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The CHEESE TECHNOLOGY book has been a German a long-standing, widely appreciated benchmark and is now available in English. The book comprises all fields of cheese technology in an exemplary extent and depth. Much of the latest literature has been reviewed and insights thereof integrated in this book.

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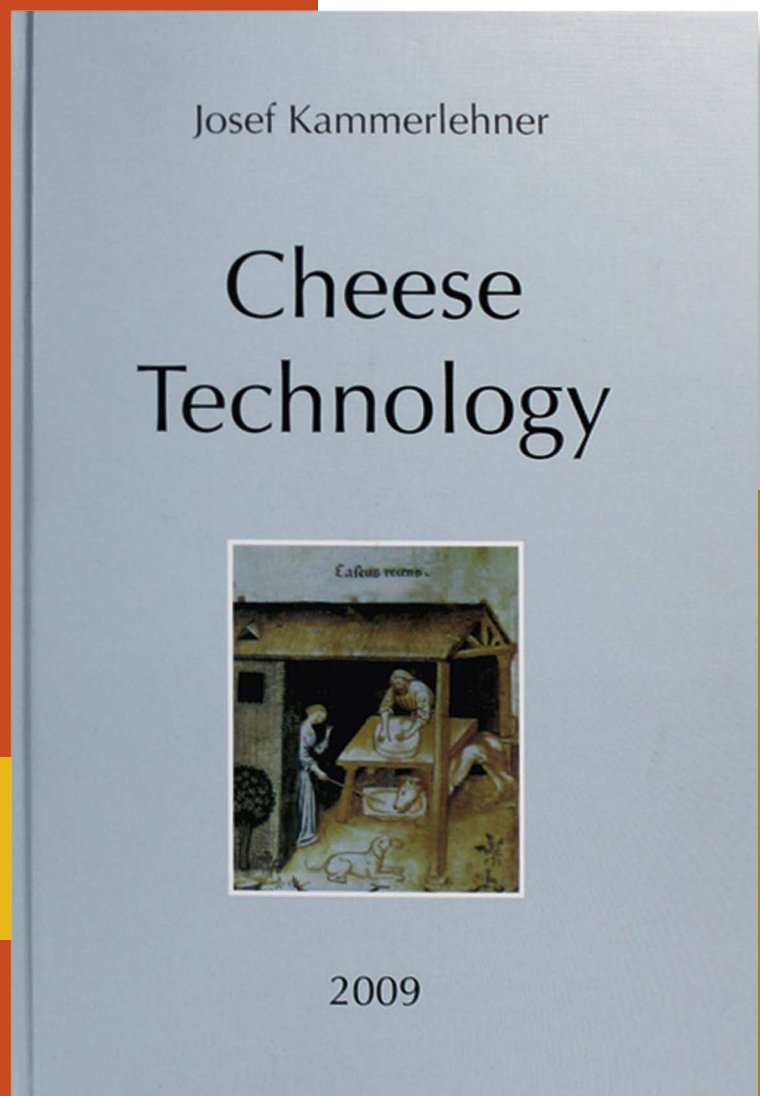
THE BOOK HAS 9 CHAPTERS:

General overview, divided into definition, processing scheme, history, significance of the various groups of cheese concerning nutrition Raw material and additives for the production for various groups of cheese Varieties of the respective groups of cheese as well as their manufacturing processes and evaluation (quality, shelf life, etc.) Packaging of the various cheese groups Influences on quality, checking and quality assurance Description of defects and notes for improving quality issues.

This book addresses above all cheese makers but also trainees as well as students, graduates of food technology and scientists. For special instructors, this book is a solid base for courses or lectures. It is an extremely valuable help as reference book for dairy specialists and the cheese industry as well as for technical advisers and suppliers. CHEESE TECHNOLOGY makes an invaluable contribution to the preservation and documentation of accumulated know-how of cheese technology across decades.

CHEESE TECHNOLOGY

by Josef Kammerlehner, 930 pages, ISBN: 978-3-00-021038-9, € 155 plus € 4,99 shipping



Dairy industry faces further challenges

EU sticks to timetable for deforestation regulation



Anja Hoffrichter
Editor IDM
International Dairy Magazine
ah@blmedien.de
international-dairy.com

Whether it's the Green Claims Directive, the EU Supply Chain Act or the EU Regulation on deforestation-free supply chains (EUDR), the flood of sustainability regulations poses massive challenges for the industry. The EUDR, which came into force on 29 June 2023, appears to be another bureaucratic monster on its way. Despite all the criticism, Brussels does not want to delay its launch. From the end of the year, producers and retailers will have to provide extensive proof that their goods originate from deforestation-free cultivation areas if they want to continue importing and selling them on the EU market. This means that companies have to deal with detailed questions.

The EU regulation on deforestation-free supply chains is actually aimed at imports. However, it could become bureaucratic for EU producers in particular. Politicians in Brussels are dictating rules to protect deforestation that have so far been impossible to fulfil, refusing to postpone them and creating some absurd questions of detail. The question is whether the Commission will quickly remove the decisive technical and administrative hurdles.

Nothing new was revealed by the Commission regarding the clarifications requested by the Member States on the 'benchmarking system', i.e. the categorisation of deforestation risk. According to this, EU states must also be classified in three categories in addition to the third countries that the regulation is actually aimed at.

For Germany and large parts of Europe, the 'deforestation problem' is already sufficiently documented and practically non-existent. This makes it all the more incomprehensible that a highly bureaucratic reporting and monitoring system has been set up, which imposes an individual registration obligation on every producer with a sprawling declaration system. This approach thwarts any political commitment to reducing bureaucracy.

Thinks
Anja Hoffrichter

3D LINE DESIGN New features

NEWS

The KHS Group is expanding its virtual 3D line design software to offer more precise planning, easier handling and a quicker result. Various new features allow customers to gain a holistic impression of their potential system as early as during the offer phase.

Possible sources of error reduced to a minimum and results reached in real time: during the course of a single meeting, users can see how their future line can be integrated into their production environment. After introducing 3D line design to the offer phase two years ago, the Dortmund systems provider has made a key expansion to the software; this KHS service now includes a new generation of mobile laser scanners and technically optimized VR goggles.

“With this, we enable beverage producers to enjoy a holistic, detailed 3D experience within a very short time indeed, thus simplifying project planning and greatly improving planning security,” says Patrick Bürger, head of Plant Design, KHS

Any type of modelled KHS line can therefore be projected onto the VR goggles very quickly (photo: Frank Reinhold)



What's known as laser scanning enables all interfering contours in the production shop to be precisely surveyed and recorded. To this end, the scanner logs all possible obstacles in minute detail.

Until very recently, KHS used stationary laser scanners in the 3D line design process that were mounted on a tripod. In order to record the space available in the entire hall, the scanners had to be moved to a different place and readjusted after each separate image had been taken. The new generation of laser scanners considerably simplifies and speeds up this process. Operation is intuitive.

Furthermore, the VR goggles themselves have also undergone significant further development. Whereas to date a relatively elaborate external tracking system with two or four calibratable support stands was used, KHS now works with tracking incorporated into the goggles.

The same applies to conversion of the data recorded by the scanner to a VR-compatible format. Any type of modelled KHS line can therefore be projected onto the VR goggles very quickly – direct integration into the scatterplot from a laser scan is now even possible.



photo: Informa Markets

NEWS

FI EUROPE INNOVATION AWARDS Four new categories

This year, The Fi Europe Innovation Awards will include four new categories: Dairy Alternative Innovation, Food Manufacturing, Pet Food Innovation, and Future Foodtech Innovation. These additions boost the awards to a total of nine categories, capturing cutting-edge trends that are shaping the future of food.

The Fi Europe Innovation Awards honour the people, teams and organisations breaking new ground and driving positive change in the F&B industry, giving them the credit they deserve for their achievements. Participants benefit not only from the international recognition and multi-channel publicity that it generates, but also from the opportunity to meet industry visionaries, obtain objective validation and expand their professional networks.

The awards are judged by a panel of esteemed industry professionals presided over by Prof. Colin Dennis, chair of the board of trustees at IFIS and the British Nutrition Foundation (BNF). They are open to companies and organisations who are exhibiting at Fi Europe 2024, with the exception of the Diversity & Inclusion Award, which is open to any organisation. Entries are now live, with a submission deadline of 6 September, after which finalists will be notified.



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When cheese matures in a bag

Customised multilayer films for precise cheese ripening

No rind formation, reduced weight loss and controlled ripening: these are the advantages of cheese ripening packaging. Whether hard cheese, semi-soft or firm semi-hard cheese – allfo's various packaging solutions allow the products to mature to the perfect cheese flavour. The packaging specialist produces customised multilayer films in the form of e.g. side-gusseted bags, loose bags and chain bags for optimised cheese ripening. Thanks to a film structure that is customised to the product, allfo achieves a precisely defined gas permeability that allows the escape of ripening gases and at the same time prevents the penetration of oxygen.

"Film ripening is the economical alternative to traditional cheese rind ripening and an important component in industrial cheese production. To ensure an optimised process, we rely on product-oriented advice and an individual film structure. This enables us to achieve an intelligent gas exchange that optimally supports the maturing of the cheese in the film," explains Johannes Bach, Sales Export Director at allfo. The special film allows ripening gases to escape, but at the same time prevents oxygen from entering.

Multiple benefits for cheese ripening

Thanks to the intelligent gas exchange, allfo's cheese ripening packaging offers multiple benefits for dairies and cheese dairies: maturing in the film makes the process easier to control and the quality of the cheese reproducible. In addition, film ripening leads to less weight loss in the cheese than is the case with the conventional method. As the cheese does not form a rind during film ripening, no salt treatment is required. "All of this significantly reduces storage and maintenance costs for dairies and cheese dairies," emphasises Bach.



The packaging solutions preserve the aroma and flavour of the cheese during the maturing process and beyond (photos: allfo)



The packaging solutions preserve the aroma and flavour of the cheese during the maturing process and beyond. They also ensure a longer shelf life for the cheese and offer optimum product protection against oxygen, moisture and microorganisms. The cheese ripening packaging, whether as a loose bag, side-gusseted bag or chain bag, scores highly in terms of puncture resistance and, when used correctly, prevents so-called air pullers. These occur when air penetrates the packaging and impairs the ripening process of the cheese, which can lead to undesirable changes in flavour and texture and even mould formation.

From the film to the bag

The basis for allfo's cheese maturing bags are customised multilayer films, which are

The basis for allfo's cheese maturing bags are customised multilayer films



manufactured on state-of-the-art extrusion lines specifically according to product and customer requirements. The packaging specialist offers its customers these PA/PE films, optionally with an EVOH barrier, on rolls. The company also processes the films into a wide range of packaging solutions: loose bags such as tubular and sealed-edge bags or side-gusseted bags can be used to pack sliced and hard cheeses as

well as cheese blocks or round loaves and adapt perfectly to the shape of the cheese to be packaged. Chain bags are the solution for the automatic packaging process.

For even more customisation, the films for cheese ripening can also be produced in different colours and individually printed with up to ten colours using flexographic printing.

