

I N T E R N A T I O N A L

# DAIRY

September/October 2021

magazine

PROCESSING | INGREDIENTS | PACKAGING | IT | LOGISTICS

[www.international-dairy.com](http://www.international-dairy.com)

## VEGA™ DEVELOPED FOR PLANT LOVERS

Unleash the potential  
of your plant bases with the help  
of the Vega™ Culture Kit.



Create healthy and sustainable plant-based  
vegurts that your customers will love with  
the help of our Vega™ Culture Kit and more  
than 145 years of fermentation expertise.

📞 +49 5021 963-0

@ [service@chr-hansen.com](mailto:service@chr-hansen.com)

🌐 [www.chr-hansen.com](http://www.chr-hansen.com)

**CHR HANSEN**

*Improving food & health*

# Give your plant-based drinks the right appeal

## DSM's Delvo® Plant enzyme solutions for plant-based dairy alternatives

If you want to build better plant-based dairy alternatives, look no further than our Delvo® Plant portfolio for plant-based drinks. We'll help you create tastier, sweeter products with a satisfying texture that health-conscious consumers want; supported every step of the way by our plant-based experts. So, ready to put our solutions to work?

[info.food@dsm.com](mailto:info.food@dsm.com)

NUTRITION · HEALTH · SUSTAINABLE LIVING



**DSM**

BRIGHT SCIENCE. BRIGHTER LIVING.

**Editorial:**

- 4 How big is this pandemics influence?

**Interview:**

- 6 How Imagindairy intends to enter the market
- 22 Heading into the future
- 30 Segment in transition

**IDF Column:**

- 34 Join World Dairy Experts

**Ingredients:**

- 8 Living the ice cream dream

**Packaging:**

- 10 Into the circular economy
- 15 Returnable PET for milk
- 25 Aseptic carton without aluminium
- 26 Ultrasonic technology for intelligent packaging solutions

**Technology/IT:**

- 12 Pure steam for baby milk powder
- 16 Stainless steel electric belt hoist
- 18 Food Radar Systems

**EDA Column:**

- 36 EDA Annual Convention 2021

**Columns:**

- 15, 17, 21, 25, 39 News
- 24 People
- 39 Imprint



**THE ALTERNATIVE FOR HIGHLY SENSITIVE BEVERAGES**

WILL SOON BE THE NEW STANDARD.

**KHS**  
Filling and Packaging – Worldwide

The KHS system for the milk market: aseptic filling in PET.

Maximum possible safety for the most sensitive beverages, a higher output capacity, and customizable bottle shapes: all this makes PET the better alternative for milk beverages. Compared to beverage cartons, it is also lighter, as our new 1.0-liter PET bottle for milk and mixed milk beverages weighs just 20 grams. [dairy.khs.com](http://dairy.khs.com)

# How big is this pandemics influence?

## M&A activities are a fever thermometer

---



Roland Sossna  
Editor IDM  
International Dairy Magazine  
sossna@blmedien.de  
[international-dairy.com](http://international-dairy.com)

According to Rabobank figures, worldwide M&A activities in the dairy sector have slowed down significantly during the first year of the Covid-19 pandemic. Only 80 such transactions were reported during the whole of last year – a 25% backlog compared to the previous year.

This development is not at all surprising. The various lockdowns have turned the markets for dairy products virtually upside down. What used to be one of the main pillars of the business, food service and catering, stopped ordering overnight for a long period. And sales in the retail channel suddenly boomed as a result. Dairy companies were kept more than busy making changes to production, packaging and distribution, and there was simply too little time for negotiating a business deal like a merger or an acquisition. Not to mention the general insecurity that concerned management in the wake of the pandemic.

As 2021 brought at least some ease to the situation, M&A activities rapidly came back to approaching a normal level. During the first six months of this year, not less than 50 such activities were reported worldwide. M&A is a direct measure of how well an economy works and we now have to wait and see how markets and the economy will develop further. Has the industry already overcome all the negative consequences of pandemic or will the virus keep on influencing the business in some way or another? It might be a bit too early for a definitive statement, thinks Roland Sossna.

# The best solution for Yogurt & Fermented Milk!

Enhance the quality of your products, from the earliest stages of production!

COMBO SOLUTION

4yó

Special Yogurt Cultures

+

4PROTECTION

Food Cultures with Protective Effect

+ PROBIOTICS

Add value to your products with **Sacco System** probiotics!

# How Imagindairy intends to enter the market

## Animal free dairy protein

Israeli startup Imagindairy has developed a process to produce animal free dairy protein using fermentation and proprietary computational technology. Recently it was announced that first products will be introduced to the market in 2023. IDM asked Dr. Eyal Afergan, Co-Founder and CEO, Imagindairy, about the plans of the company.

**IDM:** How did Imagindairy come to the idea to develop a precision fermentation production of milk proteins?

**Afergan:** We are aware of the global trend for more ethically sourced ingredients. Consumers are actively making efforts to reduce consumption of animal proteins to protect animals and the environment but at the same time are reluctant give up the sensory enjoyment that comes from consuming real dairy. Imagindairy was founded with the drive to fill this gap in consumer demand and provide them with a compelling animal friendly solution but that behaves like real dairy in terms of sensory enjoyment and nutritional value. We were also determined to bring a scalable and commercially viable solution.

**IDM:** How long did the groundbreaking work take?

**Afergan:** It took us one year to develop the dairy proteins with a team of experts. We kicked off our operations at the height of the pandemic. The proprietary technology was developed over the last 15 years by a global leading group of multi-disciplinary scientists led by Tamir Tuller, PhD, Imagindairy Co-Founder and CSO.

**IDM:** Imagindairy is now shortly before market introduction, when exactly will that be?

**Afergan:** We are targeting dairy and non-dairy companies. Our aim is to introduce our animal free products through strategic collaboration with branded dairy companies.



Eyal Afergan CEO



**Dr. Eyal Afergan, Co-Founder and CEO, Imagindairy:** We are determined to bring a scalable and commercially viable solution to produce animal free dairy protein (photo: Imagindairy)

**IDM:** How big is the amount of milk protein Imagindairy can supply at the start and what will be the prices?

**Afergan:** Our plan is to create a flexible supply chain that will allow us to address the need of our costumers. Our proprietary technology allows us to boost production yield which will also significantly contribute to flexible supply chain. Price levels will be determined based on volume, commitment, marketing investment, etc.

**IDM:** Is there an idea to lease out the fermentation technology to third parties or does Imagindairy intend to keep full control?

**Afergan:** At first stage we are going to use subcontractors that allow us full tracebility and transparency.

**IDM:** How will Imagindairy make sure it has enough capacities to supply the market?

**Afergan:** The long-term strategy will combine independent manufacturing capabilities and the use of subcontractors which will provide us flexibility and stability of the supply chain.

**IDM:** Are the regulatory issues all solved meanwhile?

**Afergan:** As we use a technology that has been used in the food industry for the last 40 years for production of many different enzymes, we are not expecting to face big challenges to approve our products. Having said that, the regulatory process of Novel Foods takes 2-3 years, approximatly.

# Living the ice cream dream

## Generous with knowledge

**M**arilyn Tan has been an application technologist at Palsgaard Asia-Pacific for five years and part of its dairy and ice cream team for one. It's the dream role for someone with a passion for food.

"It's a really great job because I like to eat!" she laughs. "After high school, I wasn't into engineering or accounting. Food technology was a very niche topic but making ice cream and getting to eat it is kind of my dream job – I'm still not tired of it!"

She also enjoys being part of a culture that encourages learning: "What I love about working here is that Palsgaard people are generous with their knowledge. We regularly come together to pass on what we've learned. And we don't just want to share our knowledge within the company but also with customers and distributors."

The big difference is the Palsgaard know-how. "It's very important to us that we understand what our customers need. We don't just say 'Ok – try this' – we do all we can to identify the cause of any problems. For example, if a product is unstable, we try to work out why. Is it the process? Or that the emulsifier dosage is insufficient? Or the use of the wrong product? We work hard to understand the system so we can recommend a solution," says Marilyn Tan.

### Different cultures, different ice cream

Something else that has helped Marilyn increase her knowledge is the huge diversity of ice cream markets in the Asia-Pacific region. "There are so many different cultures" she explains. "From Sri Lanka to Pakistan to the Philippines, they all use different ingredients in ice cream. In Australia and New Zealand, there's more demand for creamy, indulgent, high-end products, and they're more likely to use animal fats like cream. In South Asia, vegetable fats are more common, partly because they're more accessible than dairy in those countries, and partly because they're cheaper."

