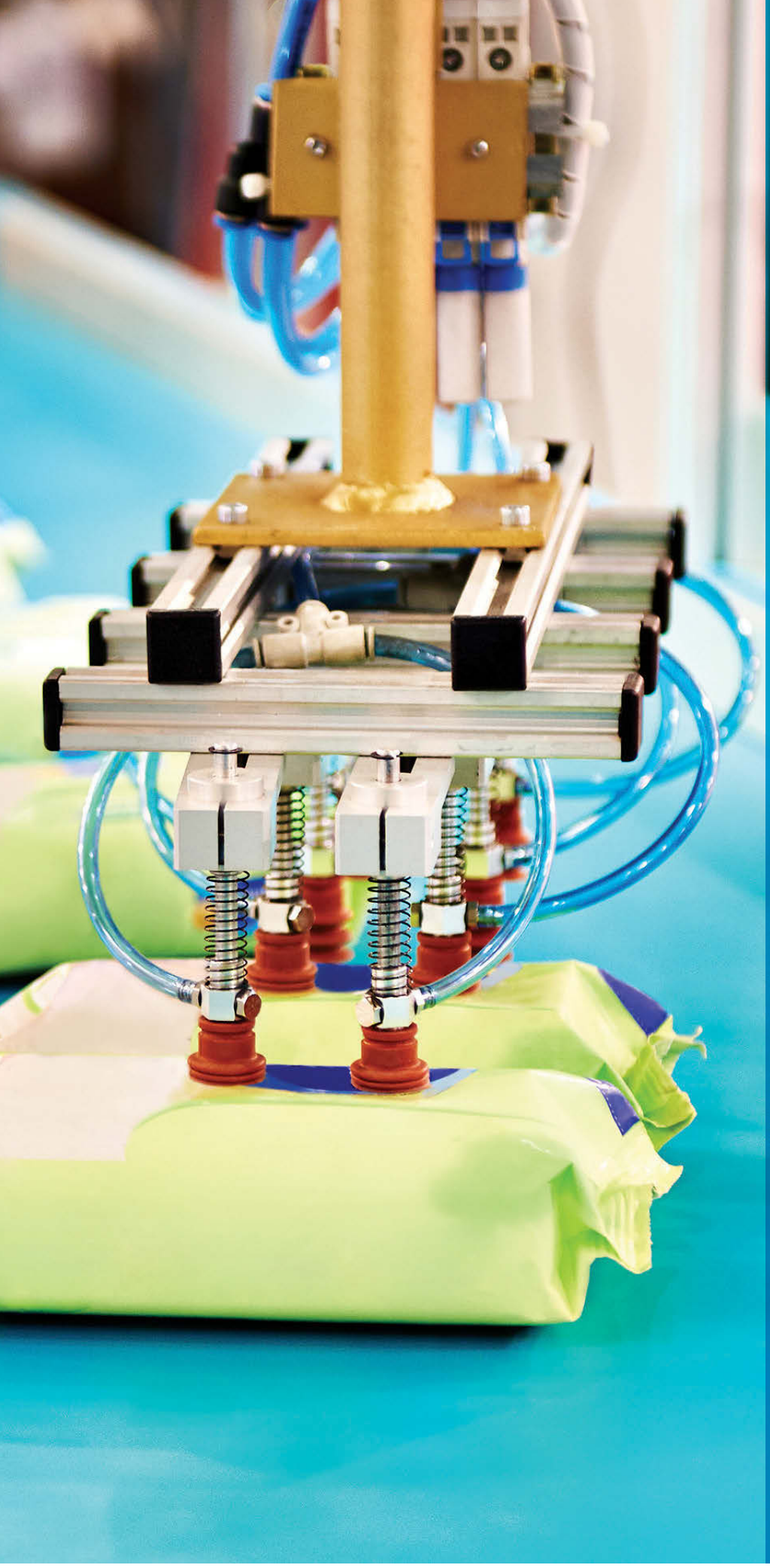
The initial purpose of secondary packaging of baked goods was to make pre-packaged products stack better so that handling, transport, and storage would be easier. This type of packaging must accommodate large volumes of primary packaged products, allow transportation of the product safely to its retail or consumer destination, and keep the primary packaging in its original condition during storage. So, mainly for a logistic purpose.
Another function of secondary packaging developed later, as manufacturers realized that the boxes meant to safeguard cookies could be a branding opportunity and a way to stand out on the supermarket shelf. The secondary packaging thus became more innovative and bold and required more complex production and packaging technology.
Nowadays, with increased preoccupation with reducing waste and implementing sustainable practices, packaging of any kind is being scrutinized for its carbon footprint, reusability and recyclability. In the case of secondary packaging for bakery products, the road to sustainability is less complicated.