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Milk & More introduces fresh milk in cartons

More choice to customers



The Pure-Pak cartons bring many sustainability benefits including a low carbon footprint plus transport efficiencies (photo: Elopak)

Milk & More is the UK's oldest and largest doorstep milk-round company, bringing fresh British milk, juice, bread, eggs, and a host of other breakfast staples and daily essentials direct to customers' homes, all via a free and convenient delivery service.

For the first time, Milk & More is adding milk cartons to its offer, providing more choice to customers when considering food packaging and its impact.

Customers can now order their Standard and Organic fresh milk, across Whole, Semi-Skimmed and Skimmed varieties in one pint and one liter Pure-Pak Classic cartons with Natural Brown Board.

Designed with the environment, food safety and convenience in mind, the Pure-Pak cartons can be fully recycled where facilities exist. The cartons also preserve light sensitive nutrients present in milk for longer than alternative packaging, keeping milk fresher from production to consumption¹.

Milk & More made the most of the design canvas of the cartons to create a collection of fun, table worthy, and interactive packs that captures its community spirit. A series of striking on pack designs feature a mix of different house fronts representing the diversity of British households, consumer tastes and lifestyles that make up Milk & More customers.

Each of the 12 milk varieties is presented as a different façade of a home. Every pack has a unique front door, and the range features an array of window types, balconies, plants, flora and trees, cats, dogs and wildlife plus the odd post box and noticeboard.

By linking through an on-pack QR code Milk & More customers are led to behind the scenes videos of life on the milkround, plus competitions and offers.

Low carbon emissions

The Pure-Pak cartons bring many sustainability benefits including a low carbon footprint plus transport efficiencies. Cartons are made with fibers sourced from well managed and certified forests. Based on bio based materials, the tethered cap remains attached to the carton throughout its use. The entire package is fully based on renewable and recyclable materials, helping to secure resources for generations to come.

Milk & More's commitment

The decision to add cartons to the range represents Milk & More's desire to present customers with a wider range of options to reduce their household's impact. Milk & More will continue to deliver pints of fresh milk in refillable glass bottles to doorsteps across Britain, by one of the largest electric delivery fleets in the UK.

Fully recyclable

The Pure-Pak carton contains fibers of very high quality that can be recycled up to seven times. After collection and sorting, the cartons go to dedicated paper recycling mills. There, a simple process of water and agitation separate the paper fiber from the carton lining. The resulting recycled materials are used to make new products, such as cores and tubes.

Depending on the location and local authority, cartons can either be recycled through household kerbside collection or at recycling points via bring banks which can be located in local recycling hubs or supermarket car parks.

1 source Campden BRI/Elopak study

CP Kelco announces intent to combine with Tate & Lyle

NEWS

CP Kelco, a leading global producer of nature-based ingredient solutions, announced its intent to combine its business with London-headquartered global food and beverage solutions business Tate & Lyle through the sale of CP Kelco by J.M. Huber Corporation (Huber). The proposed combination will create a leading and differentiated global speciality food and beverage solutions business.

Huber and Tate & Lyle have entered into an agreement by which Huber will continue to stay invested in CP Kelco through a shareholding of about 16% in the combined Tate & Lyle and CP Kelco holding company Tate & Lyle PLC, following completion of the transaction. In addition, Huber will hold two seats on its Board of Directors. The transaction is expected to close later this year after approval by Tate & Lyle's shareholders and customary regulatory clearances and closing conditions are met.

Combining CP Kelco's nature-based, specialty ingredient solutions for stabilization and texture with Tate & Lyle's sweetening, mouthfeel and fortification platforms will enhance both companies' capabilities across multiple product categories and unlock new growth opportunities. Further, CP Kelco's expertise and offerings in consumer care and industrial applications will provide the combined entity with the potential to grow in additional, attractive end-markets.

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Compact, flexible, powerful

Emmi invests in a state-of-the-art packing and palletising solution



Author:

Johannes Gstettner, Vice President Sales & Marketing, EOL Packaging Experts,
Diego Julián Fernández, Regional Sales Director, A+F Automation + Fördertechnik

Raclette does, of course, have a definite peak season. But there is also a stable demand beyond the cold time of the year. So stable, in fact, that the Swiss Emmi Group invested in a state-of-the-art raclette cheese slicing plant last year. Key components are a combi-packer for wrap-around cases and plastic crates and a multifunctional robot palletiser.

Emmi is Switzerland's largest milk processor with a strong international presence, well ahead of its competitors. In 2023 the Emmi Group generated sales of CHF 4.232 billion, slightly higher by 0.3 percent than in the previous record year of 2022. Organic growth amounted to 3.5%. Strategically important markets such as the USA, Brazil and Chile as well as Switzerland have been particularly successful.

Also very popular for cheese burgers

In this connection, a significant role is played by the cheese segment, including the famous raclette cheese. But isn't raclette synonymous with cold, snow and Christmas? Not at all, explains Martin Küttel, the responsible value stream manager

at Emmi: "Demand is, of course, about three times higher in the cold months. But there is also a stable demand for raclette during other times of the year. The cheese is very popular in cheese burgers, for instance." Emmi therefore decided to discontinue two existing raclette slicing lines and build a completely new line at the Emmen site. With clearly defined investment goals. "First of all, we wanted a significantly higher output. Our second objective was to implement automation. Previously, this was only the case with carton packaging. We processed the returnable packs, typical for Switzerland, manually, this also being the case for the entire palletizing process," Küttel explains.

Wrap-around as an attractive alternative

There were three decisive reasons in favour of the solution implemented in 2023, Küttel points out: "What we actually wanted was a two-part carton again. But then we had the option of the wrap-around, which saves us money." The second main reason, according to Küttel, was that Emmi can now process both the carton as well as the reusable pack on just one machine.

"All other suppliers would have required two machines for this, which in turn would have taken up more space, among other things." And thirdly: „Our current palletiser performs all the tasks with just one single gripper head. Other suppliers would have needed twice as many," Küttel adds.

New design made up of proven modules

The order was for a ModuLine case packer for thermoforming trays in wrap-around cases and two returnable plastic packs. This packer is a new design based on existing and proven machine modules – it is currently a unique model. The order also included a robot palletiser and depalletiser for returnable packs, wrap-around cases as well as layer pads, the necessary conveyors for returnable packs, wrap-arounds and pallets as well as a turntable stretch wrapper and a pallet labeller. The entire project was completed on a turnkey basis.

The pack and palletising unit was approved in December 2023. It has been performing well since then in everyday use for the following processes: The aligned thermoforming trays are taken from the



customer's conveyor in one lane with the short side leading and the decor on top, and are then conveyed into a cavity where they are stacked. Six cavities are attached by means of quick-release fasteners to a cell chain arranged in a square with two pulls. Once the cavities have been filled, they are cycled to the 2-axis portal where they are then lifted. The 2-axis portal lifts the stack using a gripper and, depending on the programme selection, places the stack in the tray that has been pre-folded from the flat blank, or in one of the two returnable packs. It is important in this process that the length and width packing parameters do not change.

Grammage defines the height of the packaging

The packaging height, on the other hand, is variable depending on the desired grammage. Küttel explains: "The tray as packaging type is a very volatile market. New grammage was already requested during the course of the project." This entailed



A: The case packer inserts the thermoformed trays into wrap-around cartons (left) and two returnable plastic containers (right)

B: The wrap-around solution replaces a two-part carton

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substantial programming work in order to ensure the required flexibility for the packer. With success: “We can now make the necessary adjustments here on the machine”, Küttel adds.

The trays are then glued around the product using hot melt and then discharged to the side. The filled returnable packs are also conveyed to the palletising area via conveyors. Maximum energy efficiency was ensured in all areas by a closed loop servo drive system in the axis arrangement, for example, or by lowering the temperature of the gluing unit when not in use.

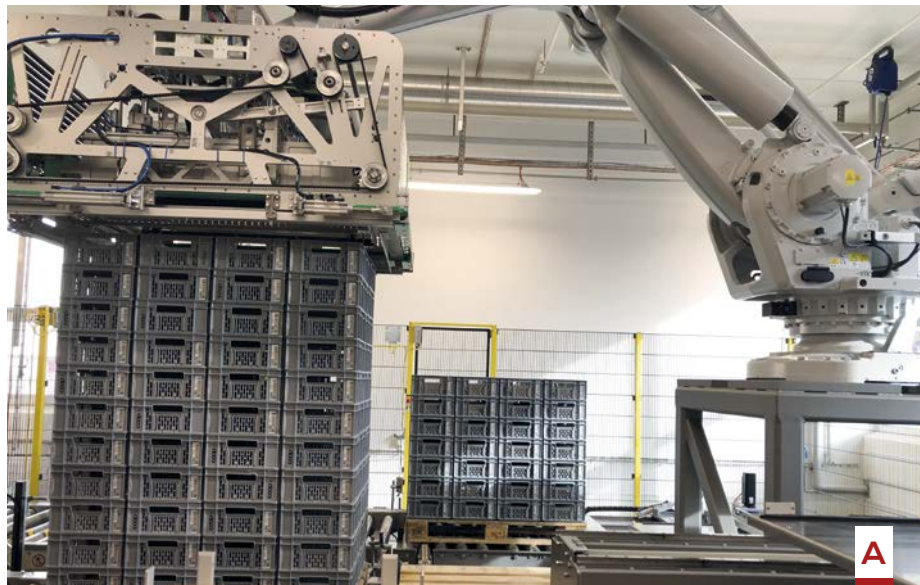
Accomplished with a single palletising head

In the robot palletising cell, both the empty returnable packs are depalletised from the carrier pallets and fed to the packer and also the full returnable packs and wrap-around cases coming from the packer are palletised and the layer pads inserted. This is all accomplished with a single palletising head. “We have three different types of secondary packaging, two different pallet types as well as a layer pad for the cases. And with a limited amount of space. The robot saves space and, with its multifunctional gripper head, it is much more flexible than other palletising cells”, Küttel explains.

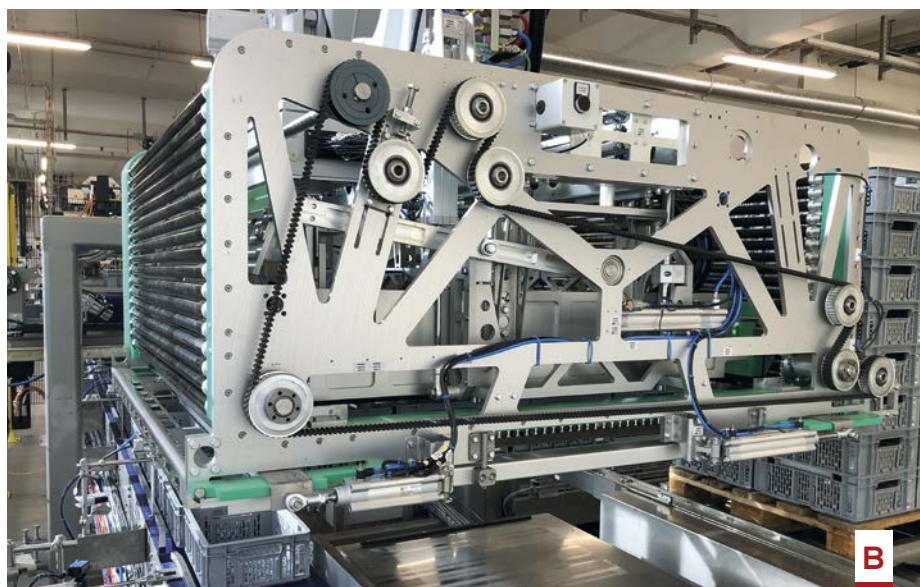
The palletising cell was integrated in the overlying ERP system. This sends the required data for the respective palletising order to the robot, which automatically adjusts to it. The palletising is thus controlled by the ERP system. The same applies to the application of the required pallet label. Manual acquisition of data at the palletiser is not required. Another software tool is the Condition Monitoring. This programme creates statistics, documents any system errors and allows a system analysis via the internet.