A big part of her role is being able to respond to these different needs. "We have to be able to recommend things that suit each particular market," she says. "We have a wide range of products that cater to what customers need, but we also

have to work hard to understand how they work in different systems."

### Integrated ice cream solutions with an extra helping of customer service

Ice cream is essentially an unstable solution of oil and water. The job of emulsifiers is to displace the protein on the surfaces



Palsgaard Extrulce and Palsgaard Mouldlice are fully integrated blends ensuring accurate proportion of emulsifiers and stabilisers (photo: Palsgaard)

of fat globules, allowing them to come together and form a 3-D network that traps air bubbles. This improves shape and mouthfeel.

“On a day to day basis, we’ll be helping ice cream manufacturers solve common technical challenges,” Marilyn says. “Whether they need good meltdown, heat shock stability, shape retention or creamy mouthfeel, we’ll go through our range of emulsifiers and recommend the right one.”

One of the big advantages of the company’s products for ice cream – such as the Palsgaard Extrulce and Palsgaard Mould-Ice ranges – is that they are fully integrated blends. This ensures an accurate proportion of emulsifiers and stabilisers to be dosed every time, and also allows dust-free handling. “They’re not just dry blends so there’s no dusting and there’s a homogeneous ratio between the emulsifier and the hydrocolloids,” Marilyn explains. It’s easier to use because manufacturers don’t need to pre-blend with sugars. They can put them straight into the milk or water so there’s no lumping during mixing.”

### New tara gum blends – Cost-effective, high-performing, lean-label

“LBG has been common in ice cream for many years, but it’s highly susceptible to price fluctuation, and a lot of manufacturers want to be less reliant on it,” she explains. “We wanted to help customers find an alternative that wouldn’t change their product profile too much. Tara gum came into the picture because it’s from the same family, but the cost is lower.”

Through extensive testing, Palsgaard has found that tara gum performs as well as, or better than, LBG. “Structurally, it’s actually very similar”, she says. “We’ve tested it in a controlled meltdown chamber; the amount of melted ice cream is very small, and the shape retention is excellent. During churning, the product mix is stable, and the over-run is similar to what you get with locust bean gum. We’ve also realised that we can achieve a very low mix viscosity, which is something a lot of customers need.”

The new blends are in line with many current consumer demands – they are free from PHOs and can be used in vegan products. They also have benefits for manufacturers who want to shorten their ingredient lists. “Another thing that’s good about it is that it only contains two or three E-numbers,” Marilyn says. “Ice cream tends to have a long list of ingredients, so if customers are looking for a leaner label, this is a very good product to introduce.”

### The new trends shaping ice cream markets

A big part of Marilyn’s job is studying market trends to identify new product concepts that might be of interest to customers. Unsurprisingly, 2020 has seen new interest in ingredients associated with immune health. There’s demand for ginger, turmeric and matcha – even in ice cream. “The idea of those kinds of ingredients is actually really well accepted, as long as the flavours work,” she says. “Also, making ice cream seem healthier is popular because it gives people permission to indulge!”

While eating ice cream may not offer significant immunity benefits, Palsgaard can certainly help manufacturers create products that are better-for-you in other respects. For exam-



Palsgaard's new cost-effective emulsifier and tara gum blends can be used for moulded and extruded ice creams (photo: Palsgaard)

ple, she has recently developed recipes for ice creams that are lower in calories, and one which uses low-GI brown sugar instead of white sugar.

As well as health, another topic coming up more in conversations with customers is the environment – a major focus for Palsgaard, which recently became the first emulsifier producer to achieve carbon-neutral production. “We’re always reminding customers that our products are produced in CO<sub>2</sub>-neutral facilities,” she says. “That’s definitely a big thing, especially in Australia and New Zealand, where it’s clear that consumers are willing to pay a bit more for sustainability.”

Marilyn says growing focus on sustainability is also a key driver for another huge trend. “More people are going vegan or dairy-free, so we’ve been doing a lot of work on plant-based ice creams. What makes that interesting is that there are so many sources of plant-based ‘milks’ – almond, rice, coconut for example. I’m quite sure that the plant-based trend will be here for many years. But a few years ago, who knew it would be so big? That’s one of the things I enjoy. Every day there’s a new trend – and a new challenge.”

# Into the circular economy

## Packaging of dairy products

**M**aking the right choices for packaging for dairy products is critical as packs must deliver convenience and ease of use, while protecting the food and extending its shelf life. Today's packaging must also support a brand's values, not just through look and feel, but also by emphasising a company's environmental sustainability agenda.

Greiner Packaging is a worldwide packaging company with over 60 years of experience and is particularly committed to meeting the needs and requirements of the dairy industry. In doing so, the company takes a holistic approach to packaging optimisation, playing an active role in advancing the transition to a circular economy.

### Reinventing dairy packaging with K3

Available in a wide variety of formats, Greiner Packaging's K3 cardboard-plastic combination, saves plastic, while creating eye-catching packaging designed to maximise marketing opportunities. Thanks to its reduced plastic content, the K3 packaging solution has an improved CO<sub>2</sub> footprint and it can be recycled efficiently, as the cardboard and plastic can be easily separated.

In 2020, Nomadic Dairy launched a unique new packaging format for its Yogurt & Oat Clusters brand, combining a thermoformed polypropylene (PP) cup with Greiner Packaging's K3 pot.

"This new packaging was a project two years in the planning, as we worked with Greiner Packaging at their factory in Dunganon, to identify a solution for our unique pack format which could reduce our plastic use and be easier to recycle," said Nomadic



**Nomadic Dairy launched a unique new packaging format, combining a thermoformed PP cup with Greiner Packaging's K3 pot**



**SalzburgMilch realised that there is no need for each tub to come with its own disposable lid**

Dairy Head of Marketing & Innovation, Tom Price.

Before developing the new pack, we conducted focus group research to establish shopper attitudes to the look and usability of the new format. We wanted something that stayed true to our unique shape on shelf, was easy for shoppers to decode the product and that they could handle comfortably to enjoy the product. We found that the K3 met all those objectives and scored higher than the pack we had at the time."

### A journey to be 'in balance'

The new environmentally-friendly packaging solution sees the Yogurt & Oat Cluster pots clip together, replacing the previous plastic wrap. The new shelf-ready packaging is made from 100% recycled plastic, and the top section features a removable cardboard sleeve. The foil tops on the pots are now completely recyclable as they no longer feature a plastic substrate. In an industry first, the previous plastic spoon has been replaced with a new 100% compostable FSC (Forest Stewardship Council) certified wooded spoon which has a natural food grade lacquer for a smoother finish.

The K3 packaging solution delivers part of an overall reduction of 240 tonnes of plastic a year, as well as reducing production waste and emissions. Using the Greiner Packaging's K3 cardboard-plastic pot allows Nomadic Dairy to take bigger steps on our journey to be in balance. We make yogurt, the best yogurt you'll ever taste, and treading more lightly as we do that, in the packaging we use, is a key area. We make a lot of pots, so reducing plastic and making it easier to recycle adds up to a lot for our environmental sustainability mission and for our consumers."



Greiner Packaging's K3 cardboard-plastic combination saves plastic, while creating eye-catching packaging designed to maximise marketing opportunities

### Enhancing consumer communication

One of the advantages of K3 cardboard-plastic pot is the removable cardboard wrap on the top section of the Yogurt & Oat Clusters pack, which can be easily separated, making it fully recyclable. "We use the reverse of the K3 to talk about the packaging changes we've made and what that means for the consumer," said Tom Price. It's a great space to use, as it informs the consumer in a way we couldn't if we were squeezing it on front of pack."

### Re-use plays its part

Introducing re-usable elements for popular packaging formats is another way to reduce plastic. Larger pack formats are becoming increasingly popular, so a snap-on lid is an absolute necessity. Until now, all 500 g tubs of SalzburgMilch premium yoghurts, pudding and sour cream have been fitted with disposable plastic lids. Although they perform well, these lids generate several tons of

plastic waste every year. Taking a huge step towards a sustainable future, SalzburgMilch has recently offered a special promotion. Instead of each 500 g tub coming with a plastic lid of its own, they were topped with high-quality, dishwasher safe, and environmentally friendly reusable lids. The promotional lids look fantastic thanks to in-mold labeling (IML). This means their customers continue to enjoy the same delicious products whenever they like, while generating less waste and contributing to a greener world. "We wanted to offer our customers an environmentally friendly and hassle-free alternative. The reusable lids don't just function well, they look amazing!" says Florian Schwap, Marketing Manager at SalzburgMilch. "With their own lid conveniently on hand, it's easy for customers to keep their dairy products fresh at home. There's no need for each tub to come with its own disposable lid."