THE NEED

The global bakery market size is expected to increase by USD165.49bn between 2020 and 2025, expanding at a CAGR of 6.12%, according to a market study by TechNavio. The bakery market is driven by rising urbanization and changing consumer lifestyles. The expanding urban population, rising demand for on-the-go snacks, and improvements in the purchasing power of consumers in APAC and Central and South America have increased the consumption of bread significantly.
With a huge potential in production and marketing of bakery products, packaging of bakery products is also increasing, aiming to deliver increased shelf life and convenience. So there are many incentives for packaging tech companies to invest in innovation.
The reason secondary packaging is more sustainable than other types of packaging is that, when made of paper and cardboard, it is sustainable per se because it consists of renewable and recyclable raw materials. But, with true sustainability in mind, there is still room for improvement.

CURRENT SOLUTIONS

One way to improve the sustainability of secondary packaging is to make it from mono-materials or paper-based. There is still secondary packaging made from mixed materials, such as paper and plastic, or that is glued with materials that render the packaging un-recyclable.
From a machinery point of view, the transition is complex, as sealing parameters such as pressure, temperature and time need to be adjusted. Syntegon, a leading producer of packaging lines, has a series of solutions for secondary packaging that include carton formers and closers, integrated toploaded cartoners, endload cartoners, and wraparound (sleeve) cartoners, which are popular for cookies and crackers and allow manufacturers to save on material while making no compromise on the quality of the packaging.
With assistance from robotic pick-and-place technology, the packaging - both primary and secondary - are done with care, thus preventing damaging the products. The Syntegon Sigpack TTMD, a machine that combines core technologies of the TTM platform with one or more seamlessly integrated Delta robot cells, has a camera-based vision control system which detects



products on the infeed belt. The robotic arms pick the primary packaged products from the belt and place them in the cartons either in a flat or on-edge position. The process is organized according to the counterflow principle: the cartons move in the opposite direction to the product. This reduces the reject rate and makes sure that each carton is filled correctly. The Delta robots can track on the infeed conveyor and the carton transport, which allows the products to be continuously loaded into the cartons. This prevents material loss both in packaging and in product. The Sigpack TTM platform can also do glue-fee cartoning, which means up to 100 percent recyclable packaging.
Avoiding packaging material loss during production is another way manufacturers can improve their sustainability. Material loss can happen when packaging material can't be processed because it presents some quality problems. Packaging line producer Bosch, for example, has packaging systems that are capable of processing slightly bent or recycled cardboard: what machines previously sorted out as rejects can be used thanks to a larger tolerance range.

FUTURE SOLUTIONS

Researchers worldwide have been tackling the packaging challenge for years, looking for solutions that are environmentally friendly both in material and in post-use impact.
For secondary packaging, one of the most promising technologies is bioplastics. Biopolymers are polymers that are created from organic and plant-based materials. Biopolymers are used in the production of bioplastics, which unlike their purely synthetic counterparts, biodegrade in a short amount of time. Traditional plastics can take thousands of years to break down. Bioplastics offer consumers a genuinely earth-friendly plastic hybrid. That being said, as the technology behind bioplastics evolves, the cost of the material is expected to decrease over time while the adoption of the materials is expected to increase.
Bioplastics are made wholly or in part from renewable biomass sources such as sugarcane and corn, or from microbes such as yeast. Some bioplastics are biodegradable or even compostable under the right conditions. Bioplastics made from renewable resources can be naturally recycled by biological processes, thus limiting the use of fossil fuels and protecting the environment. Therefore, bioplastics are sustainable, largely biodegradable, and biocompatible. •

Hitting the **Sweet Spot**

Despite rising concerns about sugar intake, our love for traditional sweets runs deep. Flavor and innovation have never been more important. Traditional sweets feature heavily in the Asian confectionery market. Their popularity has never waned—traditional sweets are both an important feature in everyday life and an entrenched part of religious and secular rituals.