“We are now really well positioned”

“We remain calm and relaxed as we look ahead to the next peak season. We are really well positioned with our new raclette line”, Küttel sums up. An important tool



A



B

A: The robot palletiser also feeds the returnable packs to the packer

B: All palletising and depalletising tasks, including the application of intermediate layers, are performed

in this successful project handling was the construction site management system LOP 4.0. LOP 4.0 is a cloud-based system to which all parties involved in the project have access. This digital platform maps the project status with the highest possible transparency during the construction site phase, from the delivery right up to commissioning. LOP 4.0 is furthermore an open communication and documentation platform. Each project partner can, for example, upload photos or videos, propose next steps for discussion or prioritise individual

items. This makes sure that the presentation of the status of all project modules is always up-to-date and clearly understandable. Any interactions with the next steps can thus be seen immediately. This reduces conflict and coordination losses and leads to a high level of planning ability – and customer satisfaction. And as they say: only a satisfied customer is going to place the next order. This was obviously the case for Emmi – the order for another packer and case erector has already been placed with the EOL Group.

When art meets science

Using the latest technology for more sustainable and efficient cheesemaking



Author: Gert van den Hoven, Cheese Expert, dsm-firmenich

Technological innovation has always been central to cheesemaking from the advent of pasteurization through to modern-day DNA sequencing. And as economic and environmental pressures push cheesemakers to increase yield and quality while limiting costs, scientific advancement could again hold the answer to ensuring cheese remains accessible to consumers and profitable for manufacturers. However, this next wave of scientific advancement will not be limited to a single process or ingredient but will focus on the holistic cheese production process.

Read on as we explore how new technologies support centuries-old expertise through sophisticated devices and software combined with cutting-edge cultures and coagulants to boost throughput, increase efficiencies and deliver deliciously modern cheeses.

All in one: Delvo Process Scan

The multifaceted nature of cheesemaking means that no one piece of equipment

can be viewed in isolation. Changes made to early production stages like milk treatment or starter culture and coagulant introduction have a cascade effect, with material implications for processes and the final product. The rise of software-enabled equipment around the turn of the millennium was a major step forward as it allowed process parameters to be quickly updated during production, but even more so because it afforded cheesemakers an end-to-end view of their operations and the potential to make strategic improvements¹. A quarter of a century later, a new wave of 'smart' technology is once again taking cheesemaking efficiency up a notch.

Harnessing milk data obtained via Polymerase Chain Reaction (PCR) and High-Performance Liquid Chromatography (HPLC) techniques; process-optimizing scans can create a comprehensive digital blueprint of a cheese production line. From here, technicians are ideally placed to analyze current operations and make targeted adjustments without the usual trial and

error. The digital model accurately predicts the outcome of each change, meaning the entire process-optimization exercise can be perfected and agreed upon well before any potentially risky adjustments are made to real-world equipment and while simultaneously taking the whole production line into consideration.

An example of the benefits offered by process-monitoring technology can be found in dsm-firmenich's laser coagulation evaluation system, DelvoGel, as it is part of the DelvoProcess Scan approach. Using state-of-the-art equipment and diffusing wave spectroscopy (DWS) technology and laser speckle contrast imaging (LSCI), this portable tool is applied directly into the cheese vat, where it can detect the smallest shift in the milk condition during the coagulation phase. It is therefore able to measure and define the optimal curd firmness at the cutting point, allowing cheesemakers to make data driven decisions that reduce variation and raw material wastage for higher yields of higher quality cheese.

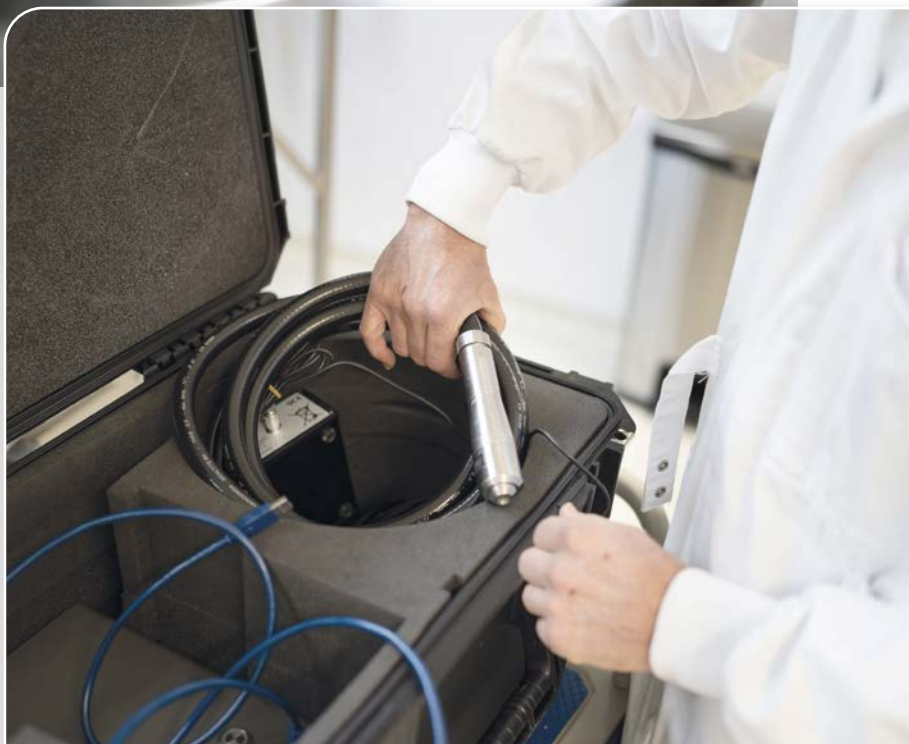


photos: dsm-firmenich

The plot thickens: Evaluating advanced coagulants

In cheesemaking, 'cutting-edge technology' can equally refer to high-performance enzymes as intelligent algorithms. Coagulants play a pivotal role in forming the distinct textures and flavors that identify specific cheese varieties. Traditional ingredients like animal rennet² represented the industry standard for decades³, but more recently specially selected enzymes have emerged to give cheesemakers further opportunities for optimization.

When it comes to forming the perfect texture, proteolytic activity (the conversion of proteins into smaller peptides by enzymes⁴) and homogenous moisture



distribution are the key factors impacted by coagulants. Incorporating a solution with a low proteolytic activity produces a firm, sliceable cheese with improved texture and moisture distribution, ideal for continental varieties like Gouda or Manchego.

With recent steps forward in precision fermentation technology, cheesemakers can now take advantage of chymosin ingredients which offer unprecedented levels of specificity and control to create the perfect textural profile. Maxiren XDS, a

fermentation-produced chymosin (FPC) coagulant from dsm-firmenich, offers a good example here. Delivering the highest yield in its category, alongside superior whey quality and slicing performance, this solution has been proven to boost moisture content by up to 1.5 % to produce better quality cheese with the right variety-specific characteristics batch-after-batch.

Specialized adjunct cultures and flavor solutions

There are many factors that can influence cheese flavor development, but king of the hill when it comes to crafting a specific

taste profile are adjunct cultures. Building on the acidification process begun by starter cultures, subsequently adjunct cultures can be added. These specialized cultures are added directly to the cheese vat where they get to work creating characteristic flavors like Gouda's signature nuttiness, or cheddar's mature and tangy palate. Used alone or in a rainbow of different combinations, adjuncts can unlock all new product concepts or optimize base recipes, intensifying particular flavor attributes to fit shifting consumer preferences.

Though they are a widely used staple now, cheesemakers only began to seriously

experiment with adjunct cultures in the 1980s, with collective selection and categorization not arriving until the late 1990s⁵. Since then, however, food science has accelerated to the point where today producers can select specialized adjunct cultures not just down to the level of specific varieties, but the individual flavor notes they want their cheese to deliver. dsm-firmenich's Flavor Wheel range of adjunct cultures, for instance, runs the gamut from the more expected; buttery, smoky and savory; to the truly unique; farmhouse, floral and grassy; to give cheesemakers complete freedom to experiment and put a fresh spin on a favorite variety.

- 1 M.E. Johnson, J.A. Lucey, Major Technological Advances and Trends in Cheese, *Journal of Dairy Science*, Volume 89, Issue 4, 2006, Pages 1174-1178, ISSN 0022-0302, [https://doi.org/10.3168/jds.S0022-0302\(06\)72186-5](https://doi.org/10.3168/jds.S0022-0302(06)72186-5). (<https://www.sciencedirect.com/science/article/pii/S0022030206721865>)
- 2 A set of proteolytic enzymes derived from calf-stomachs, mainly containing chymosin.
- 3 Science Direct, Chymosin- An overview, <https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/chymosin>
- 4 Britannica, The Editors of Encyclopaedia. "Proteolytic enzyme". *Encyclopedia Britannica*, 14 Dec. 2023, <https://www.britannica.com/science/proteolytic-enzyme>.
- 5 M. El Soda, S. A. Madkor, and P. S. Tong, Adjunct Cultures: Recent Developments and Potential Significance to the Cheese Industry, *Journal of Dairy Science* Vol. 83, No. 4, 2000, [https://www.journalofdairyscience.org/article/S0022-0302\(00\)74920-4/pdf](https://www.journalofdairyscience.org/article/S0022-0302(00)74920-4/pdf)

PURE VEGAN

Comprital expands its range of vegan bases

Comprital, a pioneer in the ice cream and pastry ingredients market, has introduced, among its 2024 product novelties, Pure Vegan, a line which includes three vegan bases, all clean label and naturally lactose-free.

The line, developed from natural ingredients such as cane sugar and fibers including chicory, citrus, and bamboo, as well as being free from artificial flavors, was created by Comprital's Research & Development team starting from a fundamental premise: both vegan consumers and those with lactose intolerance should not have to compromise on taste. For this reason, the line comprises three technically different bases to ensure an authentic experience that is equitable to traditional ice cream.

Specifically, Pure Vegan includes: "Pure Vegan P.Z.", a vegan base designed to be flavored with only sugar pastes; "Pure Vegan P.G.", designed to

be flavored with only fat pastes and "Pure Vegan Chocolate" with high percentages of chocolate powder and low-fat cocoa powder.



The Pure Vegan line is developed from natural ingredients (photo: Comprital)

NEWS

How ingredient-conscious consumers are redefining dairy clean label standards?



Author: Nandini Roy Choudhury, Client Partner for Food & Beverages at Future Market Insights

In recent years, the dairy industry has experienced a subtle shift driven by an ascending number of consumers who are becoming more ingredient-conscious. These consumers demand more transparency and cleaner labels on the products they tend to purchase which influence the way dairy products are formulated, marketed, and consumed.