(All photos: Greiner Packaging)

we design and engineer food processing facilities



**foodfab**  
consultants for food production plants

**ATP** architects  
engineers

[www.foodfab.eu](http://www.foodfab.eu)  
[www.atp.ag](http://www.atp.ag)



# Pure steam for baby milk powder

At DMK, three boilers from Viessmann provide pure steam and process heat

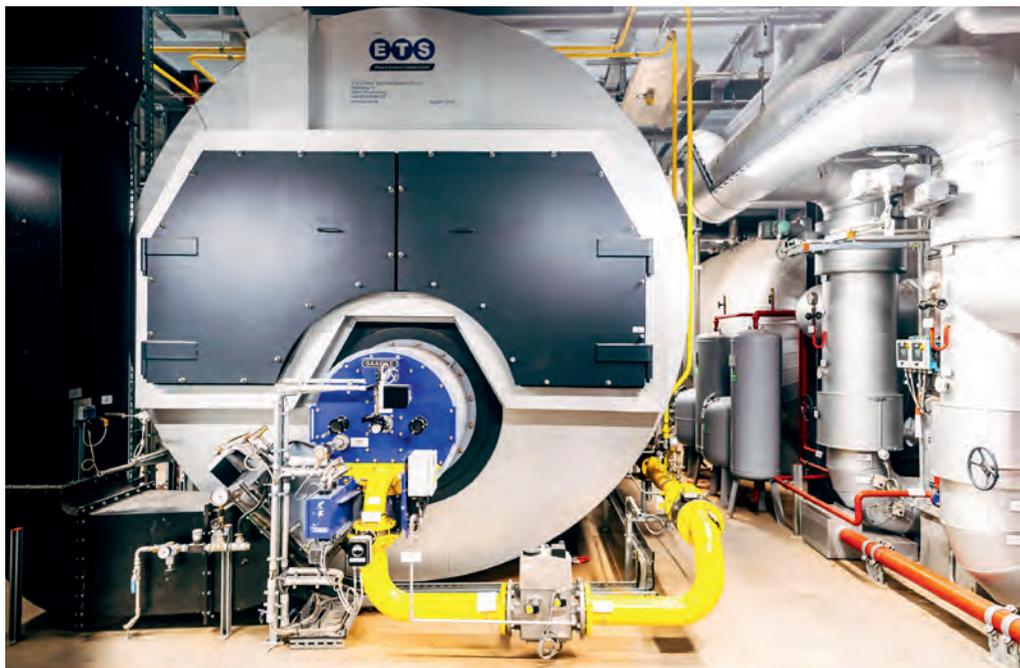
Author: Sabrina Deininger, Viessmann Industrial Systems, Allendorf (Eder)

**A**round an hour's drive north of Bremen, surrounded by green meadows, lies an ultra-modern dairy site: DMK Group's new baby food plant. As Germany's largest dairy cooperative, DMK Group (Deutsches Milchkontor) processes milk into baby milk powder at the Strückhausen site. This ends up on the shelves of food and drug stores around the world under the Humana brand. The path from raw milk to baby milk powder is not only a demanding one, but also an energy-intensive one. Besides a lot of process heat, hygienically pure steam is also needed for sterile production. Both – process heat and pure steam – come from a total of three Viessmann steam boilers.

## A pioneering project

The new production site for baby food opened in 2019. The dairy plant in Strückhausen, Lower Saxony, which has been in operation since 1884, was expanded and converted into a highly specialised plant for infant milk powder. The DMK Group sees a market with great growth opportunities in the production of baby milk powder.

The overall contract for the complete conversion was awarded to the technical building supplier ETS Efficient Technical Solutions GmbH, a subsidiary of the Elevation



**16 tons of steam per hour is supplied by this custom-built boiler from Viessmann for the production of baby milk powder at DMK in Strückhausen. (photo: Elevation Group | ETS)**

Group. The ETS team planned, built and commissioned the entire energy generation system in the plant: from heating, cooling and process heat in the form of steam to the clean steam generator. The infrastructure

that supplies the dairy plant with electricity, high-pressure steam, hot and cooling water, compressed air as well as drinking and ice water also was designed by the internationally active energy specialists. "For



**From Strückhausen to the world: DMK sells Humana baby milk powder around the globe. (photo: DMK)**

us, this was the biggest project in our still young company history," says Florian Oberpaul, member of the ETS management board and project manager of the energy centre installed in the baby food plant. In the areas for drying, mixing and filling the baby milk powder, the existing buildings were completely gutted so that so-called house-in-house constructions could be brought in.

### **Pure steam generation: a relevant point in the process**

A special "piece of the puzzle of the entire project", as Oberpaul calls it, was the selection of the ideal clean steam generator. "The topic of pure steam generation is often treated stepmotherly by many, according to the motto: the little bit of pure steam takes care of itself. But that's not the case. At the end of the day, pure steam generation is a decisive lever for the entire process," Oberpaul emphasises. Pure steam generators are used to produce pure steam, which must not contain any substances or contaminants that are harmful to health.

The system used at the Strückhausen site is a special design from Viessmann Industriekessel Mittenwalde GmbH. The pure steam generator is part of the sterile production of concentrates in the baby food plant and therefore had to be made entirely of stainless

steel. "Even the piping on the heating steam side and the fittings had to be made of stainless steel; that was quite a special feature,"



**A special piece of the puzzle in the production process: Viessmann's clean steam generator is made entirely of stainless steel and ensures the highest steam quality. (photo: Viessmann)**

emphasises Steffen Bartels, project manager at Viessmann Industriekessel Mittenwalde.

### **Pure steam generator in a modular system**

Another requirement for the clean steam generator: it had to be as compact as possible – a kind of modular system. "The demand for the clean steam generator came very late in the overall planning process; construction in Strückhausen was already well advanced. We had to bring in the clean steam generator by crane via an opening through the façade of the building. That's why it had to be particularly compact," explains the ETS project manager. No problem for the specialists from Viessmann: "Special systems are our everyday business," says Bartels, "and when higher steam qualities are needed, we are professionals."

Highest steam qualities are an absolute must in the production of baby milk powder. The hygiene standards in the sterile production area at the Strückhausen plant are similar to those of a pharmaceutical company. Therefore, not only the pure steam generator itself, but also its feed water must meet special hygiene requirements. In the special plant in Strückhausen, only fully demineralised water (deionised water) according to DIN EN 285 is used, which is almost chemically pure.



The two steam boilers from Viessmann during installation at the DMK site in Strückhausen. (photo: Viessmann)

### Process reliability for the production of baby food

The pure steam generator from Viessmann operates at 8 bar overpressure, a temperature of 175 °C and thus supplies 2,500 kg of pure steam per hour. The pressure fluctuation of the system is less than ten percent, and the moisture content of the pure steam is less than 3.5 % by volume. An integrated thermal high-pressure feedwater degasser prevents non-condensable gases from accumulating and impairing the effectiveness of sterilisation. Automatic venting of the degasser also

minimises standstill and leakage losses.

"Process reliability is paramount in the production of baby food; there is no fault tolerance here. We therefore place the highest demands on man and machine," emphasises Thomas Dilissen, Project Manager at the DMK Group. For this reason, all essential components of the plant technology are redundant – except for those of the clean steam generator. In addition, DMK relies on state-of-the-art technology for fully automated processes as well as continuous and comprehensive process data recording. If the worst comes to the

worst, the high-tech plant can absorb production peaks from surrounding plants and step in if there is a malfunction.

### Two steam boilers from Viessmann provide process heat

Two steam boilers provide heat for the clean steam generator. They are custom-built boilers designed by Viessmann Industrial Boiler Solutions based in Dillenburg, Germany. The two steam boilers for process heat operate at a pressure of 27 bar, a temperature of 192 °C and supply the plant with 16 tons of steam per hour each. Five per cent of the heat generated in this way goes into the clean steam generator. 95 per cent is consumed by the process needed to extract the water from the milk, and processing it into milk powder (with a moisture content of around 3 per cent).