By Sharmila Rajah

Asian traditional sweets have long been celebrated for their richness and diversity—scented with saffron or rose water and filled with fruits, nuts, or spices; the combinations and variety of flavors and textures vary from each country and region. The continued increase in the snacking trend has ensured the longevity of the traditional sweets category. But change is inevitable. Asian consumers are increasingly looking for value-added benefits in their traditional confectionery—with an uptick in demand for free form and lesser sugar options. Established markets like India and Japan are leading the way in this aspect with sweet makers rethinking new, innovative ways to satisfy market needs, from texture and visual appeal to taste and the demand for low sugar. Traditional confectionery brands are seeking out natural ingredients that not only reduce the need for artificial preservatives, but also add unique flavor, texture, and nutritional benefits to enhance consumer appeal. There is also a desire for new experiences and flavors in confectionery snacking. Dubai food and confectionery specialist BMB (Baklava Made Better) Group has acknowledged the demand for nutritious yet delicious traditional sweets. The brand offers traditional baklavas, as well as, sugar-free and gluten-free options in a range of flavors.

It is interesting to note that many traditional Asian sweets are unintentionally vegan—their original recipes do not contain animal ingredients. Chinese desserts, for example, are of course sweet, but usually with less sugar content than those from the West. They also have a larger percentage of natural fruit ingredients.

Even global brands have capitalized on the popularity of traditional sweets. In Japan, you can buy Kit Kat that tastes like green tea and in India, on supermarket shelves, you will find a kesar pista (a combination of fragrant saffron and earthly pistachios) Snickers bar.

INDIAN SWEETS

Central to the Indian culture is mithai or sweets, eaten alone or with a cup of chai as an afternoon or late-night snack. Made from simple ingredients like butter, milk, nuts, and spices using age-old techniques, they are typically given out in elaborate gift boxes during Diwali and other special occasions. The mithai industry is the oldest in the country—with the traditional sweets segment making up 65% of the country's confectionery market. The Indian sweets market segment has shown promising growth despite the setback during Covid and is expected to continue an upward trajectory in the next few years. India's packaged sweets market was worth USD639m in 2022. The market is expected to reach USD1840m by 2028, exhibiting a growth rate (CAGR) of 19.1% during 2023-2028. India exports its milk-based mithais to countries like China, Thailand, and the US.

Some of the industry's key players include Bikanervala Foods Private Limited, Gujarat Co-operative Milk Marketing Federation Limited, Haldiram's, Karnataka Co-operative Milk Producers Federation Limited (KMF), Lal Sweets Private Limited, Orissa State Co-operative Milk Producers Federation Limited (OMFED), Parag Milk Foods Limited, and Tamil Nadu Co-operative Milk Producers Federation Limited (TCMF).

INDIA'S MOST POPULAR TRADITIONAL SWEETS:

Gulab jamun: possibly the most popular dessert in India. Gulab jamuns are soft spongy balls, made from a flour and milk dough mix, fried and then soaked in syrup that's flavored with saffron, rose water, and cardamom. They taste sweet and sugary and have a creamy texture; are often served hot and can be topped with vanilla or strawberry ice cream.

Jalebi: crispy orange swirls bursting with a treacle-like saffron-infused syrup and are best eaten hot. They are popular in the Northern states.

Laddu: round, syrup-filled beads made of fried chickpea flour, wheat, and lentil flour, puffed rice, peanuts, sesame, and even grated coconut, and studded with pistachios or almonds and spiced with cardamom. Laddus can taste soft and moist or firm and crumbly and are most often offered as blessings to deities.