Such kind of transformation is reshaping industry norms, propelling innovation, and setting new standards for what consumers expect from dairy brands. Thus the article delves into how these ingredient-conscious consumers are reshaping the dairy industry's clean label and transparency norms.

The rise of the ingredient-conscious consumer

The term ‘ingredient-conscious consumer’ refers to individuals who are majorly interested in the components that make up their food. Consumers scrutinize labels, research ingredients, and prefer products with fewer, more natural, and recognizable ingredients.

Their major concerns often revolve around health, environmental sustainability, and ethical considerations, augmenting them to make informed choices about the products they consume. Several factors contribute to the rise of the consumer segment. Health and wellness trends have significantly influenced dietary habits, and more people are becoming aware of the impact of food on their overall health.

The rise of food-related documentaries, social media influencers, and the rise in access to information has empowered consumers to demand better transparency from food manufacturers. Growing concerns about environmental sustainability and animal welfare have led to heightened scrutiny of agricultural practices and food production methods.

Clean label movement in the dairy industry

The clean label movement, which advocates for simple, natural, and minimally processed ingredients, has majorly gained significant traction in the dairy industry.

This movement hence aligns perfectly with the demands of ingredient-conscious consumers who seek products that are free from artificial additives, preservatives, and other synthetic ingredients. Dairy companies are restoring by reformulating their products to meet these expectations.

One notable example is the shift towards using natural sweeteners and flavorings instead of artificial ones. For example, many yogurt brands have evolved from using high fructose corn syrup and artificial flavors to natural sweeteners like honey and fruit purees. Additionally, the usage of artificial colors has been largely replaced by natural alternatives derived from fruits, vegetables, and spices.

The clean label trend also extends to dairy packaging. Consumers are looking for clear, honest labeling that provides comprehensive information about the product’s ingredients and sourcing.

The trend includes details about the type of milk used (e.g., organic, grass-fed), the presence of any additives, and the methods of production. Dairy brands that embrace this transparency not only build trust with their customers but also differentiate among themselves in a competitive market.

Transparency and traceability

Transparency goes beyond clean labels; it envelopes the entire supply chain, from farm to table. Ingredient-conscious consumers are

interested in knowing where their food comes from, how it was produced, and under what conditions. The demand for transparency has led to the adoption of traceability practices within the dairy industry.

Technological advancements, like blockchain and QR codes, are being utilized to provide consumers with detailed information about the origin and journey of their dairy products.

For example, scanning a QR code on a milk carton, helps the consumers to access data about the farm where the milk was produced, the cows’ diet, and the processing methods involved in it. The level of transparency helps to build consumer trust and allows dairy companies to showcase their commitment to quality and ethical practices.

It is also said that transparency is closely linked to sustainability. Ingredient-conscious consumers often prefer products that are produced sustainably, with minimal environmental impact.

Dairy companies are widely highlighting their sustainable practices, like reducing greenhouse gas emissions, implementing water conservation measures, and ensuring the humane treatment of animals. By doing so, they not only meet consumer expectations but also contribute to the broader goal of environmental stewardship.

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The role of certifications and standards

Certifications and standards play an important role in the clean label and transparency movement. Ingredient-conscious consumers often look for third-party certifications that help validate the claims that were made by dairy brands.

Certifications such as USDA Organic, Non-GMO Project Verified, and Fair Trade are commonly sought after by consumers who prioritize health, sustainability, and ethical considerations.

Organic certification, for example, assures consumers that dairy products are produced without synthetic pesticides, fertilizers, or genetically modified organisms (GMOs). Similarly, the Non-GMO Project Verified label indicates that the product has been tested and confirmed to be free from GMOs.

Fair Trade certification, on the other hand, demonstrates that the farmers and workers involved in the production process are paid fair wages and work in safe conditions. The certifications provide a level of assurance to ingredient-conscious consumers, helping them make informed purchasing decisions. Dairy companies that invest in obtaining and maintaining these certifications demonstrate their commitment to transparency and align themselves with the values of their target audience.

Innovations driven by ingredient-conscious consumers

The demand for cleaner labels and greater transparency has stimulated innovation within the dairy industry. Companies are investing in research and development to create products that meet the evolving preferences of ingredient-conscious consumers.

One area of innovation is the development of alternative dairy products. Plant-based alternatives to traditional dairy products have gained popularity among consumers who are looking for options that align with their dietary preferences and ethical values.

Brands are also creating plant-based milk, cheese, yogurt, and ice cream using ingredients like almonds, oats, cashews, and soy. Such kinds of products often come with clean labels and transparency about their ingredient sources and production methods. In addition to plant-based alternatives, dairy companies are exploring new processing techniques that minimize the need for additives and preservatives.

High-pressure processing (HPP), for example, is a method that is used at high pressure to kill harmful bacteria and extend shelf life without the use of chemical preservatives. This technology allows dairy products to retain their nutritional value and natural flavor while meeting consumer demands for cleaner labels.

Moreover, dairy companies are leveraging biotechnology to improve the nutritional profile of their products. For instance,

some companies are using fermentation technology to produce dairy proteins without the need for cows. This innovative approach not only addresses concerns about animal welfare and environmental impact but also allows for greater control over the ingredients used in the final product.

Fonterra announces executive team changes

PEOPLE

Fonterra Co-operative Group Ltd has announced the internal appointment of two new management team members to help lead the Co-op's step-change in strategic direction and announced an executive team member moving into a new role.



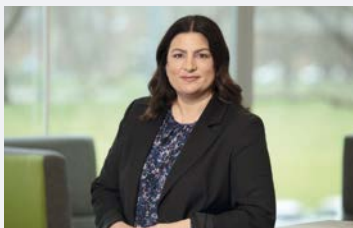
Richard Allen, Fonterra's President Atlantic, has been appointed to the role of President Global Markets Ingredients.



René Dedoncker, Fonterra's Managing Director Oceania, has been appointed to the role of Managing Director Global Markets Consumer and Foodservice.

CEO Miles Hurrell says both Richard and René are experienced leaders who know the Co-op well and their appointments to the Fonterra Management Team demonstrates the depth of capability within Fonterra.

The appointments will be effective from 1 August 2024 and will replace Global Markets CEO Judith Swales.



Fonterra has also announced that **Emma Parsons**, Managing Director Strategy & Optimisation, has been appointed to the role of CEO for Kotahi Logistics LP, a

joint venture between Fonterra and Silver Fern Farms. Emma will start with Kotahi on 1 October 2024.

Challenges and opportunities

While the shift towards clean labels and transparency presents numerous opportunities for the dairy industry, it also comes with challenges. Reformulating products to meet clean label standards can be complex and costly. Finding natural alternatives to synthetic ingredients that deliver the same taste, texture, and shelf life act as a significant challenge for product developers.

However, the benefits of embracing clean labels and transparency outweigh these challenges. Dairy companies that successfully navigate this shift can gain a competitive edge by attracting and retaining ingredient-conscious consumers. Building trust through transparent practices fosters brand loyalty and can lead to increased market share. Moreover, companies that prioritize sustainability and ethical practices contribute to a positive brand image and align themselves with the values of a growing segment of conscious consumers.

The clean label and transparency movement also opens up opportunities for collaboration and partnerships. Dairy companies can work with suppliers, farmers, and other stakeholders to improve the traceability and sustainability of their supply chains.

Collaborating with technology providers can help implement innovative solutions for tracking and sharing product information with consumers. Additionally, engaging with certification bodies and industry organizations can provide valuable guidance and support in meeting clean label and transparency standards.

The future of dairy- embracing consumer-driven change

The influence of ingredient-conscious consumers on the dairy industry is undeniable, and the impact is likely to continue growing. As more consumers prioritize health, sustainability, and transparency in their purchasing decisions, dairy companies must adapt to meet these evolving expectations.

The future of the dairy industry lies in its ability to embrace consumer-driven change. This subsequently means continuous innovation, to develop products with clean labels, investing in transparent supply chains, and prioritizing sustainability and ethical practices.

By doing so, dairy companies thus build stronger connections with their customers, foster trust, and contribute to a more sustainable and responsible food system.

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Milk Fractionation

How the latest membrane technology can benefit dairy processors from start to finish



Author: Pranav Shah,
SPX FLOW Global Market Director – Dairy & Plant-based



The dairy industry has evolved rapidly since the turn of the 21st century. As the dairy production and processing landscape has boomed in scale and complexity, efficiency without sacrificing quality has become paramount for industry leaders. Demand for nutritionally dense products and more sustainable dairy practices has grown, and the need for green initiatives continues to expand.

Milk fractionation to produce separated milk components or powders is an emerging innovation in dairy processing technology. It not only increases the nutritional value of milk ingredients but also creates a more functional and sustainable process overall. Compared to traditional whey processing, milk fractionation recovers and reuses all components.

Using advanced microfiltration, ultrafiltration and nanofiltration technologies, milk fractionation precisely separates milk into its native components — like casein, whey proteins, lactose and permeate — based on membrane cut-offs and pore sizes. There is also the option to fractionate more targeted proteins, like lactoferrin, immunoglobulins, alpha-lactalbumin and more. These components are used to make infant formula, dietary supplements, cheeses and yogurts, as well as specialized protein-fortified and lactose-free dairy products.

By utilizing this extracting process, dairy operators can unlock a better, more efficient process that yields more diverse end products and makes significant strides toward sustainability.

The sustainable benefits of milk fractionation

The fractionation process precisely separates permeate containing lactose or proteins based on membrane pore sizes, from 0.0001 to 1.4 microns, allowing for exceptionally granular and exact results. The result benefits both the producer and consumer, continuing the evolution of the dairy industry as a whole.

The process creates a wet concentrate that can be used within the same factory, known as insourcing, as opposed to buying the milk powder dry elsewhere. Through targeted extraction, there is little to no waste byproduct, and dairy processors get the most value out of their yield overall.

Additionally, by using ingredients through insourcing and advanced fractionation technology, operators can reduce the carbon footprint associated with transportation and external processing. Production can also be optimized to fit their specific needs and schedule, saving time and money.

Quality and diverse products by using the right equipment

Along with a more sustainable process and reaping greater nutritional benefits, the versatility of milk fractionation can also enable producers to use milk elements for greater economic return.



By insourcing the milk ingredients through fractionation, processors can reduce recipe costs between 15 to 30 percent. Additionally, it provides more control over the quality of the ingredients themselves. Processors can oversee quality standards and product formulation from start to finish.

However, choosing the right equipment from a supplier with the knowledge and experience to support its customers in their specialized realms is essential. High-quality equipment manufacturers can also service a complete system for its full lifecycle, including membrane technology, evaporators, UHT, spray and fluid bed dryers, mixers, valves and pumps.

For example, SPX FLOW has been in the membrane filtration field for five decades and continues to innovate and offer its customers the latest cutting-edge technology. Whether reducing cost, boosting quality or sustainability, when companies use the right tools, they can often achieve their goals quicker and easier than ever before.

Staying on the cutting edge

Equipment providers developing an array of sustainable technologies are a dairy producer's greatest ally when considering product innovation, efficiency and fulfilling sustainable production goals. Whether developing a new system or improving setups in existing installations, a company like SPX FLOW, with extensive experience paired with a drive for innovation, can provide both knowledge and support to help dairy processors stay one step ahead.