The water extracted from the milk is purified and then used to clean working materials. Most of the process energy also flows back into the production cycle, which saves energy. For both environmental and hygiene reasons, DMK produces the packaging for its Humana baby milk powder on site in Strückhausen. According to DMK, the milk comes from GMO-free feeding and the Strückhausen site, which is located in the middle of the Weser-Ems production area, offers ideal access to the raw milk source. The baby food plant runs in three shifts, seven days a week. Around 160 employees work on the premises.



State-of-the-art plant technology inside the DMK baby food plant in Strückhausen. (photo: DMK)

## Returnable PET for sensitive beverages

### Krones/Alpla

Krones and Alpla developed a returnable PET container (38 mm bottle-neck) that provides an optimal environment for sensitive ESL (Extended Shelf Life) products such as juice and milk in the cold chain. The partners dedicated particular attention to the container cleaning process: With the right combination of parameters – especially lye concentra-

tion, temperature, additive, and mechanical impact – temperatures around 60 °C are sufficient to reliably remove even dried protein, fat, and starch contamination from the containers. Microbiologically, PET bottles that had gone through 25 cycles could not be distinguished from new ones.



Returnable PET containers passed the test, showing that they are suitable for juices and dairy products in the cold chain (photo: Krones)



**SternEnzym**  
The Enzyme Designer



## OUR VARIED LACTASE PORTFOLIO

The production of lactose-free products has been the fastest growing segment in the dairy industry in recent years. Thus, the use of the enzyme lactase in various versions has become indispensable for this industrial food sector. Our Dairyzym series includes all varieties of lactase preparations, to meet the particular needs of our customers.

### SternEnzym GmbH & Co. KG

Kurt-Fischer-Straße 55, 22926 Ahrensburg / Germany

Phone: + 49 4102 202-002

info@sternenzym.com, www.sternenzym.com

- ✓ Dairyzym Y 50 L  
(neutral liquid lactase)
- ✓ Dairyzym Y 20 L  
(neutral liquid lactase)
- ✓ Dairyzym Y 20 SL  
(sterile neutral liquid lactase)
- ✓ Dairyzym Acid L  
(acid liquid lactase)
- ✓ Dairyzym F 100 P  
(acid powder lactase)

# Altmann

## Stainless steel electric belt hoist

**D**ue to strict hygiene regulations, the food industry places special demands on machines and equipment for production and packaging. Material and construction as well as design must be such that the equipment cannot contaminate foodstuffs through abrasion or lubricants. Another prerequisite is the possibility of easy cleaning with highly corrosive cleaning agents. ALTMANN's new hoist is made almost entirely of stainless steel. However, the main feature that predestines it especially for the food industry is the maintenance-free load belt. In contrast to chain or rope, this is absolutely lubrication-free and therefore non-greasy with no abrasion.

### Discreetly installed drives

The discrete drive technology developed by ALTMANN is an ingenious design feature that prevents contamination through abrasion. Among other things, it is based on a low-abrasion material combination for the deflection and guide rollers. In addition, the integration of the electric belt hoist and drive in closed housings absorbs any abrasion. The decentralised control system can either be enclosed together with the hoist or installed in a separate location. Since all travel axes are equipped with a frequency converter, the belt hoist can accelerate steplessly. The hoist can be operated either via a radio remote control, an automatic control or a cable-connected manual control unit.

### Designed for continuous operation

The completely enclosed assembly with its smooth surfaces is particularly time-saving to clean, making the new electric belt hoist



**Stainless steel hoist GHZ 20-21-Inox from Altmann with a lifting capacity of 2,000 kg (photo: Altmann)**

suitable for 3-shift operation in production facilities where perishable foodstuffs such as milk are processed quickly. Wet cleaning in such factories is also facilitated by the drainage holes in the shafts in which the cable drag chains are installed. Because the water does not accumulate due to these holes, no biofilm can form. The

new stainless steel electric belt hoist is currently in operation in a cheese dairy, where it moves loads of 1 ton, having been designed for a load capacity of up to 2 tons. For this use, the hook block was also reeved directly into the crossbeam in order to reduce the actual C dimension of 200 mm by almost half. [altmann-foerdertechnik.de](http://altmann-foerdertechnik.de)



The many areas of application for the IIoT software IRIS include OEE, predictive maintenance and quality management  
(Source: © Sergey Nivens – stock.adobe.com)

## Höfelmeyer IRIS Entire value chain on a single software platform

From incoming goods to outgoing goods, the IIoT software IRIS by Höfelmeyer enables companies to design processes digitally, to network machines and to manage data comprehensively with a diverse range of analysis tools. This safeguards the quality of products and the efficiency of processes. All value streams are available at any time and any place – in real time and independent of end devices. It's up to the customer to decide whether implementation should be cloud-based or on-premise.

As a solution for all weighing and QA tasks, IRIS can be used in a variety of ways. Customers configure the modules according to their process requirements. Examples of applications include the recording and processing of weight data or other quality parameters such as temperature, appearance, taste and consistency.

IRIS features a visual and intuitive user interface. Licences, users, articles, orders etc. can be managed easily.



## Go for gold with the Silver Generation. Palatinose™ adds vitality the balanced way.

With life expectancy increasing worldwide, smart marketers have seniors on their radar. Yet senior is by no means equal to “less active” as this generation wants to be their best self and continue to enjoy life at their own pace. With smart food choices, they aim to keep age-related challenges at bay and continue their daily activities. BENEÓ's functional ingredients offer a wide variety of benefits that speak to the needs of this silver generation. With Palatinose™ you create balanced energy products that help maintain their active lifestyle, without steep rising of blood glucose levels. Unlock full potential at any age.

Come and visit us at

**Fi** Food ingredients  
Europe  
30 Nov - 02 Dec  
Frankfurt, Germany  
Booth #30F40

Follow us on: [in](#) [▶](#) [t](#)  
[www.beneo.com](http://www.beneo.com)

**beneo**  
connecting nutrition and health

# Food Radar Systems

## The latest weapon in the fight against foreign bodies

Since launching their pioneering in-pipe technology in 2010, the food safety experts at Food Radar Systems in Gothenburg, Sweden, have been on quite a journey. The 'Food Radar', which quickly detects and removes previously undetectable foreign bodies from food production lines, has been creating quite a stir in the industry. Now boasting a client list of major international food manufacturers that would be the envy of most food tech companies, their story is one of continuous innovation through technical know-how and customer focus.

### The ever-present threat

Food contamination is an ever-present threat to manufacturers and consumers alike – and it's very bad for business. To fully comply with health and safety legislation, food manufacturers must be able to demonstrate that they have taken every reasonable precaution to prevent contamination of their product. The good news for everyone now is that, with the Food Radar, it is now possible to achieve a higher level of food safety than ever before.

And this is a benefit that is now being enjoyed by many established international food manufacturers such as Emmi of Switzerland. Thomas Arnold, Plant Manager (Emmen) told us: "Product safety has always been a strong focus in our company. We invested in our first Food Radar system in 2014 and last year we decided to put in a second system with all the improvement the new 3rd generation offers."

### Even low-density foreign bodies are detected

The Food Radar is unlike any other food safety technology. Specially devised to maximise the quality of pumpable food products such as baby food, sauces, soups, fruit preparations and desserts, the Food Radar sets a new standard of safety for food manufacturing. Whereas other detection systems remove mainly high-density contaminants such as metal, glass and stone, the Food Radar adds a crucial layer of safety by removing low-density foreign bodies (e.g., soft plastic, fruit stones and rubber), which are undetectable using traditional technologies. Using an entirely safe but highly effective microwave technology, the Food Radar gives cutting-edge protection from the constant and serious threat of these contaminants – it quite literally makes the invisible visible!

While achieving unparalleled levels of foreign body detection, the microwave technology operates at a wattage emission equiva-

alent to a thousandth of the emissions of a mobile phone and around a millionth of the emissions of a microwave oven. So, there is certainly no impact to either the operator of the technology or the food product being monitored.

Low-density foreign bodies, particularly soft plastic, continue to be the most common and hard to detect contaminants, and the many food manufacturers that approach Food Radar Systems continually stress that this is an increasing problem. Kraft Heinz was one of the first companies that invested in a Food Radar. After discovering early, the capabilities of the system, one of its leading food safety directors said: "We find this technology very interesting for helping to eliminate low density foreign matter, in particular plastics, thereby further ensuring the quality of the product we deliver to our customers." And Kraft Heinz has now been using the technology for nine years, investing in various new Food Radar systems during that time.