Kaju katli: diamond-shaped and adorned with a gleaming silver leaf, kaju is made from cashew nuts, which lend it a very distinct and rich flavor. It is flat, dense, fudgy, and hugely popular in the North.

Mysore pak: South India's most iconic sweet that is made only with ghee (clarified butter), chickpea flour, and sugar. Rich and buttery.

There is a definite shift towards spending more on indulgent foods among Indian consumers. They are also more discerning—seeking quality, variety, and customization. Post-pandemic, there is also an increased focus on health and safety. Indian manufacturers are adhering to local demand by producing sugar-free mithai and low-calorie mithai; some are even injecting experimental flavors and creating such mithais as Ferrero Rocher laddu. To resonate well with their expanding health-conscious consumer segment, ArqMithai, for instance, has incorporated walnuts into their recipes to create walnut barfi, walnut peda, and halwa sweets. Khauwala & Co. has reinvented the traditional laddu by launching a range of protein laddus with different ingredient combinations—Khauwala Protein, Whole Grain, and Seven Grains laddus—targeting their fitness-conscious consumer segment.

The Food Safety and Standards Authority of India (FSSAI) permitted the use of stevia in food and beverages in 2015. PureCircle, a leading producer and innovator of stevia sweeteners, has been producing stevia leaf sweeteners for such traditional delights as soan papdi and gulab jamun to moderate sugar naturally without compromising on the taste profile. Luxury mithai maker Gur Chini focuses on using the stevia plant for sweetness and jaggery from sugarcane, palmyra, date palm, and honey as alternatives to sugar. Jaggery is rich in nutrients and minerals and has a depth of flavor, making it a great substitute for white sugar.

JAPANESE SWEETS

The Japanese confectionery market is the second largest in Asia, worth USD172.5bn. Traditional Japanese sweets or wagashi, are still very popular today, despite the availability of western-style sweets. Annual wagashi sales have been consistent, ranging between USD4.2bn to USD4.49bn over the past decade.

Wagashi sweets have a long history and tradition and are truly an art form—very much a representation of the country's seasons, landscape, and local craftsmanship. Just like in India, sweets are a companion to tea.

Wagashi makers work with just a few ingredients: rice flour; glutinous rice flour, which is made into a sticky dough called mochi; beans boiled until tender, mashed into a paste and mixed with sugar, to be molded like fondant or used as filling; kanten (agar-agar) or kudzu powder for jelly; and occasionally fruit and flowers (as accents and flavorings). Wagashi are considered healthy because they are made entirely from plant-based ingredients and are far lower in fat than Western-style sweets.

SOME OF JAPAN'S MORE POPULAR TRADITIONAL SWEETS INCLUDE:

Namagashi: perishable sweets that consist of a layer of nerikiri, a dough made of flour and finely strained white bean paste, and a more dense, coarse bean paste inside. Often served with Japanese tea to important guests and visitors.

Yokan: a thick jellied dessert that features internal designs such as Mount Fuji or a seasonal flower. Sweet beans, chestnuts, and other goodies are used to shape the design inside. This sweet dates back to the 12th century and traditionally uses azuki bean, sugar, and kanten. The azuki bean, in particular, is a highly nutritious food— a good source of protein and fiber, with a wealth of antioxidants.

Mame daifuku: a white ball of mochi with a smooth surface. Hidden inside is red bean paste, speckled with whole beans.

Dorayaki: is made of two hand-sized American-style pancakes sandwiched together with a sweet filling. The most popular of which is the azuki red bean. However, custard, chestnuts (kuri), and cream (matcha cream) are also popular. To appeal to the foreign market, familiar fillings such as chocolate cream and custard have also been used.

Changing consumer tastes and fierce competition from a vast array of Western sweets have forced wagashi makers to break with tradition and develop innovative products using modern techniques and ingredients. Some now even feature dairy products, flavorings, fat, and animal ingredients. •

USD
172.5
bn

is the estimated worth of the Japanese confectionery market.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Middle Eastern **Baking Ingredients Market**

Baking has been in practice for centuries around the world. It was always popular and has been a part of the culture in developed regions such as North America and Europe. Egypt, the originator of one of the world's oldest civilizations, was among the first to start baking bread using yeast.