Milk fractionation plays an integral role in the membrane filtration process while creating sustainable outcomes — giving faster time-to-value than other methods. By selecting equipment partners and new technology that have sustainable goals at the forefront of manufacturing standards, companies can achieve the most out of their processing systems and unlock new opportunities for a more sustainable future.

Nestlé's new fat reduction method is just one of many existing, science-based solutions developed by the company's R&D experts (photo: Nestlé)



NEWS

NESTLÉ

Method to reduce fat in dairy ingredients

Nestlé R&D teams have now found a way to reduce the fat present in milk powder by up to 60%, without compromising on quality, taste and creamy texture. Key to this innovation is the controlled aggregation of milk proteins, where the size and texture of milk fat is mimicked by protein. This fat reduction leads to lower calorie levels compared to full-fat milk.

"Leveraging our expertise in nutrition science and product development, we have successfully introduced this proprietary technology in Ninho Adulto in Brazil and reduced the level of milk fat in the product significantly. Our new milk brings creaminess and mouthfeel and is preferred by consumers," explains Isabelle Bureau-Franz, Nestlé's Head of R&D for the Nutrition Business.

Nestlé's new fat reduction method is just one of many existing, science-based solutions developed by the company's R&D experts. These include an enzymatic process to reduce intrinsic sugars in key ingredients, as well as a proprietary micro-aeration technology that increases the creaminess of chocolate while also meeting consumer taste preferences.

First basic laboratory course



From 15 to 19 April 2024, a pioneering step was taken in the further training of employees from dairy and food industry laboratories. The first basic laboratory course, organised by the German Dairy Academy (DMA), offered participants a comprehensive introduction to laboratory practice specialised for the dairy industry. The event was held in the state-of-the-art laboratories of the Teaching and Research Centre for Dairy Science (LVZM) in Bad Malente.

Based on the experience gained with the basic dairy technology course, which has been in existence for over 15 years, the basic laboratory course combined theoretical principles with practical exercises.

It was designed for professionals in dairy laboratories with or without a specific dairy background. Basic laboratory skills were assumed.

The aim was to expand the knowledge of experienced employees and to give career changers effective access to laboratory practice. Even though device-based analysis is now standard in food and dairy laboratories, where little training and background knowledge is required, it is important for a quality lab to refer back to traditional and reference methods to ensure the significance and accuracy of their results. Background knowledge of the product as well as the functionality of the determined parameters is necessary to enable profound clearance decisions in the routine of a dairy laboratory.

The focus was on practical implementation of both routine and reference methods, mainly according to VDLUFA (handbook of agricultural testing and research methodology). The main structure of this course was executed by Meike von Bergen, head of LVZM teaching and research centre for dairy science, and Dr. Janina Helle and Mary Moraw, both teachers at LVZM. During three practical



In preparation for the determination of fat content according to Gerber, the participants had to put on safety goggles and acid-proof aprons

Dr. Janina Helle explains the detection of enterobacteria in drinking milk (photos: Meike von Bergen)

The course was complemented and enriched by lectures on topics important to the staff in dairy laboratories.

Contamination risks of milk and dairy products were discussed by Dr. Burkhard Schütze of LADR laboratory. Dr. Angela Kohl (MIV Berlin) talked about the importance of milk ingredients for the production of dairy products. Dr. Vivian Adamski and Lars Martens-Pieper, both teachers at the dairy school, explained efficient laboratory data collection, operational quality assurance and management as part of laboratory routine. These lectures were extended by Tim Hansen's talk on lab data information systems. Benjamin Schade spoke on analysing technology and device based analysis. An extensive introduction on bacterial load, hygiene status and on cultures, their activity, infections and phages was provided by Jan Aschemann from Novonosis.

In another, again more practical session the participants were able to gain insights into the world of sensory testing of dairy products.

The number of participants was limited to 14 in order to ensure optimal learning success and a safe working environment.

After the five day course the participants were enthusiastic and returned to their laboratories with new knowledge and applied skills. The organising DMA considers this a successful launch of the basic laboratory technology course and is sure to meet the increasing demand on specialized training in the dairy industry.

sessions each in the microbiology and the chemistry laboratory the participants carried out the analyses and examinations themselves.

After a preliminary lecture on health and safety in the lab, in the chemical laboratory the determination of fat content and dry matter, acidity and pH-value of several dairy products were conducted. The participants were able to familiarise themselves with the common examination methods and learn about their advantages and disadvantages, especially in relation to device-based analysis.

Hygiene tests, determination of the total bacterial count, detection of coliform germs, as well as Gram staining and microscopic mould determinations were part of the microbiology module.

In addition, a visit to the Max Rubner Institute (MRI) in Kiel provided interesting insights into analytics.

Precise foreign object detection

Improving product safety and quality



Author: Dr. Carsten Cruse, CEO CLK

In the modern food industry, high-quality standards and product safety are of paramount importance. Simultaneously, the production output in the food industry is increasing, and manual visual inspections for foreign objects by employees are reaching their limits due to high production rates. Particularly, plastic parts, which may originate from packaging residues, are difficult or impossible to detect. If these objects enter the products, there is a risk of not only increased workload due to batch traceability but also health hazards for consumers and damage to the company's reputation.

An innovative approach to ensuring quality standards and product safety is the integration of advanced inspection systems based on image processing and artificial intelligence (AI). One such example is the MultiCheck system. Developed by CLK GmbH, based in Altenberge, the MultiCheck facilitates the detection of foreign objects to enhance product safety and quality. The CLK system is designed for use in multihead weighers and detects plastic foreign objects, making it an ideal complement to metal detectors and X-ray inspection systems.

Foreign object detection

Foreign object detection with the MultiCheck occurs immediately before packaging. This minimizes the likelihood of further contamination, as the product is sealed immediately after foreign object inspection and exiting the multihead weigher. The system features an imaging unit with up to six 2D color cameras and a 70Hz LED

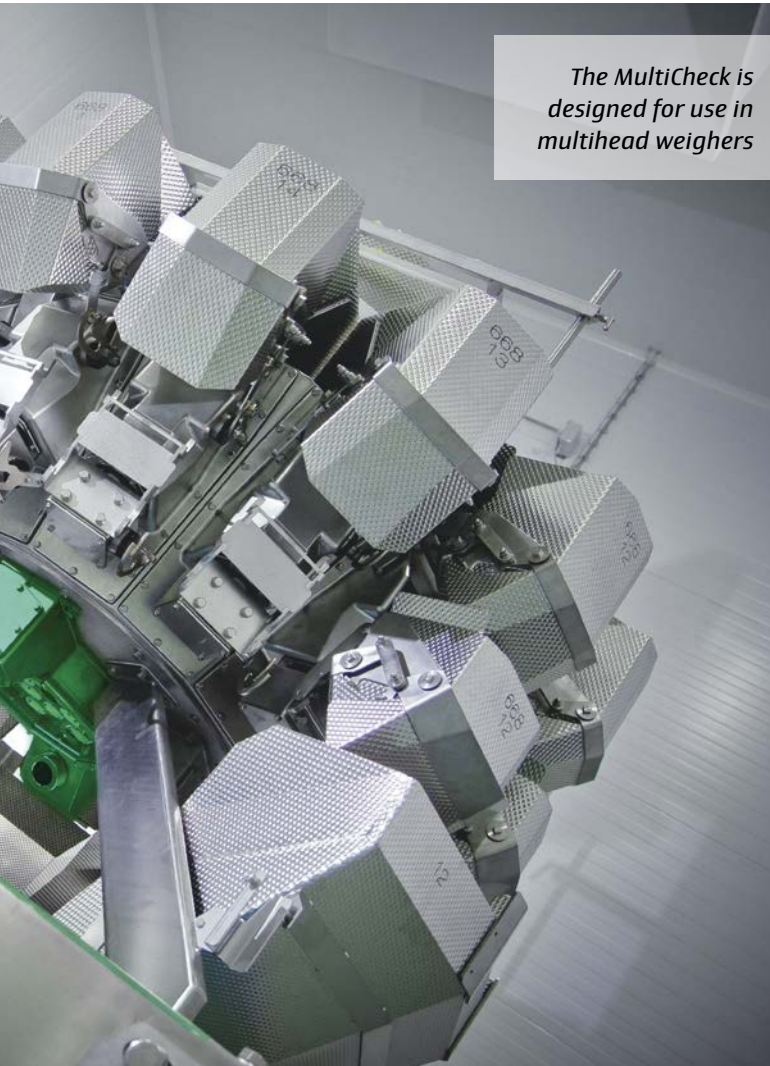


Recording a foreign body in grated cheese (photos: CLK)



flash unit, all protected by a stainless steel housing. The system employs a 360° camera arrangement, enabling accurate inspection of products and detection of foreign objects in various positions. With its compact design, the MultiCheck can be integrated into new systems or retrofitted into existing multihead weighers.

The technology uses algorithms tuned to specific colors, enabling the detection of foreign objects with a visible size of 1 mm x 1 mm that contrast with the product and background. The inspection programs can be individually configured via the user interface: the acceptance range for the width, height, and area of foreign objects, as well as the system's sensitivity, are adjustable. The likelihood of detecting concealed foreign objects is increased by capturing a sequence of images from different perspectives as the products fall through the multihead weigher.



The MultiCheck is designed for use in multihead weighers

Foreign object detection process

The foreign object detection process with the MultiCheck system follows a defined procedure. The system receives a signal from the multihead weigher that the weigh pans are opening, triggering the image capture sequence. Within milliseconds, each camera captures a series of images of the product. If the system detects a foreign object in at least one of the images, a NIO (not in order) signal is triggered, and the discharge is automatically stopped. The control panel then displays an image of the foreign object, along with the article number, article name, and the time of capture. This data is stored in an internal database for long-term statistical analysis. If no foreign object is found, the weigh pans open again, and product filling through the multihead weigher begins. The maximum cycle rate is 100 discharges per minute. In addition to detecting foreign objects that significantly contrast with the product and background, new developments in spectral differentiation and AI evaluation enable the detection of less conspicuous foreign objects. In the future, the MultiCheck will be able to identify white plastic parts in shredded mozzarella from a size of 2 mm x 2 mm.

BUSCH VACUUM SOLUTIONS OTTO Digital Services for Systems

NEWS



Busch Vacuum Solutions has expanded its range of OTTO Digital Services to include vacuum systems (photo: Busch Vacuum Solutions)

Busch Vacuum Solutions has expanded its range of OTTO Digital Services to include vacuum systems. OTTO for systems enables the simultaneous monitoring of multiple vacuum generators in a vacuum system and the supervision of the production process to ensure that it runs reliably and with the correct vacuum levels. This effectively minimizes the risk of production downtime and leads to significant cost savings. Accessible via a PC or a mobile device, the OTTO IoT dashboard presents a user-friendly interface for comprehensive system monitoring.

OTTO for systems provides extensive insights into the status of production processes. Customers can define parameters specific to their process, such as process vacuum level, absorbed power or ambient temperature. OTTO measures and stores these parameters. Thus, costly breakdowns can be avoided as the ideal moment for the next maintenance is indicated. With the appropriate service contract, the analysis of the data and remote supervision of the process is carried out by Busch, on-site service for a quick fix included.