Customer partnership has always formed a key part of Food Radar Systems' business philosophy. The company prides itself on working with its customers to provide tailor-made solutions and exemplary customer service. For example, in 2014, the team worked with Geurts, a Dutch jam manufacturer that, while running the Food Radar, was experiencing many false rejections due to air bubbles in its product. Determined to help their customer realise the full benefits of the system, the team at Food Radar Systems developed the 'Air Zip', which removes loose air in the pipes. With the two systems running in tandem, the client has now experienced a 95% reduction in complaints about fruit stone contamination.

### Continual innovation

So continual innovation is a key part of the Food Radar story, with the technology now in its third generation. Whereas before, the Food Radar required a set amount of physical space in the client's production facility, the technology has now been redesigned to fit wherever the customer needs it to – it requires no floor space. "In light of the enormous benefits it adds to the production process our customers are always surprised to see how discreet and easy to install the Food Radar really is," says Development Manager of Food Radar Systems, Joakim Nilsson.

### The system

The system consists of three main parts, namely an operator panel, sensor unit and a reject valve (3A). All other components are enclosed within one stainless steel cabinet and, of course, are con-



### The 'Food Radar' quickly detects and removes previously undetectable foreign bodies from food production lines

constructed from the highest quality materials that comply with all the legal and hygiene standards, as you would expect. The system is CIP-able and requires a minimum of maintenance. System installation is quick, too: Joakim Nilsson remembers one installation where he and the customer worked together to ensure the downtime was only four minutes!

Fratelli Polli – a producer of high-quality Italian food products since 1872 – describes its experience of the Food Radar thus: "Fratelli Polli has always looked to innovation to improve our offering. In the area of securing quality and foreign body detection for our pesto production, we looked to the new Food Radar technology. It has proven to be a good system and an example of our ethos of continual improvement. Food Radar Systems was able to adapt its system to our requirements and space constraints. The system has a very hygienic and flexible design that made the implementation easy."

But it's not just in terms of the physical construction of the system that the technology has evolved. There is now a range of differently sized sensors (1.5", 2.0" and 2.5"), each of which is perfectly suited to different types of product and different volumes of production. The smaller the sensor, the better the detection is, but the sensor needs to be dimensioned to handle the highest process flow.

And the Food Radar can be completely integrated with customers' production systems, so it can be connected to any PLC system or can operate without one. There is an easy-to-use 18-inch digital touch screen control and a completely new software

## No.1 specialist in reconditioned dairy machines



dairy & food equipment

Milk

Yogurt

Butter

Margarine

Processed cheese

Cheese



2.000 machines in stock

Warranty

Fast delivery times

Low investment

Complete projects

+31(0)348-558080  
info@lekkerkerker.nl

[www.lekkerkerker.nl](http://www.lekkerkerker.nl)





**Foreign bodies of different density can now be detected using the new Swedish concept**

interface. The new interface has improved historical information and analysis tools to help the operator optimise the Food Radar's performance. Normally, the line can be operated with as little as two to three different signal processing settings, but some customers optimise the setting for each product.

The Food Radar has an open and flexible architecture and can be completely integrated into the customer's PLC system. In this case no settings need to be done on the Food Radar, everything is instead part of the control recipe of the production line, hence minimizing human errors.

Some screening technologies, even when they can detect and remove foreign bodies, can result in large amounts of waste – but not the Food Radar, whose precision technology and fast reaction time mean that rejections result in negligible losses of as little as 0.5-2 kg of product. The system also keeps a graphical historical record of system performance, with full data and strength of all rejections shown clearly on the screen.

### Pilot tests

But what the team at Food Radar Systems really want food manufacturers to know is that they can come and try out their technology for themselves. When the team say, "seeing is believing", they really mean it. The cornerstone of their approach is to invite potential customers to bring their own product and run it through the Food Radar. And they are so confident in what their technology can do, that manufacturers can add any of the usual low-density contamination to their product and watch the Food Radar 'do its thing'. Mikael Reimers, Food Radar Systems' Head of Customer Care, says: "We really love demonstrating the Food Radar to people in the industry, because we know just how en-



**Detection of rubber gaskets, and parts of them, increases food safety**

ergized they get when they see what the technology can do. We get a real buzz when we see the initial scepticism disappear as pieces of soft plastic are effortlessly and instantly removed from the food."

The pilot test takes place over two days at Food Radar Systems' HQ in Gothenburg, Sweden. Customers are invited to bring around 60 kgs of each product they would like to test, plus of course some foreign bodies that typically pose a threat to production. Sven Bodell, Food Radar Systems' President, says: "In addition to the unique capability of detecting wood, plastic and even insects, the ability to detect organic faults, such as starch or spice lumps, is another benefit that our customers have difficulty in believing...that is until they see the system in operation."

After the pilot test, each client will receive a full, detailed report of the performance of the Food Radar when monitoring their product over the course of the two days. And, if the client decides to go ahead with the purchase, they will, together with the technicians at Food Radar Systems, design a system specific to their line. After that, they will receive detailed drawings and preparatory documents to make the installation smooth and effective.

The entire point of the pilot is that the customer is fully assured of the benefits of the system, and exactly how it will work, before making an investment. For the team at Food Radar Systems, this process is not only about demonstrating the effectiveness of the technology but working closely with the customers to understand their specific needs – it's about demonstrating their dedication to helping customers improve their business.

(All photos: Food Radar System)

## Arla Foods Ingredients

### HEALTHIER INDULGENCE

Arla Foods Ingredients has launched a new concept to help manufacturers create protein bars that offer healthier indulgence without compromising on functionality. The protein bar category is forecast to grow at a CAGR of 6% between 2021 and 2025, largely because of demand for tasty snacks that can quell “carb-cravings”. However, there is a growing call on manufacturers to bridge the gap between health and indulgence, with 55% of consumers saying it is hard to find indulgent snacks they believe are healthy.

As the bar category becomes more competitive, manufacturers are looking for innovative ways to meet both these needs. One increasingly featured ingredient is peanut butter, which is familiar to consumers and offers indulgent taste as well as melt-in-the-mouth texture.

However, the use of a soft nut butter base in protein bars can result in issues such as the risk of hardening over time, which can affect mouthfeel and shelf life. Arla Foods Ingredients’ newest concept demonstrates how such chal-



Lacprodan SoftBar makes protein bars healthier without compromising on indulgence (photo: Arla Foods Ingredients)

lenge can be overcome. It combines Lacprodan SoftBar – a dairy and whey protein ingredient which allows bars to reach up to 37% protein content as well as delivering a soft texture – with creamy peanut butter.

The resulting bar delivers an indulgent eating experience and offers manufacturers opportunities to make claims such as high protein and high in fibre.



# Weakling\*

\*a sensitive raw material  
[fragile or easily segregating]

The more complex it is to handle raw materials,  
the more we are in our element!

We Love Ingredients.

Raw materials automatically  
converting | storing | dosing | conveying | weighing | screening

[ We also stand for  
simple solutions ... ]

**AZO.**<sup>®</sup>

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

# Heading into the future

## Yili on course to intelligent, efficient, and standardized production at all stages

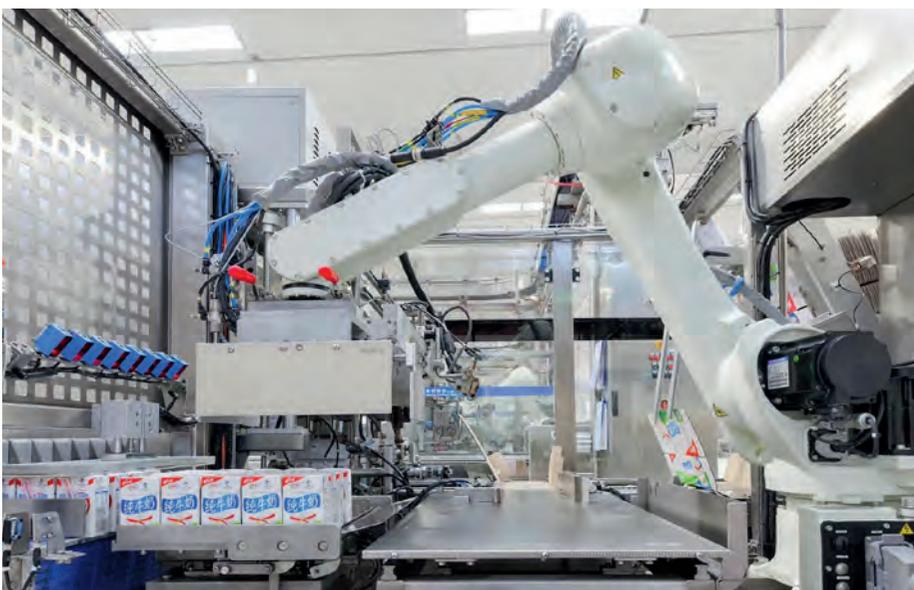
**Y**ili, a major Chinese dairy group, has not only ambitions in expanding markets both in China and abroad but also is a pioneer in developing milk processing and production into intelligent systems. IDM spoke with Dr. Zhanyou Yun, Assistant President of Yili, about Yili's concepts and plans for the transformation of the business.