By Markets and Markets

In modern times as well, bakery products and ingredients have sustained their popularity, with macroeconomic and cultural factors fueling their growth. The rising population, growing demand for food, and bread being a staple in many countries are some of the macroeconomic factors driving the growth of the bakery industry, which also includes baking ingredients. The most widely used baking ingredients in the market are baking powder & mixes, starch, oils, fats & shortenings, enzymes, and emulsifiers.

Enzymes are used to improve dough structure, softness, and increase the shelf-life of products. Enzymes, such as amylases, xylanases, and lipases, are derived from natural sources. Other baking ingredients, such as leavening agents (yeast extracts), are primarily used for fermentation in baking. Emulsifiers such as lecithin are used in baked products to improve water absorption, crumb structure, and slicing characteristics of bread. Lecithin is a natural emulsifier that accounts for the major share in the baking ingredients market and also drives the market for low-fat foods. Emerging markets in the Middle East, such as the UAE, Saudi Arabia, Kuwait, and Qatar, have a strong potential for growth in the baking ingredients market.

The outbreak of COVID-19 and the Russia-Ukraine war-related inflation have significantly impacted the entire food & beverage industry, which also includes bakery. The disruption in logistics facilities due to lockdowns and the war has slightly affected the market. Russia and Ukraine were among the top wheat-exporting countries to the Middle East. With the supply of wheat being disrupted, the Middle Eastern baking ingredients market is expected to have a slight impact.

The Middle Eastern baking ingredients market recorded a value of USD 941.5 million in 2022. It is projected to grow at a CAGR of 3.4% till 2026.

TECHNOLOGIES RELATED TO BAKING INGREDIENTS

Several trends drive innovation in the bakery products and ingredients sector, providing products formulated with plant protein, healthier fats, creative flavors, and color combinations, or less sugar and synthetic ingredients. The industry is seeing major innovations in clean-label, vegan, and gluten-free offerings.

New emulsifier options have helped bakers rise to the challenge of removing trans-fats from their products by acting as replacements for vegetable- or palm oil-based shortenings. Manufacturers have introduced an emulsification ingredient that performs well in baking formulations without negatively impacting the flavor or increasing the saturated fat levels. It allows bakers to respond to consumer demands for cleaner nutrition labels. Also available are new carbohydrate-based emulsifiers that function as stabilizers for trans-fat-free shortenings. They work especially well to prevent oil from separating in frosting formulations, even at temperatures up to 160°F.

KEY DRIVERS CONTRIBUTING TO THE GROWTH

The bakery market in the Middle East is maintaining its momentum due to the increasing population, accessibility, and wealth. Innovation also supports growth. The freshness

trend is getting stronger in the region as consumers prefer freshly baked bread and pastry products, leading to the transition of consumers from supermarket bakeries to specialized bakers.

The demand for better-for-you products has influenced the bread category in the Middle East as well, and the gluten-free market is gaining more traction. Bread with spelt flour or pastry products with filo dough is set to witness higher demand in the region. These factors create an opportunity for baking ingredient companies and bakery product manufacturers in the Middle East to merge indulgence and health by creating smaller, decadent-baked foods with healthier baking ingredients. All these factors are expected to drive the demand for baking ingredients during the forecast period in the Middle East.

RISING DEMAND FOR HEALTHY BAKING INGREDIENTS IN THE MIDDLE EAST

As per an article published in March 2021 in Gulf Today, Middle Eastern consumers are more focused on healthier lifestyles because of the growing interest in nutrition. Factors such as the COVID-19 pandemic, the rise in the prevalence of obesity, and the introduction of the UAE government's sugar taxes to promote healthier eating habits drive consumer behavior toward healthier choices. Therefore, as consumers become increasingly aware of their health issues, health and wellness bakery products, such as whole wheat, reduced sugar, and gluten-free commodities, are expected to acquire greater importance and popularity. These are expected to increase the demand for healthy baking ingredients, such as fibers, enzymes, and emulsifiers.