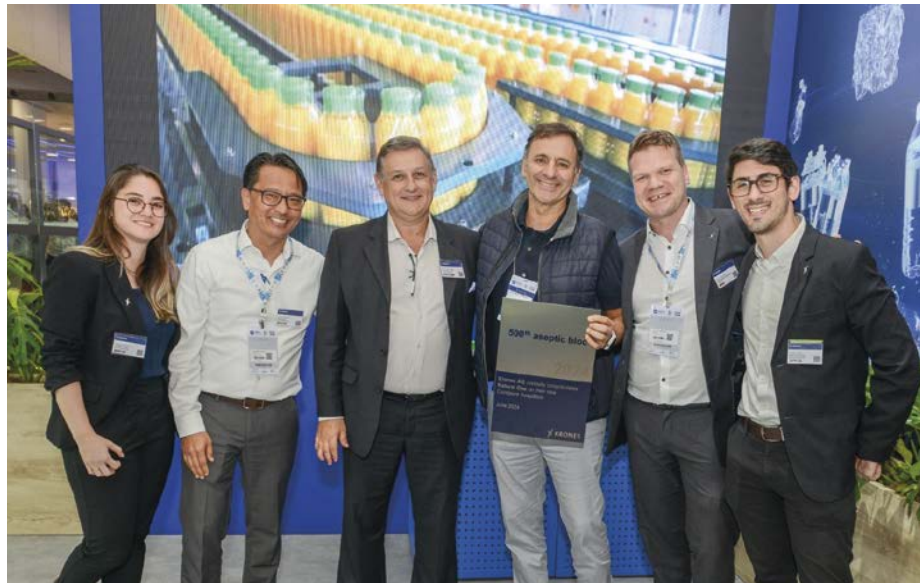
OTTO IoT kits are available to retrofit existing vacuum systems. Via an integrated electronic SIM card, the OTTO box transmits the signals from the sensors securely to the Busch cloud, where they are interpreted and sent to the OTTO IoT dashboard. OTTO for systems can be operated as a stand-alone solution or integrated into the Busch control system.

With the addition of OTTO for vacuum systems, Busch is expanding its already comprehensive range of OTTO solutions. OTTO excels in early problem detection, aiding in the prevention of unplanned downtime in factories.

Double anniversary

500th aseptic Krones filler and 200th product UHT in one line

Krones celebrated the double machine anniversary together with Natural One (photo: Krones)



From preform sterilisation to dispensing the sealed PET bottles - for the latest generation of the Contipure AseptBloc (CAB), Krones paid attention to an end-to-end process chain that is aseptically safe down to the smallest detail.: "Since the market launch of the updated Contipure AseptBloc around one and a half years ago, more than forty CAB could be sold already. This is a significant proof of the convincing safety and sustainability arguments in the updated solution. So next to the milestone of 500 systems sold based on the full PET Aseptic Portfolio by Krones, we feel the acceptance and appreciation of this very latest Krones solution across the globe," says Paul Schoenheim, Head of Sales Aseptic Technology.

The Brazilian beverage producer Natural One has also opted for the Contipure AseptBloc - and that's a reason to celebrate: the 500th aseptic filler sold by Krones is integrated in the sterile block solution.

Nature as inspiration

Inspired by the diversity of Brazilian nature, Natural One has specialised in using fresh fruit and vegetables to produce juices in fifteen varieties. Natural One now exports its products from Brazil to around eleven countries. In order to meet the growing demand, the company is now expanding its bottling capacities - and is relying on state-of-the-art technology and expertise from Krones. The Contipure AseptBloc is now part of a new, already third Krones line at Natural One.

Two anniversaries at the same time

There's a second anniversary: the VarioAsept D, which is also on order, is the 200th UHT line sold by Krones. "For this line, Natural One opted for the VarioAsept D from Krones, which is characterised in particular by its great flexibility: Juices, still products and CSDs as well as plant-based milk alternatives can be processed on it. Especially for the latter product group, the VarioAsept D has a module for direct heating. Natural One can also look forward to a première: the company is our first customer on the American continent to use this solution," explains Stefan Höller, Head of Product Management Processing Units.

The direct heating module is able to heat the product to the required temperature within a very short time and cool it down again just as quickly after the heat retention time. This technology is therefore ideal for products with high quality requirements.

Time-saving and flexible

The new line provides Natural One with more flexibility in filling in several respects. Just as the UHT system covers a wide range of products, the Contipure AseptBloc can also process a variety of bottle formats. With the optional robot, the format changeover is seamless and requires no manual intervention. This saves more time and production can be restarted quickly.

FLOTTWEG starts construction of the new Process Center

NEWS

The starting signal for Flottweg's new Process Center was given in June. In future, the Technology Center will offer the opportunity to implement customer-specific solutions and innovative approaches in an even more targeted manner. With a floor area of around 2000 square meters, the Process Center is divided into laboratory, technical center, office and storage space. Flottweg, a leading global manufacturer of mechanical separation technology and separation solutions, is thus continuing to pursue its long-term growth strategy. Both, the laboratory and the pilot plant are divided into sub-areas in order to process the various application areas individually. The focus here is on the application-specific processing of customer samples on a laboratory and pilot plant scale. With the help of the results, Flottweg can provide the customer with targeted feedback on the feasibility, design of the machine and system technology as well as the efficiency of the planned separation processes. Due to the close proximity of the laboratory and the technical center, customer inquiries can be processed even more flexibly in the future.

"With state-of-the-art laboratory technology and versatile machine equipment for analytics, we can further increase the efficiency and sustainability of our solutions and implement tailor-made processes for our customers worldwide,"



The starting signal for Flottweg's new Process Center was given in June (photo: Flottweg)

explains Stefan Bichlmeier, Head of Process Engineering at Flottweg.

In order to meet the requirements of the food sector in particular, especially for plant proteins, permanently installed systems with corresponding special equipment are provided in the laboratory and technical center. "We have extensive process expertise in plant proteins - regardless of whether the customer requires an entire plant with engineering or just a machine," says Dr. Mathias Aschenbrenner, plant protein specialist at Flottweg. The new Process Center is scheduled to open at the end of 2025.

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*Proposed

New concepts

KHS' growth course continues



“Besides complete turnkey lines containing various components, we also supply single machines tailored to customer requirements”

Thomas Redeker,
Senior Sales Development Manager for Europe

Last year KHS, which has been part of Salzgitter AG since 2011, increased its turnover to €1.52 billion, with further growth also planned for 2024. The company, that is specialized in the manufacture of filling and packaging machines for beverages and liquid food, now has a market share of approximately 16% and is thus number two on the market. Its product portfolio ranges from PET processing, conveyor technology and process engineering through filling, labeling and inspection systems to packers and palletizers. “Besides complete turnkey lines containing various components, we also supply single machines tailored to customer requirements,” says Thomas Redeker, senior sales development manager for Europe. KHS also provides a full spectrum of services that include upgrades and format conversions, support, training and consultancy. Redeker states, “During maintenance we like to work together with our customers to help them make their production efficient. We’re always on the ball so that we can meet customer specifications; small improvements and changes are always necessary,” he continues. KHS employs over 5,400 people at its ten production sites worldwide, with 61% working in Germany.

Systems for the milk industry

The company offers dairies a broad palette of aseptic and ESL lines with suitable filling technology and packaging systems. One new piece of equipment here is the KHS InnoPET BloFill ACF-R for the rotary aseptic filling of sensitive low- and high-acid beverages into PET bottles. Through dry sterilization with hydrogen peroxide, germ reduction rates of up to log 6 are achieved for both bottles and caps.

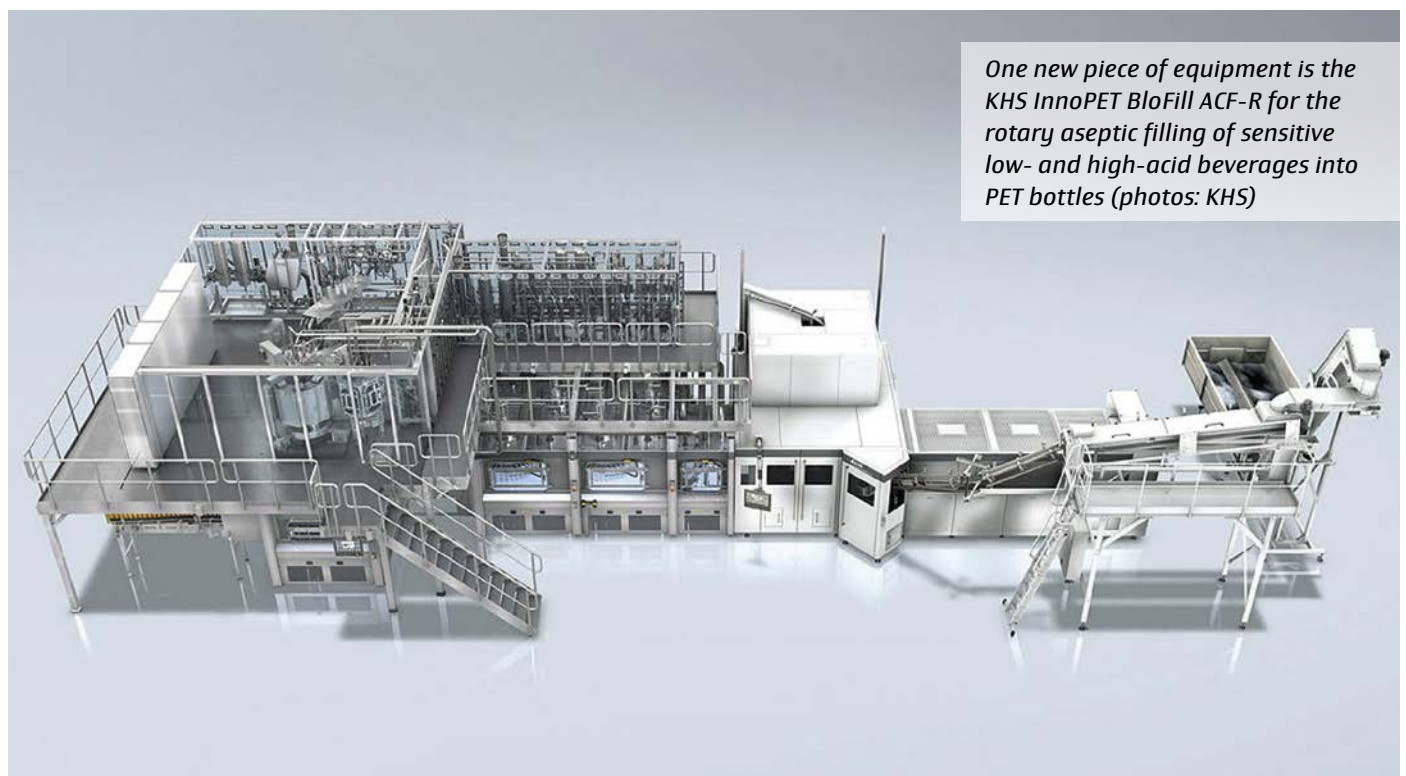
“The further development of our rotary aseptic filler block is based on our modular filler platform. Hourly capacities range from 16,000 to 54,000 bottles. For a small machine footprint and less operator and maintenance effort, during bottle sterilization we have the bottles directly transferred from one treatment star to the next – and don’t need any transfer stars between them.” KHS works with clients all over the world – from Europe to India and Australia. “We’re already well established on the market here and we want to expand with new concepts such as the rotary ACF-R,” Redeker adds.