**IDM:** Yili has established online and offline 'dual centers' and achieved the 'dual integration' of informatization and digitalization. What does that mean?

**Yun:** "Dual centers" and "dual integration" refer to Yili's practices aimed at fostering the development of an intelligent industry by building AI-enabled data centers throughout its industrial chains. To support these efforts, a series of AI-based technologies, such as image recognition, text recognition, voice technology, and natural language processing, among others, are being applied across different scenarios.

In the upper reaches of the industry chain, AI algorithms have been applied to detect cows' feeding and milk yields in real-time, further improving quality control for raw milk. In the middle of the industry chain, Yili's smart factories are improving production efficiency through connected manufacturing equipment, automated production lines, and an intelligent central control system.

Downstream, AI-powered technologies are deployed in marketing strategies, such as sales forecasts, refined operations, intelligent scheduling, product innovation,



(photo: Yili)

and personalized recommendations and services delivered to customers.

**IDM:** Yili has been vigorously developing a wide range of digital tools to stay ahead of the market. Can you explain this in a bit more detail?

**Yun:** Yili has been strongly focused on developing a more intelligent, efficient, and standardized toolkit to improve production management at all stages. To date, five digital tools have been set up. The big data radar system and Consumer Experience Platform provides insights into consumers' feedback on products and their rapidly evolving needs. The Product Lifecycle Management platform collects and manages all required standards for recipes, ingredients, production processes, and packaging to support strong

product development. Yili has also managed to develop a policy and regulation database for the food industry, including key policies and regulations, standards, recalls and alerts. Moreover, with its digital riskassessment platform, potential risks in production can be detected, monitored, and evaluated.

**IDM:** Yili is managing Product Lifecycle Management by digital tools. How does that work?

**Yun:** In Yili's Product Lifecycle Management (PLM) platform, product recipes can be developed and further checked with whether the standards of the target country are being met. Moreover, the system can automatically create an ingredient list in compliance with the labelling standard on the package. Required standards for



**Dr. Zhanyou Yun, Assistant President of Yili: AI-enabled data centers throughout our industrial chains (photo: Yili)**

production processes and packaging are also included. All ingredient standards and product standards are assembled systematically and can be easily accessed in PLM.

**IDM:** What is Yili's digital risk-assessment platform like?

**Yun:** Yili's digital risk-assessment platform consists of three databases: Horizon scan, Foodakai, and Foodmate. Using the databases, you can search 60,000 case studies based upon industry data, border rejections, recalls, foodborne outbreaks, attention from consumers, and customer feedback hotlines which occurred in the past 40 years and across about 170 countries, covering approximately 4,300 types of ingredients and products. By reviewing and learning from the past experiences in these case studies, Yili is then enabled to better assess and evaluate potential risks at an early stage.

**IDM:** What is Yili's course for CO<sub>2</sub> reduction?

**Yun:** Yili established the Dairy Nutrition Assessment System (DNAS) to improve cows'

digestion and absorption rates, setting out a greener way to control greenhouse gas emissions. In addition, Yili considers the environmental impact of transportation at many levels. By improving the full load rate of vehicles, optimizing logistics routes, and using tracking and positioning with GPS, Yili enjoys greater control over the management of drivers and vehicles, which helps to increase operational efficiency and lower carbon emissions.

Since 2010, Yili has systematically evaluated the greenhouse gas emissions across all of its factories for 11 consecutive years, having established a carbon-emissions database for the whole dairy production process. By the end of 2020, 19 of Yili's factories had been certified as national "green factories" in China. The Thailand-based manufacturer Chomthana was certified as a green industry by the Thai Ministry of Industry.



**The future starts  
in our heads**

Discover our line innovations  
at [krones.com](https://www.krones.com)

 **KRONES**



**Khalid Ikram**

**Pactiv Evergreen:  
Promotions announced**

The Pactiv Evergreen Equipment Business has announced the following promotions in the Engineering and Field Service Departments:

**Khalid Ikram** has been named Manager of Production Engineering. Khalid has been with the company since 2005, and most recently managed Development Engineering. In this new role, he will manage the day-to-day business for sold machine orders.

**Richard Spier** is promoted to PCO (Process Center Owner) managing



**George Morden**

the EH-84, Q-70, and other quart/liter product lines. He has extensive experience working with controls, and has been with Evergreen Packaging since 2016.

**George Morden** has been named the Manager of Development Engineering. He has previously been a project leader on the Development team and has been with the company since 1997. George will lead the Development Engineering Team in all current and future machine developments.

**Andrew Schmit** will lead Eco-Pak developments in his new role as a Development Engineering Project Leader. He has been with Evergreen



**Dan Manders**

since 2009, and worked on several development projects.

**Dan Manders** will lead the current EH-210 project, as well as future developments as a new Development Engineering Project Leader. He has been with Evergreen since 2014, and has worked on various development projects.

**Tom Fahrenkrug** has been promoted to Manager-Equipment Technical Support. He will continue to expand the focus of one of Evergreen Packaging's core strengths of customer support. Technical support programs will continue to be developed utilizing the latest technology to meet customer requirements.



**Richard Spier**



**Andrew Schmit**



**Tom Fahrenkrug**

## Elopak

### ASEPTIC CARTON WITHOUT ALUMINIUM

Norwegian packaging manufacturer Elopak is leading the way in sustainability by announcing Pure-Pak eSense, a new beverage carton for aseptic filling. By eliminating the aluminium barrier, the carton's carbon footprint is reduced by 28 per cent. At the same time, recycling of the composite material is facilitated. In developing the Pure-Pak eSense, the company was able to draw on proven technologies from its packaging range for freshly filled products. This ensures product integrity as well as safety and shelf life of the contents even without the usual aluminium layer. From the outside, the new carton is identical to the popular Pure-Pak Sense Aseptic.



The aseptic Pure-Pak eSense carton comes without aluminium (photo: Elopak)

## Soil life

### SACCO SYSTEM IN PARTNERSHIP WITH LANDLAB

Sacco System Holding and Landlab have entered a cooperation. The alliance aims to develop innovative, sustainable and eco-friendly products.

Landlab is a cutting-edge research team, a place for development and

innovation for agriculture, active in this area for more than 20 years. The company deals with plant nutrition, bio-stimulation and protection, by developing new products with special care for change in this sector. The cooperation of Sacco System and Landlab focuses a.o. on improving soil life as a basis of robustness and performance of crops by use of microbials, bacteria or yeasts. [saccosystem.com](http://saccosystem.com)

**Trepko**  
www.trepko.com

Worldwide supplier  
of filling/packaging machines



## FILLING TECHNOLOGY



DACH - Staaten  
TREPKO A/S Hinterbacher Str 1, D-87439 Kempten/Deutschland  
Festnetz: +49 831 527 123 58 Mobil: +49 151 434 099 30 e-mail: [tesma@trepko.com](mailto:tesma@trepko.com)

# Economic, ecological and eco-friendly

## Ultrasonic technology for intelligent packaging solutions



Authors: Carolin Reinbold (left), Sales Manager for Bonding Technology at Telsonic AG, (e-mail: [carolin.reinbold@telsonic.com](mailto:carolin.reinbold@telsonic.com)), and Ellen-Christine Reiff, M.A. (right), Stutensee editorial office (<http://www.rbsonline.de>)

**M**odern filling systems for beverage packaging operate with capacities of tens of thousands of packages per hour. This places high demands on the cycle times of all processes, including packaging. Sealing methods that use ultrasonic technology have proven their value here in multiple ways: Beverage cartons, stand-up bags and tubular bags, as well as coffee capsules can not only be sealed quickly but also gently without damaging the product. At the same time, the process is inexpensive and environmentally friendly, as it does not require any adhesives or other additives. The process is accurately reproducible, can be easily monitored and the productivity of the entire plant increases.

