

EUROPEAN

# BAKER & BISCUIT

Issue 1 (180) | Vol. 30 | 2022

● Supporting the international baking & biscuit industry

## Technology

Various Applications of Dough Sheeting

## Process

Precise Depositing Supports Product Consistency and Limits Waste

## Interview

Europain 2022: Celebrating the Know-how of French Bakery and Pastry-making

## Ingredients

Plant-based Ingredients' Time to Shine

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**SNACKS**  
Getting Into Better Shape





# Plant-based Solutions and Their Slender Supply Chains



Shorter supply lines, automated tools, and collaboration between small and medium-sized businesses can help ensure faster, consistent and more cost-efficient distribution of food.

*Tudor Vintiloiu*

**M**ore and more consumers prefer healthy, plant-based foodstuffs, which taste authentic and which contain the minimum amount of ingredients - an exciting, but demanding task for the manufacturers of baked goods, which faces them with a logistical challenge when striving to find a reliable supply chain - a need underlined by the recent COVID-19 pandemic.

Valued at USD4.5bn and increasing, the plant-based food market won't stop growing anytime soon. Over the past several years, brands have gone from being largely unknown to supplying meat alternatives to fast-food giants and stocking their products on nearly every major grocery shelf. But, like any food trend that significantly increases demand for a specific kind of product, plant-based alternatives are creating roadblocks and straining their respective supply chains.

Food supply chain professionals know that technology upgrades and more transparent processes will be necessary to compete in the future. However, the plant-based food boom is an inflection point - many consumers are shifting the way they eat, and those involved with the plant-based supply chain must be ready. Traceability, transparency and, therefore, control of supply chains can seem like an impossible task. But with shorter supply lines, automated tools, and collaboration between small and medium-sized businesses can help ensure faster, consistent and more cost-efficient distribution of food.

The global food system is under increasing pressure in trying to meet this challenge. This pressure is particularly evident in traditional ingredient production, given the existing hefty, rigid, supply chains, and their interaction with sustainability megatrends. Conventional food production systems have enjoyed uninterrupted growth over the last few decades. While this trend is expected to continue in the short term, resource constraints may dampen expansion in the long term.

Furthermore, the sector is increasingly ripe for disruption. The issue of plant-based alternatives is therefore key to managing the risks of climate-affected supply chains and for seizing opportunities for market growth. •



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Annual subscription: one year £50/€60/US\$77 and two years £90/€100/US\$150.

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Printed by:  
Sothis

ISSN: 2537 - 1932



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# Puratos Unveils Fresh New Identity



The Puratos Group has unveiled its new brand identity, featuring a new logo, house colors and a tagline, 'Food Innovation for Good'.

Puratos's new branding represents the company's purpose 'to move the planet forward by creating innovative food solutions for the health & well-being of people everywhere'.

In the new logo, industry professionals will recognize Puratos's familiar unicorn – a symbol of courage and integrity. It now faces forwards, towards an exciting future. Another key change in the company's identity is the more widely used house color of red, which represents Puratos's passion, commitment and determination.



# Bridor Launches New Range of Bread Rolls

Leading French bakery manufacturer Bridor has partnered with Maison Lenôte to introduce a range of two elegant new bread rolls that represent the very best of French bakery traditions.

New additions to the range include a Finedor Ancient grains mini-baguette and a Scandinavian inspired Nordic Ball Roll.

Suited to the hotel and catering sectors, the new range is designed to accompany dishes and demonstrate the culinary expertise of a restaurant. Offering customers an all-round experience that demonstrates creativity with culinary tradition, each product features unique shapes and flavors, which are perfect for creating variety on the table.

The Finedor Ancient Grains mini-baguette is made with spelt sourdough and a unique blend of seeds famed for their nutritional value including chia, amaranth, red quinoa and millet. Available in a 50g classic mini-baguette shape, it's recommended to serve alongside marinated meat dishes.

The Nordic Ball Roll is traditional in shape and scored by hand. The Scandinavia-inspired recipe features a blend of exceptional flours and seeds including poppy, millet, sesame, sunflower and flax, giving the bread a dark center and the flavor of toasted cereals. For those serving fish and seafood, the Nordic Ball Roll is the perfect accompaniment.

# Kraft Heinz Completes Acquisition of Majority Stake in Just Spices

The Kraft Heinz Company recently announced that it has completed its acquisition of an 85% stake in Germany-based Just Spices GmbH. The remaining 15% ownership stake has been



retained by Just Spices' three founders, who will continue on with the company and focus on driving the business and its international growth. The proposed deal was first announced on Dec. 10, 2021.

Launched in 2014, Just Spices is an innovative start-up, trailblazing the high-growth taste elevation category with annual sales of approximately EUR60m. Its 170-plus product portfolio includes spice blends, salad dressings, easy-to-prepare "In Minutes" blends, and organic offerings for diverse meal occasions ranging from breakfast and light snacks to salads and baking, with a broad range of savory, sweet, classic, and exotic flavors. Just Spices' growing business sells approximately 70% of its ready-made and one-step spice blends directly to consumers, with its remaining sales through major grocery retailers both in-store and online in Germany, Spain, Austria, and Switzerland.

# MECATHERM Launches Authentik Baguette

MECATHERM, one of the world leaders in the design of automatic production lines for industrial bakeries and pastries, launches the Authentik Baguette. An ingenious solution that allows manufacturers to meet the new expectations of consumers looking for more authentic products, with a product positioned midway between the classic baguette and the artisan-style baguette.

Thanks to the combination of a new recipe developed by MECATHERM and the associated industrial solutions, MECATHERM proposes a growth driver for its industrial customers who currently produce classic baguettes, a product whose demand is declining globally. After some adjustments to their production line, MECATHERM provides them with a solution to produce a quality product that stands out and offers a particularly interesting return on investment. In the medium term, the objective is for the Authentik Baguette to become a new benchmark on the market.



# ISM Japan Shifts its Inaugural Edition to 2023



ISM, the world's largest trade fair for sweets and snacks, will shift its Asian debut in Tokyo, Japan – The Heart of East Asia, to April 2023. ISM Japan has received overwhelming interests and excitement from the industry since the announcement of the Asian debut of ISM, and plans were on track to deliver one of the region's first dedicated sweets and snacks trade fairs with an impact.

However, due to the continuing uncertainties brought by the spread of the COVID-19 variant Omicron, Japan has closed its borders to all new foreign arrivals since November 2021,

thereby posing a challenge for ISM Japan's international stakeholders (visitors, exhibitors, and partners) to attend the trade fair.

After in-depth assessment on the situation in Japan and around the world, and close consultations with key stakeholders and partners, a decision was taken to shift its inaugural edition to April 2023, at Tokyo Big Sight in Tokyo, Japan.

The new show date of ISM Japan is from 12th to 14th April in 2023. The organizers are looking forward to delivering a successful inaugural edition in 2023.

# Ingredion Invests in Chickpea Ingredient Developer

Ingredion Inc. has taken an equity stake in chickpea ingredient developer InnovoPro, from Israel. Terms of the investment were not disclosed.

Founded in 2015, InnovoPro developed a proprietary extraction process to concentrate protein from the chickpea. The company offers a 70% protein concentrate from chickpeas that has a neutral taste, high functionality and high nutritional value, according to the company. Applications include dairy-free yogurt, ice cream, veggie burgers and energy bars.

"We believe this investment will unlock huge consumer appeal for chickpea protein concentrates," said Michael Natale, global leader of Ingredion's plant-based protein platform. "InnovoPro has a strong portfolio of chickpea solutions, and we are excited about the potential for the new applications that this will enable for our customers by capitalizing on the trends shaping the food industry." In October 2020 InnovoPro raised USD18m in a funding round led by Jerusalem Venture Partners. Additional investors included Icos Capital, iAngels and the Rabo Food & Agri Innovation Fund, part of Rabobank's investment arm. The investment was used to scale InnovoPro's infrastructure and for business development activities.



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## New Vegan Flavor Solutions from I.T.S Deliver Indulgence in Plant-based Bakery



International Taste Solutions (I.T.S) has developed Vegan Boost – a new range of natural flavor enhancers that replicate the indulgent characteristics of traditional bakery products in dairy and egg-free alternatives. The launch, which taps into the growing consumer interest in plant-based diets, is timed to coincide with Veganuary.

Available in liquid and powder formats, Vegan Boost offers an all-in-one solution to improve the sensory quality of a range of plant-based cake and patisserie products by accentuating buttery and creamy flavors. A higher strength range, Vegan Boost Extra, is also available if more intense flavors are required. There are several ingredients bakers can use to rebuild the structural properties of a product when dairy and egg ingredients have been removed, some of which may create off-notes. Vegan Boost masks these and delivers an authentic flavor experience to ensure those who follow a plant-based diet can enjoy the same delicious bakery products as other consumers.

## JBT Debuts Electric TwinDrum Spiral Oven Offering New Way to Heat

As a global technology equipment supplier to the food processing industry, JBT has announced the launch of the new, electric version of its



successful Stein TwinDrum Spiral Oven, offering a range of features including simpler maintenance and connectivity to JBT's iOPS platform, as well as giving customers the opportunity to better meet their green commitments. The TwinDrum Spiral Oven is the latest spiral oven cooking technology from JBT that builds on decades of oven engineering by adding a uniform temperature and excellent roasting capabilities via an efficient two-zone spiral system. The TwinDrum spiral oven's design enables processors to increase their processing yield compared with existing ovens, while at the same time ensuring consistent cooking of food items by uniformly distributing the hot air flow across all tiers.

But with the introduction of the electric TwinDrum, JBT is offering customers a new way to heat by foregoing gas and oil-based heating systems, and plugging directly into the grid, according to Stefan Paulsson, JBT's Director of Value Stream & Global Product Line for Cooking & Linear Freezers.