One current system – a linear aseptic filler blocked with a stretch blow molder – has now been delivered to a dairy in Switzerland. Thanks to an aseptic zone measuring just 1.5 m², the risk of contamination is minimized. Formats are changed over under aseptic conditions in the short space of ten minutes. “PET-Recycling Schweiz has introduced a separate PET collection system in Switzerland for all milk bottles made of PET. This means that since 2023 PET bottles have been able to be recycled in a closed loop. Swiss retail is thus forcing filling into PET bottles. In Germany, cartons are usually the predominant form of packaging for UHT milk, yet innovative products are bottled in PET,” explains Redeker.

Climate goals and reorientation

In 2024 KHS is investing tens of millions in the targeted expansion and conversion of its production sites in Germany. Redeker states, “Our strategy is pointing the way to the circular economy and transformation, with the aim of achieving greenhouse gas neutrality by 2050.” KHS’ German plants converted entirely to green electricity generated by hydropower back in 2016. At the KHS production site in Dortmund, the MaGeno-Solar eG cooperative founded by employees has set up a photovoltaic system with a capacity of 520,000 kWh of electricity.

In order to also continue to be a reliable partner for sustainable, efficient and durable filling and packaging systems, strategic expansions now enable KHS to serve its customers in the region better and to react to their specific requirements even more effectively.



Navigating Consumer Preferences

Evolving Dairy Trends in 2024



Author: Kate Kehoe,
Marketing Manager at FMCG Gurus

This article is based on FMCG Gurus:
Dairy Trends in 2024 - Country Reports



Increased levels of price inflation have a significant impact on consumer behavior when it comes to purchasing dairy products. It's essential to recognize that consumers prioritize value over low cost, seeking products that meet their needs without compromising on quality, and are willing to upgrade to items they perceive as offering good value for money. A large number of consumers prioritize taste and health-boosting attributes when selecting dairy products, indicating a belief that dairy can provide both flavor and nutrition simultaneously, thereby influencing perceptions of value.

For instance, FMCG Gurus' consumer insights indicate that 76% of global consumers deem taste important in fresh dairy, followed by 58% who deem health boosting claims appealing.

Although concerns around the pandemic have diminished, consumers continue to prioritize proactive health measures, including a return to a back-to-basics approach to nutrition and seeking trusted products with functional benefits. Simultaneously, the preference for taste remains a primary driver for choosing products, particularly in moments of comfort and escapism. If dairy products are perceived to deliver both taste and nutrition, this will prompt consumers to opt for higher-quality options.

[Consumers tend to review nutritional labels, especially for products perceived as healthier](#)

When buying dairy products, consumers tend to prioritize examining nutritional labels, with 48% indicating that they do so

either most or all the time, a consistent figure over the past two years. When scrutinizing labels, consumers are particularly inclined to do so when purchasing milk, likely due to its frequent use, perishable nature, and its association with health-boosting components and high fat content.

Regardless of the specific product category, the ingredients used in product formulation significantly influence perceptions of value within the dairy industry. Consumers seek products containing ingredients rich in health-boosting elements while being free-from perceived dietary detriments such as fat, sugar, and additives, and are sourced sustainably.



Consumers seek ingredients they consider genuine and authentic, with a preference for natural claims

Consumers place high value on the authenticity of dairy products, seeking assurance that these items are devoid of ingredients that are perceived as harmful to both personal health and the environment. As a result, heightened concerns about potential weight gain attributed to escalating

prices and the balance between nutrition and affordability drive consumers to prioritize products that are low in fat and sugar, without compromising on taste. This has led consumers to embrace the concept of “less is more”, turning to products with clear free-from claims and simplified ingredient lists, enabling the quick assessment of the nutritional content. For instance, FMCG Gurus’ consumer insights highlight that 71% of global consumers deem

natural claims appealing on dairy products, and 71% find non-GMO claims appealing. Additionally, it’s essential that any claims related to naturalness are explicitly linked to health and quality attributes to enhance perceptions of value.

Consumers are interested in functional claims in products, but there has been a reduced emphasis on this aspect compared to the peak of the pandemic

Consumers display a proactive approach to health by prioritizing prevention over cure and aiming to maintain fitness levels well into their later years. They acknowledge that their current dietary habits may not be as wholesome as desired, potentially increasing the risk of long-term health issues. Simultaneously, consumers are turning towards a simplistic approach to nutrition, emphasizing cooking from scratch and reducing reliance on processed foods. They seek out familiar, trusted, natural, and nutritious food options that are not only flavorful but also cost-effective. Consequently, functional claims in the dairy sector hold appeal for consumers. Calcium and vitamin claims are particularly appealing to consumers, alongside a growing emphasis on sustainably sourced ingredients.

EWPA announced Neville as new President

PEOPLE

The European Whey Processors Association (EWPA) welcomed its new Presidium at its summer General Assembly 2024 in Beaune, France. The EWPA announced **James Neville** (Volactive, UK) as new President, who will be joined by new Vice-President and Treasurer **Marion Bucas** (Lactalis Ingredients, FR), and Vice-President **Benno van Mersbergen** (Royal FrieslandCampina, NL). **Mathias Hauer** (Sachsenmilch, DE) will continue his previous mandate as Vice-President.

All of EWPA expresses its gratitude to the outgoing President, **Luis Cubel** (Arla Foods Ingredients, DK), for five years of leadership.



f.l.t.r: Benno van Mersbergen, Mathias Hauer, James Neville, Marion Buccas and Luis Cubel

Two years of sanctions: Russian dairy industry's standing surprisingly firm

When the first European sanctions hit the Russian dairy industry, many expected it to fall apart like the house of cards. Against the odds, dairy companies weathered the storm and are seemingly doing well. However, there might be more than meets the eye.

In 2023, Russian milk production climbed by 0.5 million tonnes to 33.5 million tonnes, driving up output in the dairy processing segment, the official figures indicated. In the middle of 2022, for ordinary Russian citizens, dairy products appeared to be a stark indicator that something was going wrong in the national economy. Consumers accustomed to colourful, diverse packaging were stunned to discover shelves filled with featureless, monotonous packs. The sudden change traced its roots to the fifth European sanctions package, under which the export of printing ink, paper, cardboard, film, and printing machines to Russia was banned.

The supply disruptions took a heavy toll on Russian operations – they struggled to stretch the available warehouse reserves for as long as possible and, then, switched to off-white, minimalist product packaging, according to Soyuzmoloko, a Russian union of dairy manufacturers. Not only inks but also the very packaging was in short supply. At the peak of the crisis, Nadezda Shkolnikina, deputy chairman of the agrarian committee with the State Duma, the lower chamber of the Russian parliament, suggested dairy companies switch to selling milk in bidons – big metal cans widespread during the Soviet era.

While Russian dairy manufacturers were busy sorting out the packaging crisis, an even bigger looming threat emerged. In early 2023, several market players rang an alarm bell over a tough





Lack of starter cultures is a big problem

dependence on imports of starter cultures from the countries deemed “unfriendly” – a term used by Russian officials to describe virtually all Western countries. The issue has even attracted the attention of top government officials. Victoria Abramchenko, Russian Deputy Prime Minister, estimated that Russian manufacturers met only 20% of the demand on the domestic market for starter cultures. Over half of the starter cultures used in the Russian dairy industry are imported, while in some categories, the dependence is close to 80% to 90%, estimated Marina Petrova, general director of Petrova 5 Consulting, a Moscow-based consulting firm. In fact,

Soyuzsnab is the only industrial manufacturer of starter cultures for the dairy industry in Russia. A particularly worrying sign was that 85% of imports came from Denmark, Poland and Germany, Soyuzmoloko estimated. Potential restrictions could imperil Russian production of fermented dairy products.

The list of the challenges that have come together for the Russian dairy industry is long. Occasional reports indicated problems in sourcing necessary technologies and components, most of which were of European origin. In addition, certain fears were associated with waning demand. Aside from the post-coronavirus shift of consumer habits, which led to a slump in dairy consumption throughout Europe, the Russian market was hit with an immigration wave, some analysts believe to be the strongest since the Communists came into power in the 1920s.

Only in the two weeks that followed the Russian partial mobilization in September 2023 did 0.7 to 1 million citizens flee from the country, Russian Forbes reported, citing anonymous analysts. The total count of the Russian citizens who moved to other countries remains unknown, as well as the share of those eventually deciding to return. On top of these and other economic challenges, global financial institutions remained extremely pessimistic over the future of the Russian economic performance. The European Bank for Reconstruction and Development, a top regional development bank, for example, expected the Russian economy to contract 10% in 2022.

Keeping the ball rolling

One of the key takeaways of 2023 is this: Defying the odds, the Russian dairy industry successfully coped with the unprecedented challenges. The packaging crisis in the dairy sector is completely



*Russian market was hit
by a shortage of packaging*



over, Soyuzmoloko said in a survey made public in February 2024. Russian packaging firms Packaging Systems, Danaflex and Europlast localized the production of all types of packaging and the key raw materials. That this is true can be seen with the naked eye: Russian shelves are again filled with the same packaging Russians enjoyed before sanctions. However, the key role in overcoming the packaging shortage was played by soaring imports. As estimated by Soyuzmoloko, the database of suppliers from politically friendly countries expanded to include 400 names. Like in many other segments of the Russian economy, the lion's share of imports that saved the day for Russian businesses comes from China. During the past two years, the Russian authorities have forged stronger ties with China, and these efforts have evidently paid off. The Packaging Systems even warned that the imports from China reached such a scale that it started hampering domestic production. "In this issue, we count on the attention of the government agencies. It is important that the priority of independence from imports is not only a statement but also a strategy for real support of Russian manufacturers," Packaging Solution's press office stated. Not all problems have been solved at China's expense. The lack of starter cultures has not wreaked havoc on the Russian dairy industry since European supplies keep flowing like there are no sanctions. "This category of products has not been subject to sanctions while international partners keep honouring their obligations," Artem Belov, general director of Soyuzmoloko, pointed out. European companies have no plans to leave the Russian market, so there are no reasons to fear the supply shortage, Belov said.

In 2022, Russian imports were hit by logistics chaos and uncertainty, and as European companies were doubtful whether to keep trade with their Russian partners, they would run into problems. Closer to the end of the year, Russian businesses came up with alternative payment and logistics options involving third-country banks and logistics companies, and wheels essentially got back into motion, according to the Russian dairy industry's representatives. In 2023, the new delivery schemes have been tried and streamlined. In the same way, the critical equipment and components from Western countries are still being delivered to Russia. Sometimes, the supplies go through third countries, but direct export is also possible.