Today, beverage, sauce and paste packaging (Fig. 1) should not only be sealed and easy to handle, but also visually appealing and, above all, environmentally friendly. Most cartons are therefore now made entirely, or at least partially, from re-

newable raw materials. This is a trend that will gain in importance in the future, and one that puts us as consumers under an obligation. However, new materials that are entering the market in this context pose significant challenges for conventional sealing technologies. It is not possible, for example, to splice mono films (PP, PE) without an additional protective layer (welding cloth). This is where ultrasonic sealing can show its advantages. The printed material is protected and the process itself is very environmentally friendly because it requires significantly less energy. The absence of solvents or elaborately applied adhesive layers also has an immediate effect on the footprint of the system and the production of the packaging.

### How sealing with ultrasonic technology works

When sealing with ultrasonic technology, a generator generates a high-frequency alternating current in the ultrasonic range, which



Fig 2: Sealed bottom seam after filling. (Telsonic)



Fig 3: Resealable closures are welded by using ultrasonic technology. (Telsonic)



**Fig. 1: Beverage, sauce and paste cartons can be sealed reliably and economically with ultrasonic technology. (Telsonic)**

is converted into mechanical ultrasonic vibrations in an electro-mechanical converter. By using a sonotrode as a sealing tool, the vibrations are introduced under the effect of force into the components to be joined. The process thus generates the sealing heat from inside the packaging material. Strong bonded joints, as well as peelable bonded joints with individual sealed seam geometries if required, can be produced with this method without exposing either the product or its environment to high thermal stress. There are no warm-up times and the sonotrode remains practically cold. Heat does not alter the filler material, which is particularly relevant for groceries. In addition, the barrier properties of the packaging are not impaired.

However, the sealed weld is not only tight, but also reduces the amount of packaging material required due to the narrow sealing zone. In the case of salad packaging, for example, which is produced using the tubular bag method, this can save around 50% of the material between the bags. The ultrasonic vibration also cleans the sealing area of possible impurities, while any residual product is reliably forced out of the seam. Even sealing through liquids is no problem. Here, another advantage comes into play: ultrasonics can also be used for cutting, which means that stamping and sealing are possible in a single work step.

### Energy-efficient, food-compliant and reproducible

The short sealing times and high level of efficiency also distinguish ultrasonic technology as an energy-efficient joining method, which not only allows the sides or bottom seams (Fig. 2) of filled beverage packages to be sealed tightly and reliably, but also the practical quick pour spouts (Fig. 3) to be joined securely. The sonotrodes used here are made of a food-compliant, FDA-certified titanium alloy and are available in a wide variety of versions (Fig. 4). If necessary, a quick tool change is possible. The sonotrodes require little maintenance; maintenance intervals can be optimized and service costs reduced.

## READY TO SWITCH TO ASEPTIC PET PACKAGING?



For liquid dairy, PET packaging solutions give you brand differentiation, flexibility and cost-effective production while ensuring complete product quality and safety.

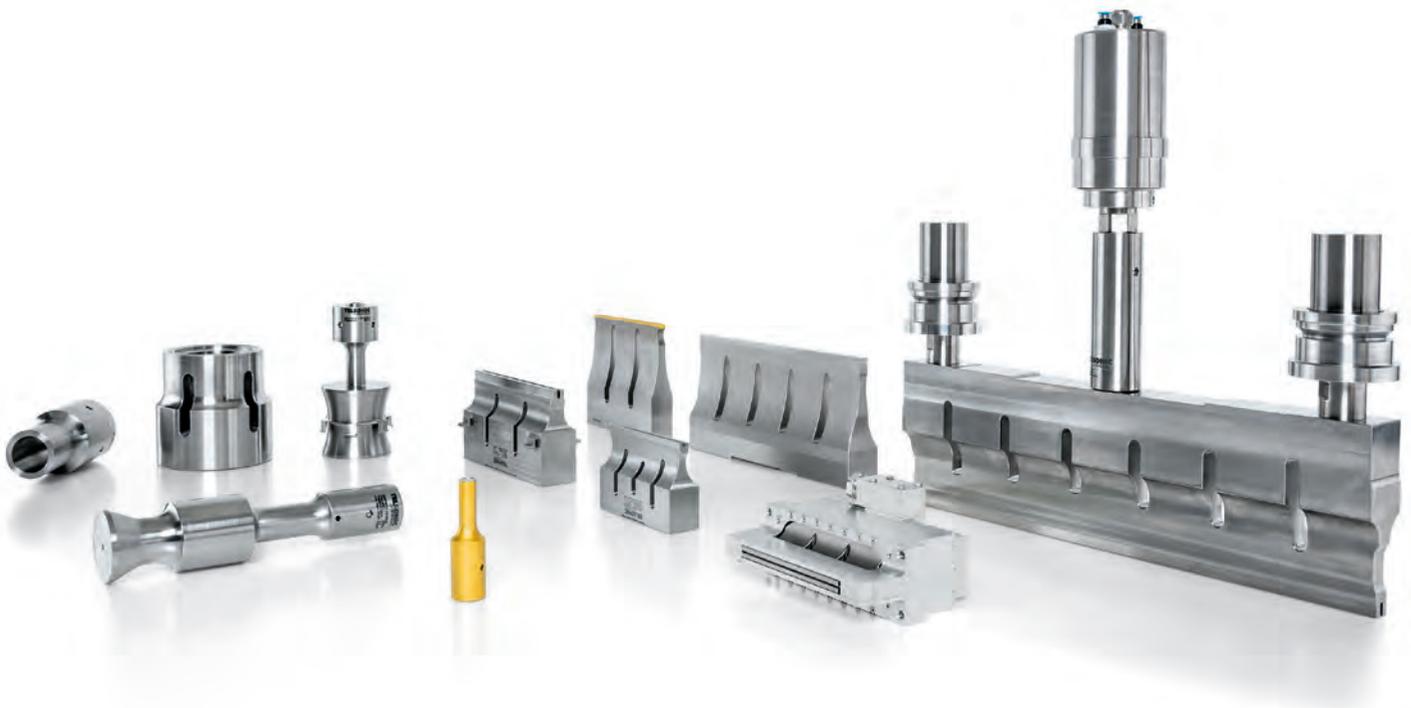
**Sidel, when aseptic matters.**

Sidel  
Aseptic Combi Predis™  
FDA approved

sidel.com

Performance  
through  
Understanding





**Fig 4: Sonotrodes and sealing systems for a wide variety of applications. (Telsonic)**

The converters (Fig. 5) are also available for different application requirements in different frequencies, power classes and hygiene requirements (IP classes). Ultrasonic specialist Telsonic (see company box) also has a particularly compact, patented sealing tool in its range that can be easily installed even where installation space is limited. Since the converter function has been integrated into the sonotrode here, the space requirement is reduced by around half.

The modular ultrasonic components are designed for integration into production plants and meet all of the requirements to rise to the conceptual challenges of Industry 4.0. Straightforward mechanical and electrical integration into all systems for industrial production is guaranteed, as is comprehensive quality

and process monitoring. The high-speed ultrasonic generators (Fig. 6) can be controlled in a cost-effective manner via all commercially available fieldbus systems. They are compact and offer constant power output and process control through definable quality windows.

### The right solution for every task

Since no two applications are the same, Telsonic offers the torsional welding technology SONIQTWIST in addition to longitudinal welding, e.g. when different materials need to be joined together. Thanks to its many years of experience, the ultrasonic specialist can thus offer the right solution for every packaging task, e.g. in terms of economic efficiency and process speed.



**Fig 5: Linear and torsional ultrasonic converters (Telsonic)**



All systems have a modular design and can be easily integrated into the most diverse production lines via digital interfaces. Fig. 7 shows a practical example:

Due to the high production capacity of several thousand packages per line and hour, the two-lane filling system features two sealing systems that operate independently of each other. The bottom seam of the beverage cartons is tightly sealed with a titanium sonotrode. To meet cleaning and hygiene requirements, the converter housings are made from corrosion-resistant and acid-resistant stainless steel and are compliant with protection class IP67. The ultrasonic generators take up minimum space inside a control cabinet. The control and monitoring of the welding process is performed by the machine controller.