## Eloma's GENIUS MT Gets New User Interface

Eloma as one of the leading manufacturers of high-quality combi steamers and baking ovens from Maisach, Germany, has equipped the GENIUS MT combi steamer series with a new user interface, taking it to the next level, a recent press release reads.

The new launch is based on the new JOKER software with MT-Technology. This has now been in practical use for two years, especially with chain customers, and has proven its worth and capabilities there, as it ensures efficient workflows and safe processes for unskilled staff or frequently changing personnel, even without extensive training.

When developing the MT control for the JOKER, the focus was clearly on the user. Neuroscientific analyses form the basis of the operating concept, so that handling is intuitive and easy. Additional and improved features such as Multi Cooking PRO or Multi Baking PRO and weekly programming PRO enable cooking, baking and cleaning with ease, systematically.

## Fiber Fortification Could Lower Risk of Heart Disease and Diabetes, Study Finds

Increasing the fiber content of everyday UK foods including baked goods, dairy products, soups, smoothies and dressings will enable 50% more adults to get the recommended daily amount of fiber in their diets and lower the risk of heart disease and diabetes for the majority of UK adults, a new study by Tate & Lyle PLC has found.

In a peer reviewed health and nutrition data modeling study published in the British Journal of Nutrition, scientists from Tate & Lyle, working with specialist data analytics company Crème Global, found that reformulating everyday foods with added fiber could:

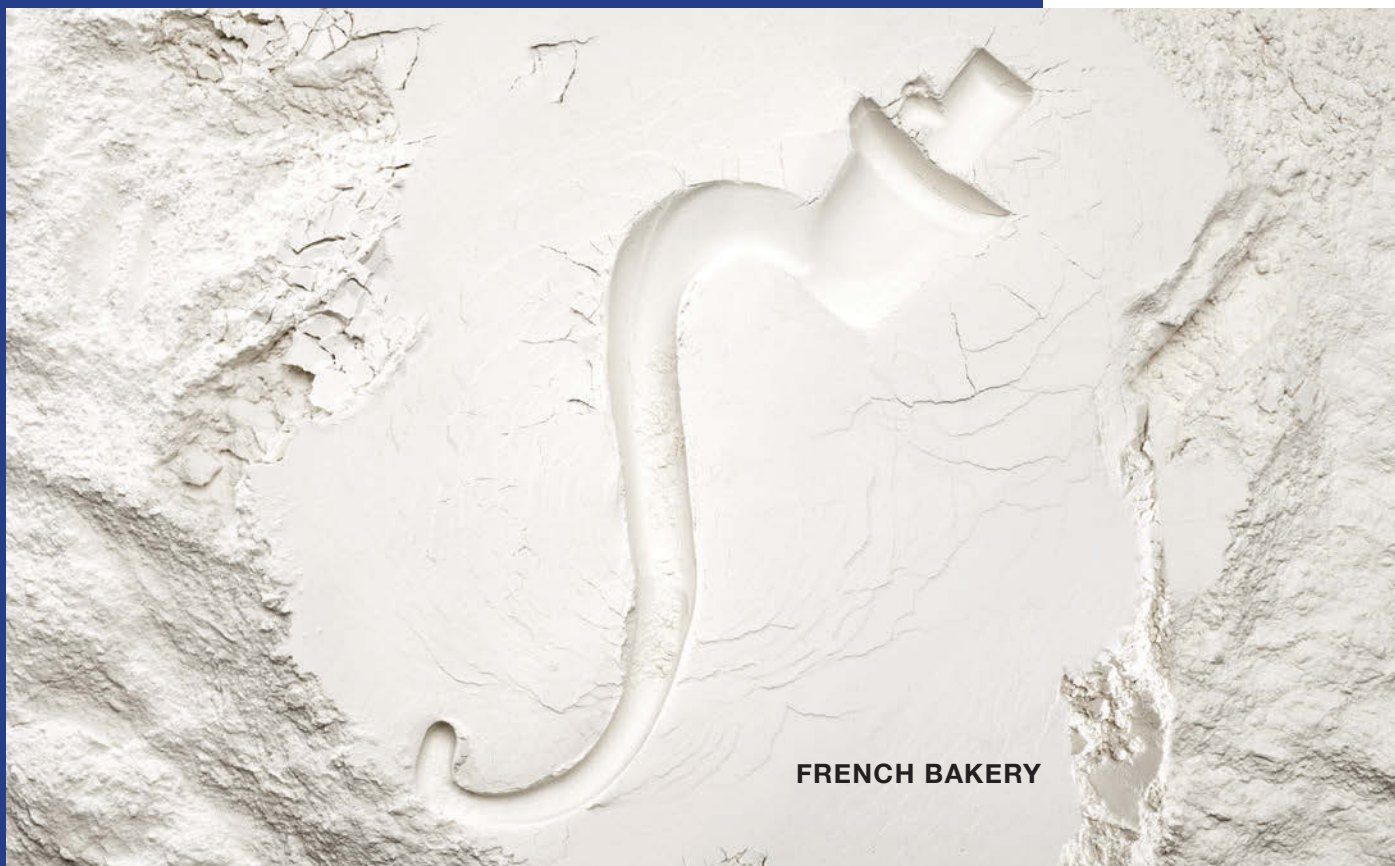
- Reduce the risk of cardiovascular and type 2 diabetes risk for 72% of the adult population
- More than double the number of children in the UK meeting their fiber intake recommendation
- See 6% of the UK population lose weight through higher fiber consumption

Dr. Kavita Karnik, Global Head, Nutrition & Regulatory Affairs at Tate & Lyle and a co-author of the health and nutrition data modeling study explains: "Most people understand that eating fiber helps keep bowel function regular, but fewer understand that getting the right amount of fiber in your diet is highly beneficial for wider health and wellbeing, including cardiovascular, immunity, skin, brain and gut health."

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## SIRHA EUROPAIN AWARDS

The innovations presented by the exhibitors

# Various Applications of Dough Sheeting



Research shows dough to be a non-linear, rate-dependent material that is capable of undergoing large deformations with only moderate elastic recovery. As such, various types of bakery products, including cookies, pizza, bread, pastry dough as well as specialties such as tortilla, benefit from automated sheeting during manufacturing.

by Tudor Vintiloiu

Photo: Koenig

**S**heeting technology helps increase precision and efficiency while shaping dough into continuous sheets, at the same time having less impact on the gluten network. The layers of dough are then laminated together, often without the need of proofers and dividers. Fat is commonly used in-between layers to support their separation while baking and can be either introduced prior to sheeting or as a continuous layer when forming the layers.

## BISCUITS AND CRACKERS

In a biscuit factory, for example, sheeters are the machines that transform dough mass into a uniform sheet, with an expectation of no significant holes and smooth edges. These are essential qualities that give biscuits their expected shape and reduce losses. One of the most important requirements of biscuit producers is for the machine to be able to handle a wide variety of dough types at high capacities. It is also essential to extrude smooth, uniform sheets of dough with consistent thickness and width. The diversity of products that are required

by the demanding customers has created new challenges for manufacturers. Hard biscuits can be made using various recipes of different degrees of richness; these products are obtained from hard, tenacious and elastic dough (agglutinated) and are processed industrially by rolling and laminating. For this reason, these biscuits are technically known as laminated biscuits. The same forming machines may also be used for making crackers by adding various accessories.

## HIGH WATER CONTENT BREAD DOUGH

Koenig is a company that supplies equipment for long-fermented doughs and doughs with high water content, e.g. Mediterranean white bread with more than 80% of water content and rye bread with up to 90% water content.



Photo: Koenig

For such doughs, Koenig recommends sheeting solutions like Koenig's Menes-H dough sheeting line. "We constantly improve our equipment as to process the sensitive doughs, with gentle feeding of the line with conveyor belts, a dough sheet forming system for various dough types or the TwinSat double satellite head for gentle processing of the dough sheet" Koenig's specialists tell us. Products traditionally made by hand can be made using such automated lines, while also retaining their artisan character: "Our customers produce various products on the Menes, mainly doughs with long resting times, such as Ciabatta, breads, flatbreads, baguette, focaccia, etc." they add.

The Menes-H high-performance dough sheeting line can process up to 5,000kg (11,023 lb.) of dough and can be combined with several other modules (e.g. forming station, seeding unit, stamping and cutting tools, proofer). This means that every Menes-H line is completely customized to suit the customer's products.

### PIZZA LINES

FRITSCH lines are designed so that neither energy, in the form of mechanical loads, nor heating of the systems will affect the temperature of the dough. Because precise temperature control is critical, gentle air movements maintain the targeted temperature in all fermentation and cooling

processes. The mechanics of FRITSCH lines are also designed to ensure the dough is subjected to minimum stress at all times. Careful production of the dough sheet in the FRITSCH Satellite Head assures that the delicate structures in the dough, developed during fermentation, remain undamaged during this important step. FRITSCH's SoftProcessing technology is largely made possible by the FRITSCH Satellite Head and its anti-adhesive coated rollers. The sturdy design of the satellite head with eight rollers makes it very good at processing even relatively hard doughs.

"Our pizza and flatbread lines use FRITSCH SoftProcessing© technology to work the dough very gently into a dough sheet. Then, depending on the desired end product, one of two different processes is chosen for producing either flatbread or pizza. In the "Sheet & Cut" process, for flatbreads and pizza base without a thick rim, the dough pieces are cut out of the dough sheet by a cutting roller. In the "Press & Cut" process, for pizza doughs with a thick rim, the dough pieces are gently pressed while being stamped out. This allows the dough to retain its individual structure so that the final product looks handmade," explains the specialist. When it comes to production efficiency and flexibility, and maximizing throughput, it all comes down to sheeting the dough as wide as possible. FRITSCH offers two options for this: the cross roller and the spiral cross roller.