Rising Sales of Baked Goods in Saudi Arabia

Saudi Arabia is one of the biggest countries in the Middle East. It is also the biggest in terms of bakery product consumption in the region, along with being the 20th largest bakery products market in the world. This is primarily due to its high bread consumption. Furthermore, e-commerce has driven overall sales in Saudi Arabia by providing accessibility, discounted prices, and a variety of bakery products. This has driven the consumption and production of various bakery & confectionery products, causing the demand for various baking ingredients to surge.

KEY SEGMENTS OF THE MIDDLE EASTERN BAKING INGREDIENTS MARKET

In the Middle Eastern baking ingredients market, the bread segment by application is estimated to dominate. This is because bread is a staple in several households in the region. Saudi Arabia is among the world's largest consumers of bread, contributing significantly to the segment's dominance in the region's baking ingredients market.

In the UAE, the fiber segment by type is projected to grow at the highest rate. This is due to the high demand for healthy bakery products in the country as a result of the rising health consciousness in the Emirates.

In Saudi Arabia, cakes are projected to dominate the market by sweet bakery application. According to Agriculture and Agri-Food Canada, 98% of Canada's main bakery exports to Saudi Arabia were bread, pastry, and cakes. This justifies the country's demand for cakes.

The UAE is estimated to be the largest market in the Middle Eastern baking ingredients market. It is also projected to have the highest growth rate in the region. The rise in wealth, high demand for healthy baking ingredients, and high indulgence of the population in sophisticated artisanal bakeries are expected to drive the market's growth in the Middle East.

WAY FORWARD

The Middle East is an attractive market for players involved in many industries. It is present at a geographically strategic location between Europe and Asia, which offers investors and exporters around the globe many trans-continental benefits. Factors such as strong and advanced infrastructure, urbanization, and disposable incomes make it more lucrative. Therefore, many players in the baking ingredients industry, such as Cargill, Incorporated (US), Associated British Foods PLC (UK), and Kerry Group Plc (Ireland), have a strong sales presence in the region.

The demand for bakery products and ingredients has been high in the region. The growth is further expected to surge, with rising demand for healthier ingredients and products. Furthermore, the increase in convenience and ready-to-go foods is gaining popularity across Turkey, Cyprus, Syria, Lebanon, Iraq, Iran, and Israel. This is because readymade food products, such as baked goods, save time and energy. Also, ease of use, high nutritional value, functionality, and quick delivery are a few of the many attributes consumers are looking for in frozen and fresh-baked foods. Hence, baking ingredient companies have to develop increasingly innovative and creative ideas to meet this demand. The outlook for the baking ingredients companies is positive in all the countries across the Middle East, with markets providing ample scope for growth. •

A Spring of Opportunities at **the APAC Trade Shows**

An impressive lineup of trade shows in the APAC region awaits bakers to find business opportunities and learn of the latest scientific developments that can improve their production.

By Jo Ilie

Bakery China

The 25th Bakery China will be held on May 22-25, 2023 at National Exhibition and Convention Center (NECC), Shanghai. The exhibition features 10 halls covering more than 260,000 sqm, with an optimized setting and scale over previous ones. Tens of thousands of new products under over 20 categories will be presented in three exhibition zones. Over 2,200 exhibitors and 300,000 visits are expected in this one-stop business platform designed for the entire industry chain.
Recognized as the world's largest professional exhibition for the bakery and confectionery industry, Bakery China has attracted many outstanding companies and brands from around the world, 20% of which are from countries with an established baking industry such as Germany, Japan, Italy, the U.S., Belgium, the Netherlands, Switzerland, Austria, Sweden, Denmark.

ISM Japan

ISM Japan will have its inaugural edition on 12-14 April 2023 at Tokyo Big Sight, East Halls in Tokyo. The dedicated showcase for Sweets & Snacks in Japan expects to have 1,000 exhibitors and welcome 80,000 visitors. Exhibitors come from Sweets & Confectionery, Salted Snacks, Bakery Snacks, Specialty Snacks, Frozen Snacks, Free-From, Organic, Halal & Functional, Sweets & Snack Processing & Packaging Technology categories.