Dark clouds on the horizon

The future, however, looks like everything but cloudless for the Russian dairy sector, as several factors promise to put pressure on operations. Generous state aid was one of the pillars of the Russian dairy industry's stability during the turbulent times. In 2023, the Russian budget spent Rub 62.5 billion (\$650 million) on direct support of the dairy manufacturers, 19% up compared with the previous year and nearly a third compared to the pre-crisis 2021, Soyuzmoloko estimated. State aid has been steadily growing during the past decade, but the preliminary figures indicate that 2024 will be the first year it will rise below inflation. The Russian government promised to allocate Rub 63 billion (\$660 million) from the budget this year to dairy companies. Given the Russian Finance Ministry's



Russian dairy consumption could slump by 20 to 30%

forecast that the Russian rouble will lose around 10% of value this year, this means that Russian dairy businesses will eventually get less money. State aid is vital for the Russian economy now after the Central Bank jacked up the key interest rate to 16% to tame inflation. This step made bank loans barely affordable for the Russian dairy processing plants and farmers. On the other hand, the Russian government has recently approved a 100% export subsidy for the dairy industry to help Russian dairy brands gain a foothold in the global arena. There are severe problems on the production side, too. The Russian dairy industry is hit with an unprecedented deficit of workers. Labour shortages are a common problem in the Russian economy. A study conducted by the recruiting firm Superjob in early 2024 showed that 86% of Russian firms experience difficulties filling vacancies. Russia lacks around 5 million workers, the Economy Institute under the Russian Academy of Science said in a study published in December 2023. Analysts admitted that this problem has already started to put breaks on the wheel of Russian GDP growth.

The domestic market situation also bothers Russian dairy businesses. Soyzmoloko reported that dairy consumption in the country increased by 3% in 2023. However, Liudmila Manitskata, general director of the Russian dairy union, expressed an opinion that consumption stagnated last year. Manitskata generally remains pessimistic about the future of Russian dairy consumption. In early 2023, she expressed fears that it could plummet by 20% to 30% in the long run as economic turbulence in the country multiplies poverty.

GEA

Sustainable production

NEWS

GEA is taking a decisive step towards sustainability by implementing and expanding solar power at its sites in Bengaluru and Vadodara, India. This initiative underscores GEA's commitment to reduce its carbon footprint and move towards greener production practices, closely aligned with its Climate Transition Plan 2040. The solar power installations at both sites are estimated to save nearly 900 metric tons of CO₂ emissions annually.

The installation of the photovoltaic panels, which use heat-safe photovoltaic technology, marks an important contribution to the use of renewable energy sources for operations. With a total installed capacity of 811 kilowatt peak (KWp), nearly 50% of the power needs of all GEA-owned properties in India are covered by solar energy.

In addition to solar power, GEA has implemented several other sustainable projects at its Indian sites, including the installation of LED lighting, wastewater recycling, waterless toilets, and the promotion of electric and hybrid vehicles across its supply chain.



GEA's office and production site in Vadodara. Nearly 50% of the power needs is covered by solar energy. (source: GEA)

The future shape of the Russian dairy industry will largely depend on the success of the recently launched export push. In 2023, Russia boosted dairy exports by 18%, Belov said, not providing concrete details. Soyzmoloko members expect that the Russian dairy industry could boost exports to Asia, where it will partly replace products of the European companies, who, in the opinion of the Russian executives, lose a competitive edge owing to extreme environmental-protecting measures. It is yet to be seen whether this bet will eventually play out. The Russian dairy industry suffers from a bunch of systemic problems, but in the past two years, it has shown surprising adaptability.

“The Whey Forward”

International Whey Conference 2024 in Dublin 15 – 18 September



Author: Laurens van Delft
EWPA Director of Trade and Economics



In the heart of Dublin, renowned for its vibrant culture and rich history, the 11th International Whey Conference (IWC2024) is set to be a landmark event in whey science both in processing technology and in nutrition. From September 15-18, IWC2024 will unite industry leaders, researchers, and professionals from around the world for unparalleled interactive dialogue and latest science update. The conference is not just a forum to bring everyone involved in whey processing together but also a high-level platform to explore the future trajectory of the whey protein industry.

James Neville, EWPA President and the CEO of Volac (UK), Martin Heydon, the Minister of State at the Department of Agriculture, Food and the Marine of the Republic of Ireland, Cortney Price from the Food and Agriculture Organisation of the United Nations and Jason Hawkins, CEO of Carbery (Ireland), will, on September 16, set the scene for our high-level conference.

The potential of whey is due to its versatile applications, exceptional nutritional profile, and growing global demand is still to be fully tapped. Rich in high-quality proteins, essential amino acids, and bioactive compounds, whey delivers unique nutrition for all consumer groups and truly essential nutrition to specific groups. Innovations in processing technology are at the same time enhancing sustainability and efficiency, while expanding markets in regions like Asia-Pacific are driving growth. Additionally, whey's potential in health and wellness sectors aligns with consumer trends towards natural, nutrient-dense foods, positioning it as a key driver for the dairy industry's future.

The conference will showcase this throughout the program. The first Plenary session, “World Whey Wisdom,” chaired by Richard Hall of Zenith Global (UK), will delve into the international outlook and projections for the coming years. This session will feature

the Industry Leaders Panel under the headline of “World Wide Whey”, with James Neville, CEO of Volac (UK) and EWPA President, Herman Ermens, President of FrieslandCampina Ingredients (The Netherlands), David Lenzmeier, President and CEO of Milk Specialties Global (U.S.A); Wytse Vellema, Director of Strategic Dairy Relations at Ausnutria/HGM (China), and Michael Bones, EU Managing Director at Fonterra (New Zealand).

After that, the session “Protein Nutrition Research” will be chaired by Mark Fenelon from TEAGASC (Ireland) and “Processing Advances” chaired by Jakob Fröhlich from Alpavit (Germany), “Nutrition Research: Lipids and Other Components,” will be chaired by Milena Corredig from Aarhus University (Denmark) and “Advances in Functionality & Applications,” with Kimberlee Burrington from ADPI (U.S.A) as chair.

The second day of the conference will return with a Plenary Session on “World Wide Whey,” chaired by Fraser Tooley, Strategy Consultant to the global B2B industry (Ireland). Following this, Alexander Roth of EWPA (Belgium) will discuss communicating to consumers about dairy proteins and whey in his talk, “Whey. For living. For life.” The second Plenary Session of the day, “The Sustainable Whey,” will focus on sustainability and will be chaired by Miriam Ryan from Dairy Industry Ireland. It will feature the presentations: “The Global Challenge” by Faustine Bas-Defossez from the European Environmental Bureau (Belgium); “The Dairy Solution on Climate Change” by Hanne Søndergaard from Arla Foods (Denmark); and “Precision Fermentation for Dairy Ingredients” by John Lucey from the Wisconsin Center for Dairy Research (U.S.A).

The conference will also shine a light on the future with “The Next Generation Whey”, where bright young researchers will present their findings and discoveries. Following, “Carbohydrate

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Nutrition Research,” chaired by Niels Østergaard from Arla Food Ingredients (Denmark), “Emerging Technologies,” led by Rohit Kapoor from Dairy Management Inc. (U.S.A), “Nutrition Research: Proteins,” will have Seamus O’Mahony from University College Cork (Ireland) as its chair and Thom Huppertz from Friesland-Campina (The Netherlands) will chair the session “Sustainability”. The second day of the conference will finish with a Gala Dinner at the world-renowned Guinness Storehouse, sponsored by Tirlán.

The final day of the will start with the session “This is the Whey!”, chaired by Michelle Collins from Tirlán (Ireland). The day will feature a Leaders Discussion Panel with European and American leaders of the industry, including Niels Østergaard, VP of Research and Innovation at Arla Foods Ingredients (Denmark), and Richard Bradfield, General Manager at International Ingredient Corporation (U.S.A). The panel will also include experts from the food sector, such as Jonathan Lane, Director of Research and Innovation at Health&Happiness Group (China), and Devon Kuehn, Chief Medical Officer at ByHeart (U.S.A). Additionally, Arjan Gobius du Sart, Group Manager of R&D and Nutrition at Denkvit Group (The Netherlands), will represent the feed sector.

IWC2024 is a hub of innovation and knowledge, where the brightest minds in the industry will converge to share cutting-edge research, explore emerging trends, and discuss the future of whey. With the diverse sessions, workshops, and networking opportunities, participants will gain invaluable insights into all aspects of whey, from technological advancements to nutritional benefits and market applications. Join us in Dublin for an unforgettable experience that will shape the future of whey and enhance your professional journey.

Visit <https://www.internationalwheyconference.com> to register

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Fax: +49 7321 964 55 0
Email: info@holac.de
Web: www.holac.de

Ingredients



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GNT to expand into fermentation

GNT is working to develop new plant-based, sustainable EXBERRY color solutions for food and drink using fermentation technologies.

The company has been creating EXBERRY colors from fruit, vegetables, and plants since its foundation in 1978. It is now expanding into fermentation for the first time to increase innovation and sustainability in its plant-based solutions.

Producing colors through fermentation allows for improved functionality as well as highly efficient and sustainable year-round production. Once the raw materials have been cultivated, they can be scaled up in larger bioreactors for industrial production. This phase involves maintaining optimal conditions to ensure high biomass yield and pigment concentration.

To deliver on its aims, GNT has chosen to collaborate with Plume Biotechnology, a UK-based start-up focused on innovation in fermentation science and bioprocessing for natural colors.

Frederik Hoeck, GNT Group's Managing Director, said: "As pioneers in plant-based colors, innovation has always



GNT Mierlo office (photo: GNT)

been crucial to GNT and we're fully committed to delivering cutting-edge solutions for our customers. As a family business, we understand the importance of acting responsibly and ensuring we are truly sustainable. This partnership with Plume will help us add new, futureproof options to our plant-based EXBERR portfolio."

The collaboration is designed to help GNT expand the options in its plant-based EXBERRY portfolio while meeting its sustainability ambitions. In 2022, GNT announced 17 targets to optimize its environmental and social impacts by the end of the decade.



photo: ingreclion

Sweetening the deal
Ingredients



photo: xBrue Valley Farm

From cheese to butter supplier
Technology



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Managing Director:

Harry Lietzenmayer, Stephan Toth, Björn Hansen

Object Manager:

Burkhard Endemann, Direct line: +49 (0) 2633/45 40-16, Email: be@blmedien.de

Editor:

Anja Hoffrichter (responsible), Office Dorsten/Germany, Cell phone: +49 (0) 178/233 00 47, Email: ah@blmedien.de

Roland Sossna, Office Dülmen/Germany, Direct line: +49 (0) 2590/94 37 20, Cell phone: +49 (0) 170/418 59 54, Email: sossna@blmedien.de

Correspondents:

Tatyana Antonenko, CIS, t.antonenko@molprom.com.ua; Chris Walkland, UK & Ireland, chriswalkland@ntlworld.com; Bent Oestergaard, Scandinavia, OCon ApS, bent@ocon.one, Claudia Vasquez Alarcon, Spain/Portugal, cva@blmedien.de

Graphics, Layout and Production:

Silvia Schneider, Office Solingen/Germany, Cell phone: +49 (0) 170/297 58 64, Email: s.schneider@blmedien.de

Advertising Manager:

Heike Turowski, Office Marl/Germany, Direct line: +49 (0) 2365/38 97 46 Fax: +49 (0) 2365/38 97 47, Cell phone +49 (0) 151/22 64 62 59, Email: ht@blmedien.de

Publisher's International representative:

dc media services, David Cox, 21 Goodwin Road, Rochester, Kent ME3 8HR, UK, Phone: +44 84 53 93 15 74, Email: david@dcmediaservices.co.uk

Subscriptions:

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Abo-Service "International Dairy Magazine"
Garmischer Straße 7, 80339 Munich, Germany