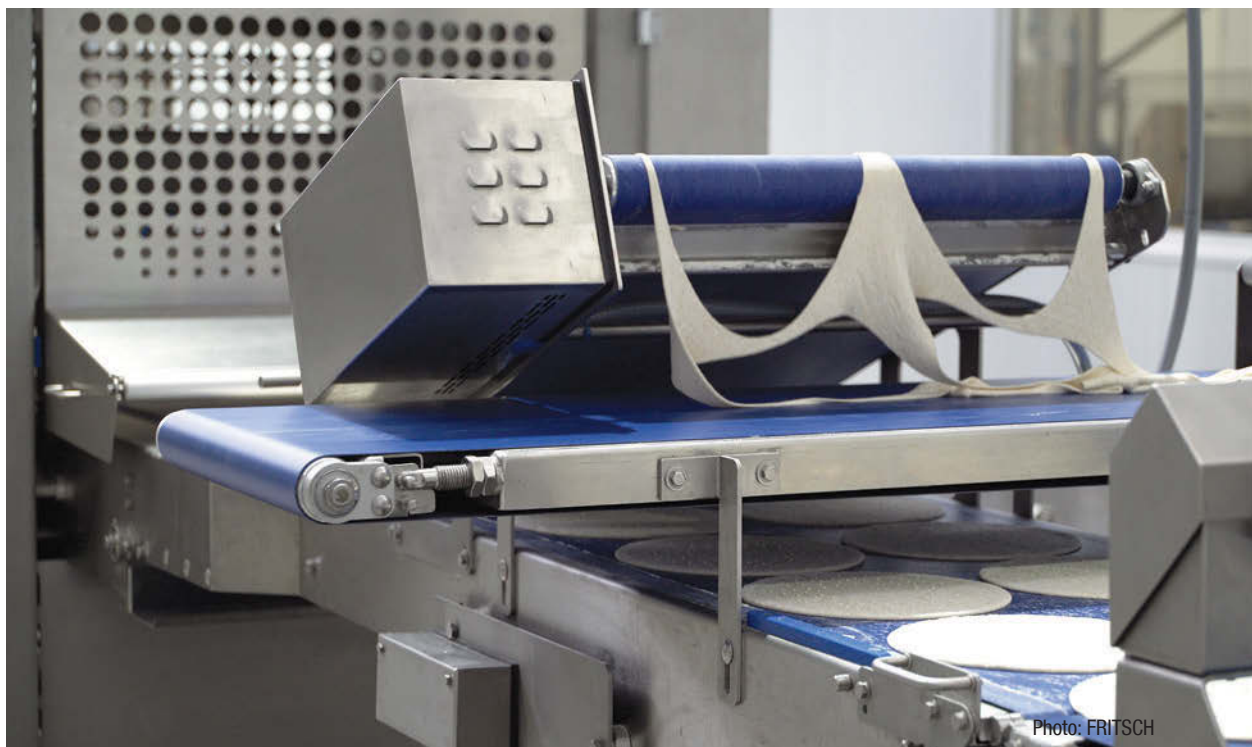


Photo: FRITSCH

The TBP dough sheet processor creates a continuous sheet of dough. It can process firm and soft doughs of 145 to 175 dough yield. To start the processing, the dough is added into the hopper of the star wheel roller portioner, which cuts the dough into equal-sized blocks. These blocks are transferred to the TBP, which rolls the dough out gently and evenly over its five rollers to create a continuous dough sheet. Thanks to its coated rollers and specially shaped scrapers, the TBP works the dough extremely delicately to form a wonderfully uniform dough sheet, even from soft dough.

Careful production of the dough sheet in the FRITSCH Satellite Head assures that the delicate structures in the dough, developed during fermentation, remain undamaged during this important work step. The dough is spread wider by a cross roller and/or spiral cross roller, and then finely sheeted through a calibrating head to the desired final thickness. Targeted use of flour dusters in between prevents the dough from sticking at any stage. Because they work with a dough sheet, FRITSCH lines offer maximum flexibility in weights and shapes. Any geometry can be produced, be it folded, coiled, filled, unfilled, or topped as a pizza snack. "Currently, products made from brioche dough are in strong demand, as is pizza. Another conceivable option would be processing laminated doughs," the company highlights.

### DONUT SHEETING TECHNOLOGY

Rademaker has developed a donut line (for yeast donuts) which is fundamentally different from traditional methods. This donut line consists out of a low-stress sheeting section and a make-up section. The Rademaker sheeting system receives dough chunks from the incline conveyor. Then the sheeter shapes these chunks carefully in a continuous low stress dough sheet. The thickness of this sheet is reduced by Rademaker reduction systems, consisting out of the quick reductor and gauging unit.

After the dough sheet has reached its desired thickness, it is guided to the make-up section. The cutting roller or a guillotine then cuts the sheet in separate donuts. The characteristic hole can be removed in two ways: by using a hole picking unit which removes the center part of the donut or a blowing system which blows the center part away from the donut. The remaining dough will find its way to the side part of the line, where it is collected in collection bins. This dough can be used in the next batch, or even be recycled fully automatic, as an option. This makes it a very efficient production

system. Depending on the production process, the donuts are moved to a proofer tray loading system or taken from the conveyor belt and put into proofer trays by hand. This will give them the desired taste and volume. After proofing, the donuts are loaded automatically into a fryer.

The donut line is easy to maintain and operate. Flexibility is offered, as all types of donuts can be produced with this production line (round, hexagonal, large and small sizes). By adding an additional shaping tool, it is also possible to produce various other dough products, like Long Johns, Cinnamon Rolls, Honeybuns, Bismarks, and many other shapes. This versatility does not affect the equipment design because the concept is highly modular and flexible.

Rademaker can deliver all types of equipment from semi-automatic up to fully automated lines. The difference is whether the feeding of the hopper and the discarding/tray-loading of the product is being done manually or not. The fully automated versions are larger but due to the high degree of automation they are also more cost effective.

Depending on the customer's capacity and product requirements, the lines can have working widths ranging from 600 mm to a 1.000 mm wide dough sheet. The line layout is also based on the capacity and product demand. The process is suited for any dough type, pre-proofed or not. By using the Rademaker's low-stress pre-sheeter the dough characteristics will remain beautifully intact, which results in a softer donut with more volume and a fluffy bite. The low-stress technology will moreover result in a longer shelf life.

Another strong advantage is that the donut will absorb less fat when frying, due to the well-developed gluten network in the dough, and because the dough structure has been less damaged when compared to other methods. •



Photo: Rademaker

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# Precise Depositing Supports Product Consistency and Limits Waste

Equipment for depositing and filling ensures an accurate dosage of ingredients with various consistencies, achieved at required speeds, with clockwork precision. Depositing is a task that many bakers do by hand, since it's a relatively delicate operation that demands precision and often entails product or ingredient changes.

by Tudor Vintiloiu

**S**pecialized equipment helps bakery and food producers move from manual to semi-automatic depositing (or fully automated) in order to increase production yield, create better product consistency, reduce product waste and meet labeling requirements.

## ULTIMATE FLEXIBILITY IS THE GOAL

A traditional piston depositor is usually equipped with a hopper to hold the fresh batter. As an alternative, GEA Comas offers a pressurized manifold, which feeds the batter at a constant pressure and flowrate to each piston of the depositor. Consequently, the precision of deposit is greatly improved. The manifold can even be jacketed with warm or chilled water passing through: this further enhances the precision of the deposit, as the specific weight and viscosity of the batter is kept constant. GEA Comas has developed a great flexibility in the piston-deposit technology: for example, a double head unit, can deposit two different color shots inside the same paper cup, thus allowing the production of innovative products and providing flexibility to the deposit process.

The piston depositor can be purchased with high-efficiency servomotors; this feature guarantees even higher

precision of the deposit and higher efficiencies; also the no-cup=no-deposit feature can be installed as an option in this type of system. GEA Comas covers a wide range of depositing technologies:

- Piston volumetric depositors are used for fluid cakes with or without inclusions;
- Lobe pumps depositors for soft dough cookies in general or high density batter;
- Manifold depositors are used when little drops are required i.e. when cookie or cake small quantity of topping is required.
- Finger type toppers are used to deposit different crumbles, cheese or vegetables;
- Volumetric pocket depositors for crystal granulated products;
- Vibrating toppers find their application for dry products;
- Wire depositor for powders (icing sugar, cocoa, nutmeg);
- Volumetric extruders are ideal for shortbread dough.

“Since the very beginning of our activity, all our equipment has been designed with the



Photo: GEA



Photo: Handtmann

Handtmann



Due to the easy configuration changes and the hygienic design product changeovers and cleaning time is reduced to a minimum.

modularity and flexibility design in mind. As a consequence, we are used also to provide Custom-designed equipment, which can be installed in limited space available and fully integrated into existing system even in respect of their automation and control systems. As an example, our depositor machines can be installed directly onto an existing steel band oven without having to cut and weld again the oven's conveyor. Our final Customer saves time of installation and money," GEA's specialists told us.

### HANDLING PRODUCT VARIATION

Handtmann provides solutions for pumping, dosing, dough dividing, forming and cutting. All these 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," Handtmann's representatives explained.

Handtmann portioning and depositing technology is successfully used for different kinds of applications. Whether it be meat, bakery products, dairy products, fish, convenience food or other areas of application. In the bakery sector, the company currently sees a strong trend for multilane solutions. Especially the depositing onto dough sheets with pastry fillings, vegetables fillings or savory fillings seem to be ever more interesting for their customers. Handtmann's multilane depositing systems feature a modular structure and can hence be easily customized to meet individual demands.

"For the integration in existing production lines, we are able to offer different solutions. As well as the communication, the control and the synchronization with other machine

equipment in the production line," Handtmann underlines.

### CONTROL AND MAINTENANCE

"On the one hand, our equipment is developed with the utmost focus on easy handling regarding machine operation and product changeovers and on the other hand, with our Handtmann machine control we are able to control several process and machine parameters that in the end helps to keep maintenance time as low as possible. Due to the easy configuration changes (including the distance between lanes, the number of lanes and the nozzle design) and the hygienic design ("full wet" cleaning option) product changeovers and cleaning time is reduced to a minimum," the experts point out.