Sigep China

SIGEP China 2023 will take place from May 10-12 simultaneously with Anufood China 2023 in Hall 14 of Shenzhen World Exhibition & Convention Center. The trade show provides a complete overview of all new market developments: raw materials and ingredients, machinery and equipment, packaging and services. By interconnecting five distinct sectors (Artisan gelato, Bakery, Pastry, Chocolate, Coffee), SIGEP China offers a 360° view of the dessert and coffee world, combining the presentation of new technologies, trends and formats with business and networking opportunities in the Greater Bay Area – one of China's fastest growing and most prominent economic region.

FoodEx Japan

World class international food and beverage exhibition in Asia FOODEX JAPAN relocates this year to Tokyo Big Sight and takes place March 7-10, 2023, in order to expand the exhibition. The total exhibition area is 115,420 sqm, making it the largest exhibition space in Japan. This edition focuses on social issues the food industry must tackle as a team.

Gulfood Trade Show

The largest annual global food and beverage sourcing event in the world, Gulfood, took place 20-24 February 2023 in Dubai. Of the 5000 exhibitors, more than 1,500 were new to the show. Gulfood 2023's record scale was due in part to the introduction of Gulfood Plus, a brand-new bespoke hall, where first-time exhibitors showcased product innovations across 10,000 sqm of added floorspace. •

2023 FEATURE PLANNING

1 SPRING

Deadlines:
Ad/editorial - 30.01
Publishing - 13.02

TECHNOLOGY
Trays and Coatings
Extruders

PROCESS
Enrobing / Filling

INGREDIENTS & NUTRITION
Flour Mixes

EXPERT VIEW
Product Transport / Conveyors / Pick & Place

PACKAGING
IoT in Packaging Solutions

MARKETS
Middle Eastern Landscape

PRODUCT
Flatbreads

TRADE SHOWS
ISM Japan, Gulfood Manufacturing, Sigep China, FoodEx Japan

2 SUMMER

Deadlines:
Ad/editorial - 02.05
Publishing - 16.05

TECHNOLOGY
Electric / Hybrid Ovens
Sensors

PROCESS
Oprimizing Production / Reaching Sustainability

INGREDIENTS & NUTRITION
Starches

EXPERT VIEW
Artisan Bread Equipment

PACKAGING
Depanning

MARKETS
Japan's Bread Ranges

PRODUCT
Fried Specialties

TRADE SHOWS
Thaifex

3 AUTUMN - IBA special issue

Deadlines:
Ad/editorial - 04.09
Publishing - 18.09

Special Supplement I Exhibitor Roadmap I Pastry, Bakery & Snacks Novelty Highlights I Interviews with Innovators and Decision Makers I Equipment, Supplies and Ingredients Innovation Highlights

TECHNOLOGY
Conveyors
Mixers

PROCESS
Cutting & Forming

INGREDIENTS & NUTRITION
Spices / Seasonings

EXPERT VIEW
Latest Developments in Oven Technology

PACKAGING
Recyclable / Compostable / BioPlastics

MARKETS
Southeast Asian Outlook

PRODUCT
Traditional Sweets

TRADE SHOWS
IBA Preview

4 WINTER

Deadlines:
Ad/editorial - 20.11
Publishing - 04.12

TECHNOLOGY
Sheeters & Laminators
Proofers

PROCESS
Inspection & Monitoring

INGREDIENTS & NUTRITION
Ancient Grains

EXPERT VIEW
Bakery Ingredients / Supply Chain

PACKAGING
Checkweighers

MARKETS
ANZAC Market

PRODUCT
Buns & Rolls

In addition to the listed features, the publications will include regular features on new equipment launches, bakeries, training, industry associations, company profiles, expert views, business and regulations, professional competitions, and mapping test centers. Virtual visits - facility walkthrough, feature descriptions, operations detailed.

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