With the latest VF 800 portioning machine generation, the company already provides an innovative forward-looking hygienic concept. "For example, we are able to offer machines in premium hygienic design (3-A SSI). The 3-A standard applies for dairy processing equipment in the United States and sets highest hygienic requirements."

### FUTURE DEVELOPMENTS

In the future design of the equipment, the companies forecast a further development of existing concepts such as: faster running speed; precision in the dimensions of the finished products; weight control; hygiene; new products. "What has not been mentioned yet is the request, coming from the market, of using wider lines, with the scope of increasing the production rate in those buildings that have a limitation of space in length. Depositing and baking technologies are ready and suitable to work wider than 1.500 mm wide. The bottleneck, today, is still represented by the oven's width. But, I am sure, the sector will reach that target, and GEA Comas is ready for it," GEA's experts concluded. •

GEA Comas



Our depositor machines can be installed directly onto an existing steel band oven without having to cut and weld again the oven's conveyor. Our final Customer saves time of installation and money.



# Hybrid Tunnel Ovens: Enabling Easier, More Efficient Cracker Production

Combining direct gas fired and convection baking zones, hybrid tunnel ovens give today's bakers a more flexible, sustainable way to mass produce crackers with better product quality and consistency than ever before.

By Reading Bakery Systems

Until the relatively recent development of the hybrid tunnel oven, the evolution of industrial oven systems for traditional cracker production has been slow, with bakers somewhat constrained by the limitations of their era's technology. Consider, for example, the mechanized reel oven from the late 1890s. Bakers had to load pans of sheeted crackers into the oven and onto a rotating wheel of plates. By the early 1930s, mass food production had become much more automated, and the brick-and-mortar tunnel ovens of the day featured automatic conveyor belts. A switch to steel exterior frames soon followed, as did advances in burner technology. A series of line burners, evenly spaced above and below the conveyor belt, provided a more uniform bake across the width and along the length of the oven.

Commonly referred to as direct gas fired (DGF) tunnel ovens, these new steel ovens automated baking even more, allowing increases in mass cracker production.

This basic DGF oven technology has served the snacking industry well for many decades. But the development of the hybrid tunnel oven has taken cracker production efficiency and process control to the next level.

Combining direct gas fired and convection baking zones in one unit, hybrid tunnel ovens give today's bakers a more flexible, sustainable way to mass produce crackers with better product quality and consistency

than ever before. To understand how, a look at what happens during the three phases of cracker baking is instructive.

## THE CRACKER BAKING PROCESS

Thanks to technology advances, bakers now have a very detailed view of the science behind cracker baking. Oven-profiling devices such as the SCORPION® Data Logging Measurement System from Reading Bakery Systems (RBS) have unlocked the discrete processes that occur within ovens, showing how heat transfer, humidity and air movement impact a product's attributes. In fact, the data logging of these processes helped inform the development of hybrid tunnel ovens in the first place.

No matter how long the oven, the process of cracker baking can generally be divided into three oven product flow phases. Each phase plays a key role in establishing a product's characteristics and quality. In both DGF and hybrid ovens, the first phase involves the development of dough pieces as well as flavor development. In general, the DGF ribbon burners in this part of the oven are set to lower firing rates resembling the first stage of a bell-curve temperature profile. Upper ribbon burners heat the passing product, air and oven ceiling. Lower burners beneath the belt are set to heat the combined mass of the oven belt and the cool dough sitting on top of it. To retain humidity and encourage development, operators typically set



exhaust flows in this phase to a minimum. The high humidity helps the product retain surface moisture that shields it from the high radiant heat of the surrounding oven structure. The moist product surface also allows the dough to grow and expand without cracking as water begins to vaporize and the chemical reactions within the dough entrap forming gases. In the second product flow phase, the majority of moisture is removed from the product. Upper burners are set for an aggressive heat application to fix the product's surface structure and prevent it from collapsing as gases and water vapor escape. Lower burners are set for a high belt temperature to ensure the bottom surface of the product bakes properly. Depending on the type of product and the amount of water to be removed, exhaust flows are generally targeted around 50%. During this second phase, the outside of the product begins to set. The moisture layer on the product's surface has evaporated and the product begins to dry from the outside in. Water slowly migrates from the product's interior, leaving behind a moisture gradient between the insulated interior and the dry product exterior. In the third and final product flow phase, the baking process completes the evaporation of water from the product's interior and determines its final surface color. Internal temperature, which at this point exceeds 750C (1670F), will have no further effect on the development of product flavor or texture. Instead, operators must focus on applying heat to achieve the product's specified final surface color and internal moisture content.

It's in these final two product flow phases where the functionality of DGF and hybrid ovens diverges, with hybrid ovens using convection zones to remove the majority of moisture in the process. And it's here where data logging technology revealed the limitations of DGF ovens and began to show how the convection capabilities of a hybrid oven could make the cracker production process – particularly during the drying phase – much more efficient and flexible.

## DGF STRENGTHS AND WEAKNESSES

The oven data loggers showed how the low air flows and high radiant temperatures of DGF ovens are not particularly well suited to the moisture removal phases of cracker production. In effect, the data underlined the need for more controllable air heating zones – that is, convection zones in which both product moisture removal and coloring/drying can be controlled separately and more efficiently. But at the same time, the data loggers also helped quantify just how and why DGF oven zones work so well in the front of the oven, and why keeping them up front in a hybrid DGF/convection oven would give bakers the best of both worlds. A quick look at the DGF heating process helps explain why.

A DGF oven zone heats the baking chamber with dozens of ribbon burners above and below the baking band, each spaced about 750-1,000mm (30-40in) apart. These burners contribute three types of heat to the oven – convection, conduction and radiation. Convection air currents bake the product with a heated airflow. Conductive heat contact from the oven belt bakes the product from beneath, while surrounding heat radiated from interior oven surfaces bakes the product on its exposed surfaces.

In general, DGF burners provide a controllable radiant and conductive heat flow but do so with very little air movement; convection heat flow is limited

by this type of burner design. Having higher humidity ratios in the first phases of baking is important in developing products, as it enables proper product flavor and texture development. But high humidity and a limited ability to control convection heat flow is not helpful for product drying as operators try to achieve uniform product moisture and color. Over the years, operators have developed ways to compensate for the excessive heat in the last zones of a DGF oven. Often these involve a complicated dance of shutting off burners, increasing exhaust rates and opening oven doors – whatever could be done to reduce the residual heat remaining in the air, product and belt





### Traditional DGF Ovens

- Up to 300 individual burners
- Overheating without product
- “Checking” potential
- Product fire potential
- More operator involvement

### Hybrid DGF/Convection Ovens

- 1 burner per convection zone
- No overheating
- Even moisture reduction
- Minimal fire potential
- Less operator involvement

from previous oven zones. It’s an inefficient prospect at best, and it’s one of many that a hybrid oven eliminates.

### HYBRID OVEN EFFICIENCY ADVANTAGES

As previously noted, a hybrid tunnel oven complements the cracker-baking strengths of DGF heat with convection zones for drying at the middle and back of the tunnel. Convection zones are extremely well suited for the drying process, as they circulate high volumes of air through the baking chamber. High air speeds pull moisture away from the product very efficiently as well as increase the coloring rate of the product by drying the surface to very low moisture levels.

In terms of energy efficiency, convection burners deliver distinct advantages vs. DGF burners. Consider that a traditional DGF tunnel oven could easily be 100 meters long and operate with up to 300 individual ribbon burners.

Now consider that for cracker or biscuit making, one third to two thirds of those 300 DGF burners can be replaced with convection burners. The typical RBS hybrid oven, for example, has two DGF zones and four convection zones, with one

convection burner per zone replacing about 30 ribbon burners. The specific energy savings will vary depending on the age and type of ovens involved, but the cut in energy consumption and costs could range anywhere from 5-20%.

A switch from an all-DGF to a hybrid oven will also save a great deal of operator energy and time. A DGF oven takes an experienced operator to understand how to manage and control it. Convection technology is much more automated with the four baking parameters easily set and managed by the recipe at the OIT. With the labor problem across the food industry, this makes convection technology much more attractive to bakers.

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



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

Keeping the product in specification is also supported by the drying efficiency of the convection burners. Along with saving energy, the hybrid convection process pulls moisture out of the cracker so uniformly that it prevents production problems like “checking,” or the appearance of cracks in the product that aren’t apparent until after packaging. Eliminating the possibility of checking is just one of several ways that convection oven zones support more efficient cracker production with less waste.

#### **MOVING TO EVEN MORE SUSTAINABLE BAKING**

Clearly, today’s hybrid DGF/convection ovens offer several energy- and labor-saving benefits compared to traditional DGF



ovens, as well as process efficiency and product quality control improvements. This is as it should be, as the modern hybrid tunnel oven represents more than a century of baking technology upgrades.

But at RBS, our engineers are already working on the next generation of process and energy-efficiency improvements for hybrid oven systems – indeed for all modern oven systems. RBS already offers all-convection zone technology for sheeted baked cracker “crisps” to meet the growing consumer demand for these popular snacks. RBS oven systems are already available with heat recovery systems and more energy-efficient motors. RBS is also exploring cleaner energy sources. And just as data logging technology helped pave the way for hybrid ovens, we are committed to refining our data analysis capabilities to improve process efficiency and usher in the next century of baking technologies. •





# Plant-based Ingredients' Time to Shine

More and more consumers prefer healthy, plant-based foodstuffs, which taste authentic and which contain the minimum amount of ingredients - an exciting, but demanding task for the manufacturers of sweets and snacks, which faces them with a technological challenge when striving to find the balance between enjoyment and health aspects.

By Tudor Vintiloiu

**G**lobal consumer demand for plant-based products has increased since the onset of COVID-19, research by Palsgaard suggests. The emulsifier and stabilizer specialist commissioned extensive consumer research into the plant-based market, focusing specifically on three categories: milk alternatives, dairy-free yoghurts and frozen desserts. The research showed consumers are generally happy with existing plant-based products, but there are areas where they would like to see improvements, such as less sedimentation in plant-based ‘milks’; products with a longer shelf-life; and enhanced texture and creaminess. The number one reason respondents chose plant-based products was that they considered them better for health, an opinion held by 75.4%. The second biggest driver, chosen by 51.3%, was that they liked the taste, while 45.8% said they bought into the plant-based category because they are concerned about the environment and sustainability.

### VEGAN INDULGENCE

As consumer demand for vegan and plant-based options continues to accelerate, Cargill has introduced its Chocolate ExtraVeganZa, a new range of vegan chocolate and couverture chocolates. Made with carefully selected plant-based “power” ingredients, the chocolates deliver a truly indulgent sensorial experience, bolstered by a rich, nuanced flavor and smooth, creamy texture. “Vegan claims are popping up everywhere, as consumer preferences shift toward products they perceive as better for themselves and the planet. In response, many of our confectionery, bakery and dairy customers are exploring vegan formulations,” said Ilco Kwast, commercial director, Cargill. “As their long-standing partner, we wanted to make sure they’re equipped with great chocolate that satisfies consumers’ sweet expectations, while also living up to their desires for more plant-based choices.”

To create the new line, Cargill’s Chocolate Engineers identified key plant-based “power” ingredients – sunflower kernel powder, rice syrup and organic rice syrup. Sunflower kernel powder provides a creamy, smooth texture, with a balanced flavor profile of cereal and nutty notes, rice

syrup produces chocolates with a pleasant sweetness, enhanced with notes of honey and cocoa, while adding a noticeable “snap” to the chocolate’s final texture. When pairing Cargill’s organic cocoa liquor with organic rice syrup, an organic vegan chocolate with fine flavor notes and earthy and cereal hints can be produced as well. “We are the first major supplier to incorporate sunflower kernel powder into a vegan chocolate, a patent-pending innovation,” said Vanessa Barey, Cargill’s chocolate product development manager. “These ingredients provide a distinctive taste and texture profile, enabling us to create vegan chocolate recipes that reimagine plant-based indulgence.” Cargill tested its Chocolate ExtraVeganZa line with both consumer and trained sensory panels. Notably, the company found the vegan chocolate range consistently outperformed popular market references on key likability ratings. Equally important, the vegan chocolate range can be used in all applications, including bakery, confectionery and dairy, as a substitute for regular chocolate. Further differentiating the line, Chocolate ExtraVeganZa uses nut- and gluten-free ingredients.

To ensure compliance with its defined vegan standards, Cargill applied new scrutiny to its ingredient selection and chocolate production processes, including dedicating chocolate production lines in Belgium and Germany to Chocolate ExtraVeganZa and dark chocolates.

### FLAVOR AND MOUTHFEEL

International Taste Solutions (I.T.S) has developed Vegan Boost – a new range of natural flavor enhancers that replicate the indulgent characteristics of traditional bakery products in dairy and egg-free alternatives. The launch, which taps into the growing consumer interest in plant-based diets, was timed to coincide with Veganuary. Available in liquid and powder formats, Vegan Boost offers an all-in-one solution to improve the sensory quality of a range of plant-based cake and patisserie products by accentuating buttery and creamy flavors. A higher strength range, Vegan Boost Extra, is also available if more intense flavors are required. There are several ingredients bakers can use to rebuild the structural properties of a product when dairy and egg ingredients have been removed, some of which may

create off-notes. Vegan Boost masks these and delivers an authentic flavor experience to ensure those who follow a plant-based diet can enjoy the same delicious bakery products as other consumers.

Carl Smith, Head of Innovations at I.T.S, said: “Consumer demand for plant-based products is rising, but until now the bakery sector has been a little behind the curve. Our bakery customers know we are easy to work with and they asked us for help in enhancing the flavor of their vegan cakes and bakery ranges. We set about creating a straightforward alternative to the options currently available from the larger flavor houses. Vegan Boost offers no-nonsense flavors, and it provides an easy-to-use solution that is proven to work. [...] We stand with anyone who wants to do something new, something different or something braver. And we believe Vegan Boost thrusts the plant-based bakery sector into a new era of innovation.”

To assess Vegan Boost across different bakery products, I.T.S produced a cupcake and a brioche in-house and presented these to a team of panelists. The group compared the organoleptic characteristics – such as ‘buttery’, ‘richness’, ‘indulgent’ and ‘creamy’ – of a vegan versus a non-vegan version of the recipes.

The vegan cupcake fell short on many of the sensory elements, but when I.T.S’s flavor experts added Vegan Boost to the plant-based recipe, it enhanced the buttery qualities and delivered more fatty notes to amplify the cupcake’s perceived indulgence. To create the vegan brioche, I.T.S replaced the milk, butter and eggs with almond milk, olive oil, vegan butter and a small amount of lemon juice. The vegan brioche performed poorly, but when Vegan Boost Extra was added, the panelists said that the enhanced dairy and egg-free brioche was richer, with significantly improved creaminess and buttery characteristics.

### AMINO ACIDS AND DIGESTIBILITY

On the occasion of World Pulses Day, Roquette, a global leader in plant-based ingredients, highlighted the exceptional properties of peas through the outstanding results of a recent DIAAS (Digestible Indispensable Amino Acid Score) study on its pea protein.

The nutritional quality of proteins is the combination of two factors that are key in terms of nutrition: the digestibility and the composition in amino acids. The recent study, conducted by the Roquette team



in partnership with renowned academic experts from the INRAE, France’s National Research Institute for Agriculture, Food and Environment, concluded with a DIAAS score of 100, showing that pea protein offers a balanced amino acid profile and an excellent digestibility that fully responds to consumers’ nutritional needs.

The DIAAS methodology allows the evaluation of the digestibility of each indispensable amino acid in the protein with a very precise protocol implemented in humans. This high-level method is used to complement the notable PDCAAS (Protein Digestibility-Corrected Amino Acid Score) of 93 already obtained for NUTRALYS® pea protein. Dedicated Roquette R&D teams are evaluating and advancing the benefits of the NUTRALYS® pea protein range thanks to the expertise developed throughout the 20+ years of Roquette’s involvement in pea protein. From the outset, Roquette has been collaborating with world-class research teams and shared the results of this impactful DIAAS study with the scientific community. Reputed for offering high-quality ingredients, Roquette wants to support its customers in the development of a healthy and delicious plant-based cuisine. Caroline PERREAU, Nutrition and Health Research Manager at Roquette, explained: “Thanks to high level scientific collaborations with academic experts, we showcase, through the robust DIAAS methodology on humans, the premium nutritional quality of our pea protein. This was another step to share our expertise about pea protein nutritional benefits.” Juliane CALVEZ, Research Scientist at INRAE, added: “In a clinical study on healthy volunteers, we showed that Roquette’s pea protein isolate displayed a well-balanced indispensable amino acid composition associated with a high digestibility. We obtained a DIAAS of 100 that demonstrates pea isolate is an excellent source of plant protein for human diet.” •



NEW



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your **plant-based** creations  
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Discover our oat protein, a unique cereal protein obtained in a natural way, which can facilitate numerous plant-based food creations to meet all your consumers' expectations!

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- Solubility: 3%
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- Easy to use

### Oat protein allows for clean & clear labeling

- Natural process
- No additives
- Soy free
- Lactose free
- Vegan
- Kosher

# Flourishing Innovation in the Biscuits Category

The global biscuits market was valued at USD 106,232.78 million in 2020, and it is projected to reach an estimated CAGR of 4.97%, during the forecast period, 2021-2026, according to Research And Markets data.

By Tudor Vintiloiu

**T**he global biscuits market witnessed both positive as well as negative impacts due to the COVID-19 pandemic. The negative impact on the market was due to the disruption of global supply chains leading to companies shutting down their factories or working with limited staff in yielding low production. Moreover, consumer stacking long shelf-life items, including biscuits resulted in lesser product availability in the market. Nonetheless, consumers opting for convenient healthy snacking options drove the demand for nutritious oat-based, and nut-based biscuits, among others.

Research And Markets' study suggests the market is driven by the rising demand for convenience snacking paired with an affinity for healthy ingredients among consumers. Also, since Food-on-the-go is one of the most recent on-going trends and is one of the fundamental considerations for consumers while purchasing food products, it has become a prominent factor for driving the market.

In addition, frequent launches with new formulations in the basic product range such as low fat, gluten-free, low-carb, organic, and high-fiber biscuits, to attract consumers have further fuelled the market growth. Discussing segmentation by type, sweet biscuits is the fastest-growing sector owing to their taste and indulgence appeal.

Other than focusing on new product development and marketing communications,

the companies are also engaging in various in-store promotions. These in-store promotions are likely to center on money-off promotions, such as extra value packs, or buy-one-get-one-free. Also, in terms of distribution channel, online stores sales for healthy snack foods are growing at a faster rate, attracting many vertical specialists like Amazon, Walmart, Carrefour etc. who are riding on increasing e-retailing growth and vying for a significant pie in online biscuit space.

## GLUTEN-FREE BISCUITS CAPTURING LARGER CONSUMER BASE

According to the same data published by Research And Markets, the demand for gluten-free processed food products, such as bread, crackers, and biscuits has risen considerably in recent years, across the global market, predominantly in Asia-Pacific. India has the largest population affected by celiac disease, across the world, however, the amount of gluten-free food products available in India falls far short, hence, there is a huge potential for gluten-free food products, including gluten-free biscuits, in the Indian market. Whereas, in the global market, the major companies are extensively making efforts to bring gluten-free cookies to the retail shelves.

An independent research study has stated that an increasing number of American people are turning their backs on food products containing gluten, despite the fact that the prevalence of celiac disease has remained



flat in recent years. This is providing opportunities for bakery manufacturers, to launch gluten-free sweet biscuits to the market. In this context, in 2018, Biscuit International, which is a private label manufacturer, acquired Northumbrian Fine Foods (NFF) from CriSeren Foods in order to extend its product offerings and global reach and to become Europe's largest producer of gluten and milk-free private label biscuit manufacturer. NFF is the United Kingdom's largest gluten and milk-free sweet biscuits manufacturer.

#### EUROPE IS THE LARGEST MARKET

The European market is driven by the rising demand for convenient snacking paired with a pursuit of healthy ingredients among consumers. Also, research shows consumers across the United Kingdom and Germany are mostly driven by indulgence, the type of biscuit and size of the pack. A diverse range of new products are continually being introduced, including healthy biscuits, 'thins', free-from options, and breakfast biscuits, thus, boosting the demand for healthy biscuits in the region. One example of a company targeting the premium biscuits category in the United Kingdom was Mondelez International, who rolled out a Cadbury branded biscuit with the option of consuming the product warm, out of the microwave. The move comes along with understanding the altering consumer preferences, where the country's demand for traditional regular biscuits kept falling, with a significant rise in the requirement of "premium experiences", on the other hand.

#### COMPETITIVE LANDSCAPE

Competition is very high in the market with virtually no entry barriers due to almost 100% penetration of the product. A lot of premium, functional biscuits have hit the market, giving the market leaders a run for their money. Major players are focusing on introducing new product offerings in the market, to cater to the interests as per the ongoing tastes and preferences of the consumers. Since sweet biscuits have a significant role to play in the bakery and snacks market, top companies are engaged in delivering a variety of flavors and variants of biscuits, in order to satisfy consumer's taste demands. For instance, in January 2018, MONDELEZ International brought together the Cadbury chocolate and Oreo, for two new sharing products in the United Kingdom.

#### WHAT THE FUTURE HOLDS

According to Mintel, the pandemic propelled plant-based innovation, but manufacturers must strive for greater affordability. A re-prioritization of emotional health will inspire the development of emotionally engaging multi-sensory products. Competition comes from baking brands and opportunities from direct-to-consumer (DTC) platforms. There will be renewed focus on producing food 'the right way', pertaining to the protection of the planet. Localism will see more importance placed on both domestic sourcing and worker inclusivity. 'Un-dieting' can help reframe positive messaging on the role of healthier fats and oils in biscuits and crackers. •

# Getting Into **Better Shape**



Manufacturers of healthy bakery goods will have to address the needs of an increasingly sceptical and demanding consumer base. The trend towards bakery products marketed as ‘better for you’ is likely to gather pace in the post-pandemic world, as governments and authorities worldwide make more efforts to improve the health of their respective populations.

By [Jonathan Thomas](#)



In The pandemic has shone the spotlight onto the links between poor health and susceptibility to Covid-19, with obese people accounting for a disproportionately high percentage of victims of the virus. Research carried out in 2020 found that people with the highest BMI (i.e. over 40) were 92 times more likely to die from the virus than those with a BMI ranking of between 18.5 and 25.

Meanwhile, separate research from the World Obesity Federation discovered a strong link between the prevalence of overweight and/or obese people and high numbers of Covid-19 related deaths. Of the 2.5 million worldwide deaths resulting from the virus as of the end of February 2021, a significant 2.2 million (i.e. 88%) of these were attributed to countries where over half of the population were ranked as overweight or obese. A US study carried out at roughly the same time by the Centre for Disease Control and Prevention found that 78% of people who had been hospitalized, needed the assistance of a ventilator or died from the virus were classed as overweight or obese.

Health concerns are therefore highly likely to remain at the top of the agenda for the global food industry as the world recovers from the pandemic. However, certain research undertaken since the first half of 2021 in various parts of the western world (e.g. Western Europe and the US) suggests that, for many consumers, lockdown periods coincided with periods of lower physical activity and overeating, therefore potentially storing up trouble for the future. It remains to be seen over the next few years to what extent these trends add to the public health burden and whether this will translate into punitive measures from the authorities against certain foods in the form of 'sin taxes.' In the UK, for example, the National Food Strategy has issued calls for increased taxes on sugar and salt used in processed foods, which, if implemented, would raise the price of potato crisps at the retail level.

Another potentially disturbing trend for manufacturers of bakery goods is the possibility of being sued for positioning products on a health platform. In 2021, a consumer group in the US took Mondelez International (owner of the BelVita brand of breakfast biscuits) to court. It was alleged that the company was wrong to portray the biscuits as healthy on account of their high sugar levels, which, it was argued, contravened local laws in California and New York.

During the court proceedings, it was pointed out that BelVita breakfast biscuits contain between 8g and 14g of sugar. This represents between 32% and 56% of the daily-added sugar maximum level for women recommended by the American Heart Association (AHA) and between 21% and 37% of the daily target for men. However, it was pointed out that sugar levels for BelVita biscuits are typically lower than other forms of popular breakfast foods, examples of which include breakfast cereals, yoghurt and fruit juice. Although the case was settled in September 2021, many within the US legal industry now anticipate similar moves against food manufacturers in the future, as consumers become more aware of dietary intake and increasingly suspicious of products marketed as 'healthy.'

Prior to these developments, manufacturers of bakery goods were already making conspicuous efforts to improve the nutritional profile of their products. The removal of excessive sugar and saturated fats had become almost second nature, as well as artificial additives to satisfy clean-label requirements. Some categories have gone even further – many bakery snacks are now specifically positioned as people following vegan or gluten-free diets, while the incorporation of added protein is a leading trend within sectors such as cereal bars. Health perceptions in the western markets of Europe and North America appear to be changing in the wake of the pandemic, carrying significant implications for future new product activity. In the US, the 2021 version of the Food & Health Survey undertaken every year by the International Food Information Council (IFIC) found that health concerns are leading people to focus upon what certain foods contain, rather than what ingredients had been taken out (as has been the case in the past). According to the 2021 survey, 27% of respondents defined healthy by the presence of components such as fruit and vegetables, up from 17% five years previously. In contrast, the percentage of respondents that defined healthy foods by the absence of ingredients such as sugar, salt, saturated fats, etc. had fallen from 35% to 25% during the same period.

## BISCUITS/COOKIES

Within many sectors of the bakery goods industry, sugar remains the primary villain as far as the health lobby is concerned. Biscuits and cookies are eaten widely across the world as snacks, enjoying a following with

consumers of all age groups. Furthermore, the sector also appears to have been one of the main beneficiaries during the pandemic, with more consumers admitting to snacking on biscuits for reasons such as avoiding boredom or seeking a permissible treat during stressful times. However, many types are widely perceived as being high in sugar, as well as calories, leading manufacturers to undertake reformulation activity.

In February 2020, pladis revealed it had reduced sugar levels in nine of its leading McVitie's biscuit brands by up to 10%, thereby removing an estimated 785 tons of sugar from UK diets. These brands included Original Digestives (which now contain 2.2g of sugar per biscuit) and Rich Tea (which contain 1.5g of sugar per biscuit), as well as Hobnobs and Chocolate Digestives. The previous year had seen Burton's Biscuits introduce a sugar-free version of its Maryland Cookies brand, as part of a wider move to reduce sugar and calorie levels across its portfolio by 20%. During September 2021, Mondelez International launched Oreo Zero (i.e. sugar-free) cookies in the Chinese market, to tap into the growing local demand for healthier varieties of traditional snacks. The cookies, which contained maltitol as a sugar replacement, appear in Classic and Rose flavors, the latter of which appear as Oreo Thins, which are 40% thinner than standard cookies. By the end of the year, however, the company admitted that initial sales of the Oreo Zero brand had been disappointing. One of the reasons for this was the fact that many Chinese consumers remain suspicious of packaged foods carrying health claims such as reduced-sugar or sugar-free.

## CAKES

As far as consumers are concerned, cakes share many of the health concerns associated with biscuits, namely a perception that sugar, saturated fat and calorie levels are on the high side. According to Tate & Lyle's 2020 European Bakery report (which surveyed the opinions of 400 senior bakery industry professionals across the UK, France, Germany and Spain), 74% claimed that overall calorie reduction in bakery goods was the most significant driver of business growth. This figure decreases

to 71% for reduction of sugar, while 54% claimed that fat reduction was important. Elsewhere, over half (51%) of respondents said that consumers were opting for bakery goods that offer additional nutritional benefits, while 44% said consumers were willing to pay more for such products.

This growing demand for cakes with an improved nutritional profile can be illustrated by the presence of reduced-sugar products within many leading ranges. In the UK, for example, the Mr Kipling range of cakes now includes varieties such as Angel Slices, Chocolate Slices and Viennese Whirls, all of which contain 30% less sugar than standard equivalents. However, for most consumers, reduction of sugar or other ingredients must not compromise taste, as products perceived as bland or tasteless carry little appeal. According to the bakery ingredients supplier Macphie, 48% of UK consumers claimed they would prefer to eat indulgent foods less frequently, rather than opt for a 'light' or 'diet' version of a product such as a cake.





Another health trend evident within the cakes market has been rising demand for gluten-free products. With more consumers adopting a gluten-free diet for general health reasons (rather than due to specific food allergies or intolerances), opportunities continue to arise within this sector. In June 2021, Warburtons entered the UK market for gluten-free cakes with the launch of gluten-free Cake Squares, available in Chocolate Orange & Gingerbread and Raspberry & Hazelnut flavors. Elsewhere, the Mr Kipling range now includes gluten-free Chocolate Brownie Slices, while more specialist suppliers within the UK market include Genius Foods (whose range includes muffins and cupcakes) and Mrs Crimbles, a manufacturer of gluten-free rings, macaroons, brownies and slices.

#### CEREAL/BREAKFAST BARS

Health has traditionally been a major selling point for many of the cereal bars and breakfast biscuits sold, with many products positioned as a healthier alternative to snacks such as chocolate and potato chips/crisps. Furthermore, many of the market's leading brands feature ingredients strongly associated with health, examples of which include fruit, nuts, oats and seeds. However, as the BelVita court case mentioned previously illustrates, this category has not been free from criticisms that its products are not as healthy as might first be supposed. According to a UK report released in the second half of 2021 by Bite Back 2030 (a movement formed by celebrity chef Jamie Oliver geared towards improving the health of younger people), 80% of younger consumers viewed cereal bars as an intrinsically 'healthy' food, therefore prompting concerns.

As is the case with traditional biscuits and cookies, many of the criticisms levelled at the sector revolve around the sugar content of many brands. One of the brands present in the UK market that has attracted praise for its low sugar and calorie levels is Alpen Light from Weetabix, which is now worth more than GBP14m at the retail level. In October 2021, the range was extended with new

Alpen Oat Blends, which are marketed as being high in fibre and targeted at health-conscious consumers. Earlier in the year, a new White Chocolate, Raspberry & Shortcake variety had been added to the Alpen Light range. Each Alpen Light bar contains just 67 calories and is high in fibre.

There has also been greater emphasis upon whole grains, consumption of which is linked with reduced risk of obesity and cardiovascular disease. At the start of 2021, the BelVita brand was extended with new baked bars geared towards mid-morning snacking, in a bid to reduce its reliance on breakfast occasions. The new baked bars, which contain whole grains as well as fruit and nuts, were launched in Dark Chocolate & Hazelnut and Cranberry & Hazelnut varieties.

One of the most notable health trends within the cereal bars market in recent years has been the emergence of more products fortified with additional protein. While protein was always recognized as an important dietary component by people leading sporty and/or active lifestyles (such as bodybuilders) in the past, more consumers are now seeking to increase their protein intake, since it has been shown to boost the immune system. Furthermore, protein has been linked with weight management, since it can enhance 'satiety', i.e. the feeling of being full for longer periods, which leads to a reduced likelihood of snacking.

Many of the market's leading brands now feature products fortified with additional protein. Notable examples include Nature Valley Protein Bars from General Mills, which are marketed as containing 20% of the recommended daily protein intake and available in a range of formats and flavors. Other leading cereal bar brands with protein-enhanced varieties include Kellogg's Special K, Alpen and Trek Protein Nut Bars, which are manufactured by Natural Balance Foods. As the market continues to develop, manufacturers have begun to experiment with alternatives to traditional whey and soy protein, with plant-based varieties such as pea and lentil two examples. This has the added advantage of appealing to consumers following vegan diets. •

# Europain 2022: Celebrating the Know-how of French Bakery and Pastry-making

From March 26 to 29, 2022, the Europain trade exhibition, now Sirha Europain, will be celebrating French bakery and pastry, addressing all players in the food service, catering, and snacking sector at the Paris Porte de Versailles venue. European Baker & Biscuit talked to Luc Dubanchet, Sirha Food director and Commissioner General for Sirha Europain to learn more about the challenges and opportunities of this trade show edition.

By Tudor Vintiloiu

## Can you tell us what visitors can expect from this edition of Europain?

Visitors can expect an edition of Sirha Europain that promotes French know-how in the bakery sector, the French Bakery that is exported around the world. Sirha Europain 2022 will continue to address in depth the new issues and concerns such as the value of sourcing, the sustainable link between the craft and industry, responsible production and consumption as well as the human aspect. This edition will also highlight a new offer thanks to 300 exhibitors and brands, and the Sirha Europain Awards which reward the most innovative products.

## Which are some of the novelties this edition presents?

The health crisis has accelerated the changes in the bakery-pastry sector, and the exhibitors at Sirha Europain seized the opportunity to keep pace with market expectations and trends. The exhibitors registered for the Sirha Europain Awards presented committed innovations that facilitate the daily life of bakers, such as the SCARIBAC NEO, which facilitates the removal of dough from the tray and its cleaning by Scaritech; or the EURALUX indoor natural light well. But more than ever there are innovations that contribute to sustainable baking, such as the new rotating heat oven from AMF, which meets the objectives of improving the ecological footprint and reducing energy

consumption; as well as innovations that allow for nutritional recipes, such as the Berrouga mix, which is rich in vegetable proteins from GRANDS MOULINS DE PARIS.

## How has the COVID-19 pandemic influenced this edition of the trade show in terms of attendance, exhibitors, logistics, etc.?

The pandemic has pushed professionals to outdo themselves, to adapt. But it has also enabled Sirha Europain to source an offer in line with the expectations of consumers, who, in addition to wanting authentic and traditional products, are now looking for more diversity and innovation with an expanded snacking offer from bakers and pastry chefs. To meet this customer demand, Sirha Europain is focusing on the must-have baked goods such as sandwiches, quiches and flavored breads. The show is putting in place all the sanitary measures needed to receive visitors and other stakeholders of the show in a safe manner and to guarantee the safety of all.

## How will the bakery sector be represented in terms of products and exhibitors?

The 300 exhibitors and brands of Sirha Europain will be diverse and comprehensive, highlighting more than ever the advantages of traditional, technical and industrial know-



how. French and international exhibitors from all sectors will be present, from milling to equipment, including raw materials, processed products, service companies or technologies and training.

#### **Who are the keynote speakers and what will they be discussing?**

Sirha Europain gathers 150 major professionals on stage this year.

The Sirha Europain Forum will present discussions on current issues such as ingredients (seeds, raw materials, yeast, etc.), environmental concerns (CSR, 3Rs, short circuits, etc.), and women and men in the profession (recruitment, training, vocation, loyalty, women in baking, etc.) with host speakers such as Paul Boivin (FEB), Dominique Anract (Confédération Nationale des Boulangers Pâtisseries Français), Stéphane Lacroix (Lesaffre), Christophe Girardet (Victor & Compagnie).

The bakery-snacking stage is dedicated to the fundamentals and to local, organic and snacking products; with the intervention of Bo & Mie, Chapel, Perséphone, Bacillus or Max Havelaar association.

The sweet scene with workshops, masterclasses and round tables will welcome

pastry chefs and sugar professionals such as Tess Evans Mialet (Le Clarence), Anne Coruble (Le Peninsula), Eric Verbauwhede (Maison Pic), Germain Decreton (Le Jules Verne) and Michael Bartocetti (George V).

#### **What are the three aspects that would encourage visitors to attend this edition of Sirha Europain?**

- Celebrate the know-how of French bakery and pastry-making
- To meet around the idea of a bakery and pastry shop that nourishes and makes sense every day
- To imagine the bakery and pastry shop of tomorrow: responsible, committed and sustainable.

#### **Anything else for everyone to look forward to?**

Sirha Europain (the new name for Europain) is now integrated to the Sirha Food brand ecosystem and global media. As part as the Food Service events of Sirha Food, next June there will be Sirha Green in Lyon, the sustainable thread running through this entire ecosystem. This is an invitation to rethink the food service and food industry in a responsible manner, ahead of Sirha Lyon, which will take place from January 19 to 23, 2023. •



TROMP

DEN BOER

## AMF Bakery Systems – Tromp – Den Boer

Booth M79

Bakeries around the world partner with AMF Bakery Systems - including AMF Tromp and AMF Den Boer - for best-in-class unit equipment and complete system solutions, from mixer to marketplace.

Through innovative, precision engineering informed by our master bakers' expertise, AMF designs integrated production solutions for soft bread and buns, artisan bread and rolls, pizza and flatbreads, cakes and pies, pastries and croissants, and beyond.

Rise Together with your baking partner of choice. Bakery machines and complete system solutions for producing:

- Soft Bread & Buns
- Artisan Bread & Rolls
- Pizza & Flatbreads
- Cakes & Pies
- Pastries & Croissants

Specialties of AMF Tromp and AMF Den Boer: Sheeting dough, Laminating dough, Decorating, Make-up, Depositing, Injecting, Waterfall and Target strewing, Pizza Topping lines, Tunnel ovens, Hydrogen oven, Proofers and Step proofers, handling systems, robot water scoring and more.

[www.amfbakery.com](http://www.amfbakery.com)



## EUROGERM

Booth J19

EUROGERM is specialized in research, development, blending and marketing for the wheat-flour-bread-morning goods sector: designing and customized formulation tested in our baking center, physical-chemical evaluation, sensorial analysis, technical assistance on site.

- Flour correctors: flour quality
- Bread improvers: softness, crustiness, texture, flavor, etc.
- Technological and customizing ingredients: gluten, enzymes, sourdoughs, roasted cereals flours, wheat germs, fibers, vitamins, etc.
- Premix specialty breads/morning goods: bread with cereals, seeds, taste, color, clean label, gluten-free, organic, etc.

[www.eurogerm.com](http://www.eurogerm.com)



## FRITSCH

The expert for bakery machines  
and lines

Booth L30

In the world of bakery technology, FRITSCH has stood for excellence Made in Germany for over 90 years. With the highest quality, pioneering new developments, tailor-made solutions and the best service, FRITSCH offers everything that the bakery trade and industry need to produce first-class baked goods. The result is machines that understand the customer's craft and master what creative bakers are challenged to do on a daily basis: the efficient, careful and particularly dough-friendly production of a wide range of product variations. FRITSCH is part of MULTIVAC since 2019.

[www.fritsch-group.com](http://www.fritsch-group.com)



## MECATHERM SAS

### High flexibility for industrial bakery manufacturers

Booth J27

MECATHERM designs, produces and installs equipment (make-up lines, ovens and handling systems) and automated production lines for customers in the industrial bakery sector. MECATHERM solutions are used to manufacture all kinds of products.

More than 800 automatic lines are currently operating in 70 countries on five continents.

[www.mecatherm.com](http://www.mecatherm.com)

## Rademaker

*Specialists in food processing equipment*

## Rademaker

Booth P50

Radini is developed with a focus on the needs of the wholesale baker. While the equipment is designed for a dough capacity between 400 and 1000 kg/h, the industrial values that Rademaker is known for are the basis for the Radini concept. Due to its modular construction the various Radini components can be easily placed in different combinations to form a sheeting line, or a complete 2, or 3 section laminator. The Radini Universal Pastry line enables you to produce a wide range of viennoiserie products. Since no bakery layout is the same, Radini offers a variety of layout possibilities, all with a relatively small footprint.

Radini Characteristics:

- Equipment for mid-sized industrial bakeries
- Modular line configurations
- Smart and automatic process control
- Intuitive control interface through PC capabilities
- Based on proven Rademaker technologies

In short, Radini is the modular bakery system for bakeries that enter the industrial market.

[www.rademaker.com](http://www.rademaker.com)



## Sinmag Europe // Bakery Machines

Booth J60

Our full range of machines makes Sinmag Europe a serious partner to equip your bakery. At present, over 30,000 machines have already been installed in bakeries from Helsinki to Athens or from Porto to Odessa, to the full satisfaction of their daily users.

Our mission is to improve and develop our range of machines by listening to professionals to guarantee them tools in line with the evolution of this world of bakery crafts.

[sinmageurope.com](http://sinmageurope.com)

## VMI



Booth N68

VMI designs, manufactures and installs mixing solutions for the global bakery, pastry and snacking market. With more than 60 years of experience in kneading, VMI capitalizes on its know-how in mixing technologies and offers the most complete range of kneaders and mixers in the world. VMI equipment ensures reliability, productivity and repeatability of recipes. Historical partner of artisan bakers with reference brands such as Mahot, Rex and Phebus, VMI mixers are the most efficient in terms of kneading.

Beyond the design of the equipment, VMI accompanies agri-food industries from the research and development phase to the commissioning of tailor-made automated mixing systems.

[vmimixing.com](http://vmimixing.com)

# ISM 2022: New Impulses for the Food Industry

After four trade show days of intensive discussions and presentations of new products, when ISM 2022 came to a close it had recorded around 15,000 trade visitors from 96 countries including estimated figures for the last day of the show.

By Tudor Vintiloiu



**T**he organizers said they were delighted that the restart of the leading global trade fair for sweets and snacks was successful amid these challenging times.

“This is not least also thanks to the exhibiting companies, who took part in the 51st edition of the trade fair. Of course, we weren’t expecting a superlative trade fair or new records, but the fact that ISM 2022 took place underscores once more the fact that trade fairs with a clear business focus can be staged safely also in pandemic times and can offer their respective industries the urgently needed platform for the development and expansion of international business. The leading global trade fair for sweets and snacks is thus sending an important signal to the sweets and snacks industry, also to the entire trade fair business in terms of confidence and optimism,” explained Gerald Böse, President and Chief Executive Officer of Koelnmesse GmbH. “Precisely now, it is important to offer the industry a central business platform, which it can use to present existing and new products to a broad trade audience. The high internationality of the exhibitors and visitors shows once again how important the event is for the global sweets and snacks industry,” emphasised Dr. Uwe Lebens, Deputy Chairman of the International Sweets & Biscuits Fair Task Force (AISM).

The joy at personal encounters, engaging in an exchange face to face as well sampling a variety of sweets and snacks dominated this year’s ISM. In addition to the high quality of the visitors, the exhibiting companies praised above all the opportunity to engage in intensive discussions with partners and customers. As was already the case at the autumn events, Koelnmesse’s safety and hygiene concept prove itself and ensured the smooth running of the trade fair.

## NEW PRODUCTS AND TRENDS

Innovations and new developments not only led to satisfied buyers, but also underlined the vitality and performance capacity of the industry. This year the exhibiting companies primarily presented healthy, natural and sustainable products. Whether plant-based, with an additional health-promoting effect or energy boosting, the new products took the needs of the consumers into account across the board.

## PROSWEETS EXPANDED THE BUSINESS OPPORTUNITIES

Like usual, organized along side the ISM trade show, ProSweets Cologne completed the business landscape for visitors. For most of the exhibiting companies the participation was an important step in the direction of normality. After the break due to the pandemic, the focus lay above all on meeting up personally with the international trade audience. The high quality of the trade visitors as well as the long periods of time set aside for discussions, which can’t be replaced by digital alternatives, went down very well with the exhibitors. The overall impression comprising of the exhibits of packaging, machines and systems also met with a positive response.

All of the biggest sweets manufacturers were represented at this year’s trade fair, even if in some cases in smaller delegations due to the current Corona virus situation. Among others Mondelez, Nestlé, Ferrero, Perfetti van Melle, Haribo, Rübzahl Schokoladen GmbH, Intersnack NL, Suntjens, Henry Lambertz, Alfred Ritter as well as Mars Wrigley Confectionary visited this year’s ProSweets Cologne. The fact that ISM was held simultaneously meant that the professional dialogues held were particularly intensive and target-oriented.

## CENTRAL THEMES

Above all, the exhibiting companies concentrated on future-oriented themes. In the Ingredients section and in the new Ingredients Event Zone, natural ingredients and solutions for reformulated products still played a major role. Beyond this, flexible machines that can be adapted to changed recipes and demands as a result of their fast set-up options were also under focus. In the packaging section, the significance of individualized forms and sustainable packaging is growing. The trade visitors also showed great interest in this subject. The trend towards individualized products was also reflected in the survey “My Food - Personalized Diets” of the German Agricultural Society (DLG), which was presented at the trade fair.

The next ISM is scheduled to take place from 29.01.2023 to 01.02.2023. •

# 2022 FEATURE PLANNING

1

JANUARY/FEBRUARY

Ad closing: Jan 31/Publishing: Feb 11

**TECHNOLOGY**

Topping / Glazing, Icing Technology

**PROCESS**

Depositing / Cutting and forming

**SPECIAL FEATURE**

Energy Saving & Process Optimization

**EXPERT VIEW**

Technology for Crackers / Plant-based Formulation & Production

**FOOD SAFETY**

Monitoring & inspection

**INGREDIENTS & NUTRITION**

Plant-based bakery / Sweeteners

**PACKAGING**

Packaging of fragile goods

**MARKET TRENDS**

Biscuits and Baked Snacks

**SNACKS**

Better-for-you Baked Goods

**CRAFT BAKING**

Pastry Equipment

**TRADE SHOWS**

Foodexpo Greece, Modern Bakery Moscow, Review ISM/Prosweets

2

MARCH/APRIL

Ad closing: Mar 21/Publishing: Apr 01

**TECHNOLOGY**

Trays, Pans & Coatings / Oven Innovations

**PROCESS**

Cooling & freezing, vacuum cooling / Proofing

**SPECIAL FEATURE**

Sustainable Sourcing of Ingredients

**EXPERT VIEW**

New Oven Technologies

**FOOD SAFETY**

Hygienic Equipment Design

**INGREDIENTS & NUTRITION**

Flours / Fortifying Ingredients

**PACKAGING**

Checkweighers

**MARKET TRENDS**

Pastries in Europe

**SNACKS**

Savory Snacks

**CRAFT BAKING**

Mixers

**TRADE SHOWS**

Anuga FoodTec, Bakery China, SnackEx

3

MAY/JUNE

Ad closing: May 23/Publishing: June 06

**TECHNOLOGY**

Extrude Conveying Solutions / Proofer

**PROCESS**

Lubrication / Mixing Ingredients

**SPECIAL FEATURE**

Software support & operation

**EXPERT VIEW**

Belts and Conveyors for Production Efficiency

**FOOD SAFETY**

Traceability

**INGREDIENTS & NUTRITION**

Dough improvers / Shelf-life optimization

**PACKAGING**

IoT in Packaging Solutions

**MARKET TRENDS**

Packaged vs. Unpackaged Bread in Retail

**SNACKS**

Wafers

**CRAFT BAKING**

Artisan Bread

4

JULY/AUGUST – IBIE special supplement

Ad closing: Aug 01/Publishing: Aug 15

**TECHNOLOGY**

Turnkey Lines / Cooling & Freezing Technology

**PROCESS**

Dough dividing and forming / Inspection & monitoring

**SPECIAL FEATURE**

New Product Development

**EXPERT VIEW**

Innovation in Sustainable Materials

**FOOD SAFETY**

Contamination risks & solutions

**INGREDIENTS & NUTRITION**

Proteins & fibers / Yeast & sourdough

**PACKAGING**

Sustainable Materials

**MARKET TRENDS**

Clean Label Baked Goods

**SNACKS**

Buns & rolls

**CRAFT BAKING**

Deck and rack ovens

**TRADE SHOWS**

IBIE Baking Expo

5

SEPTEMBER/OCTOBER

Ad closing: Sept 26/Publishing: Oct 10

**TECHNOLOGY**

Kneaders & Mixers / Smart bakery systems

**PROCESS**

Frying / Enrobing

**SPECIAL FEATURE**

Flexibility in Equipment and Production

**EXPERT VIEW**

Dough Rheology & Product Development

**FOOD SAFETY**

Safety certifications & compliance

**INGREDIENTS & NUTRITION**

Flavors & Colors / Enzymes, Emulsifiers & Starches

**PACKAGING**

Bag Closing Solutions

**MARKET TRENDS**

Bakery Ingredients Market

**SNACKS**

Pastry & Croissants

**CRAFT BAKING**

Equipment Flexibility

**TRADE SHOWS**

Fi Europe & Hi Europe

6

NOVEMBER/DECEMBER

Ad closing: Nov 21/Publishing: Dec 05

**TECHNOLOGY**

Dough Dividers & Rounders / Extruders

**PROCESS**

Baking Sanitation

**SPECIAL FEATURE**

Scaling Operation

**EXPERT VIEW**

Extruded Snacks

**FOOD SAFETY**

IoT in food safety management

**INGREDIENTS & NUTRITION**

Oils & Fats / Fillings

**PACKAGING**

Robotics & Automation

**MARKET TRENDS**

Pizza & Frozen Dough

**SNACKS**

Parbaked Bread

**CRAFT BAKING**

Freezers

**TRADE SHOWS**

2023 Events Preview

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