**Fig 7: Two-lane filling system with a production capacity of several thousand packages per line and hour. Two individually operating sealing systems are integrated in each case. The bottom seam of the beverage cartons is tightly sealed with a titanium sonotrode. (Telsonic)**

**Fig 6: MAG series generators: Compact design, real-time results via modern fieldbus systems, constant output, process control through quality windows, Industry 4.0 compatibility and a high level of efficiency are their most important features. (Telsonic)**



**Worldwide trading**

**Tel: +31 348 460 009**

**sales@useddairyequipment.com**

**www.useddairyequipment.com**



**Used machines:**

**Separators, Bactofuges**

Brands: Tetra Pak, Alfa Laval, GEA Westfalia

**Homogenizers**

Brands: Tetra Alex, SPX APV, GEA Niro Soavi

**UHT & Sterile / Aseptic units**

Brands: Alfa Laval, Tetra Therm, Tetra TBA, GEA

**Also complete dairy factories**

# Segment in transition

## Dairy trends: Products with added health benefits

**D**airy products have always been among the most important product groups in the supermarket. Today, however, milk, yoghurts and cheeses are being joined by more and more hip and trendy products that are changing the classic image of the segment.

That's because cow's milk has become an ambivalent product for many consumers. Such ambivalence is evidenced by new products in the dairy sector – from those enhanced by fortification to plant-based alternatives. IDM spoke to Julien Bonvallet, Fi Europe Brand Director, about the main topics of this year's Fi Europe co-located with Hi Europe, which will take place in Frankfurt from 30 November to 2 December.

**IDM:** Julien, what will be the status of dairy products at Fi and Hi Europe?

**Bonvallet:** Dairy is omnipresent, as illustrated by the Fi Conference, which will take place virtually from 22 November, with different topics every day. They will include reformulation, life stage nutrition and intestinal health. From the exhibitors' side, too, milk and dairy products will be highlighted in their entirety. It is also telling that many milk processors, such as FrieslandCampina, Sachsenmilch, Armor Proteins or Carbery Food Ingredients Ltd., have decided not to exhibit in the Food ingredients Europe area but in the Health ingredients Europe hall. This shows the importance placed on the health properties of milk ingredients.

**IDM:** The consumer does not seem to see it quite so clearly.

**Bonvallet:** Anyone who informs themselves about milk and other dairy products will no doubt come across conflicting information, from the benefits of vitamins and minerals to the risk of allergies, intolerances, and inflammation. One thing is certain, though – many consumers still enjoy dairy products. Our partner Innova Market Insights asked people from 12 European countries about their reasons for consuming dairy products. In the case of milk and milk-based drinks, just under half said they valued the health benefits, with 38 per cent saying they drink milk for taste reasons. It's a similar situation for yoghurt, with 52 per cent appreciating the health benefits, and 47 per cent citing taste as a reason for purchase. With cheese, taste is the deciding factor for 63 per cent of consumers. Interestingly, in the same survey, almost 41 per cent of respondents said they considered plant-based milk alternatives to be healthy, and 33.5 per cent said they enjoyed the taste.



**Julien Bonvallet, Fi Europe Brand Director: Dairy is omnipresent at the Fi Europe event (photo: Informa Markets)**

In order to strengthen the image of milk as a healthy food, manufacturers have begun to expand the classic range with new, enriched products – from high-protein yoghurt to probiotic milk drinks. That said, plant-based alternatives made from oats, rice or peas are increasingly conquering the shelves too.

**IDM:** Probiotics started their triumphal march with Nestlé LC1 yoghurts in 1995. How popular are probiotic products today?

**Bonvallet:** Probiotic shots, i.e. those enriched with living bacterial cultures, are still very much in vogue. The idea behind it: Our intestines consist of beneficial bacteria, such as those from the genus *Lactobacillus*, and potentially harmful ones like



(photo: Informa Markets)

Clostridium difficile. If the microbiome, i.e. the totality of bacteria in the intestine, is in balance, everything is fine. Problems arise when the microbiome becomes imbalanced, for example due to antibiotic therapy or poor diet over a prolonged period. Pathogenic germs can then multiply and cause symptoms such as diarrhoea, cramps and general malaise. The supply of probiotics, i.e. the "good" bacteria, is intended to support the

diversity and balance of the intestinal flora.

So gut health has long since ceased to be a passing fancy. From prebiotic dietary fibres, to ingredients for a personalised diet and probiotics, now that people know the pivotal role the intestine plays in overall well-being, fermented dairy products and probiotic shots are playing a key role in their diet. Another hot topic is the connection between intestinal health and immune defence.

sema systemtechnik



## PROFESSIONAL PACKAGING SYSTEMS

Technologies for secondary end-of-line packaging for the food industry, with a focus on dairy products.

Competence from the individual machine to the complete final packaging line.



Visit us on the internet!

sema systemtechnik GmbH  
Bredenhop 27 · 32609 Hüllhorst

Phone +49 57 44/93 18-0  
info@sema-systemtechnik.de

www.sema-systemtechnik.de



**In order to strengthen the image of milk as a healthy food, manufacturers have begun to expand the classic range with new, enriched products (photo: Informa Markets)**

**IDM:** Are there any pitfalls in this regard?

**Bonvallet:** It is a fact that the intestine is the largest organ of the human immune system. But it is not that simplistic. Although there are studies that prove probiotics can play a role in immune health, there are no corresponding EFSA health claims. In the minds of consumers, however, the connection is not in doubt. Danone, for example, adds vitamins D and B6 to its Actimel shots, for which an immune claim is permitted – but the milk drinks are bought largely because of their L. Casei cultures. Of course, milk in itself provides many other valuable ingredients that consumers appreciate, and offer potential for product development.

**IDM:** What sort of ingredients?

**Bonvallet:** Definitely protein! Almost all dairies now offer products with added milk protein. According to the cross-industry trend "Sportification", which Julian Mellentin highlighted in 2017, foods and beverages with a high protein content are seen as 'saviours' for a sporty-active lifestyle. Although many dairy products are naturally high in protein – for example, low-fat quark with around 13g, and certain types of cheese with around 30g – the new high-protein offerings are different, as they seek to combine the indulgence factor with an active lifestyle. So it is

often chocolate puddings and sweet milk drinks that advertise extra milk protein. According to EFSA, the claim "high protein content" is permissible if the protein content accounts for at least 20 per cent of the total calorific value of the food.

**IDM:** So all in all, a win-win for producers and consumers alike?

**Bonvallet:** Consumers are of course still eager to buy high-protein products – but more and more people are also interested in the ingredient list and nutritional profile. And if the sugar content is higher than the protein content, this could deter conscious consumers. So in the dairy sector, sugar reduction is still a big issue.

**IDM:** What other important trends for the dairy segment can be observed at Fi Europe co-located with Hi Europe?

**Bonvallet:** For me, these are senior nutrition and, of course, plant-based alternatives. It is their valuable ingredients that make dairy products the ideal basis for healthy ageing products. And we are talking about a huge target group here: according to Euromonitor International, more than 990 million people will be 65 or older by 2030. These people want to live an active, self-determined life for as long as possible, and not only with pills, but also

with preventive support through food – for a strong immune system, more energy, beauty from within, eye and heart health, and the musculoskeletal system. Take a yoghurt enriched with DHA, i.e. omega-3, high protein content, low-glycaemic carbohydrates and pre- and probiotics: This can offer several benefits in just one product – and it tastes delicious, too. However, the senior nutrition market is still largely unexplored, despite the growing demand.

**IDM:** What challenges does the trend towards vegan alternatives present?

**Bonvallet:** The biggest challenge is to keep up with the originals in terms of texture and taste. While strict vegans are quite prepared to make sacrifices in terms of indulgence for the sake of animal welfare, it's a different story for flexitarians: if they give up animal products now and then, the alternatives should at least taste good. In the field of plant-based yoghurts and milk drinks, a lot has happened in recent years. Vegetable cheese, on the other hand, is still in its infancy in sensory terms, but thanks to precision fermentation there could soon be a leap forward in development. Controlling microorganisms in such a way that they can produce complex organic molecules on demand sounds as strange to consumers as laboratory meat. But if such new technologies can be used to optimise the texture and taste, as well as the protein and nutrient content of plant products, and if possible at a reasonable price, then future dreams will soon become reality. At our Fi Europe Innovation Awards and the Startup Innovation Challenge, in particular, we repeatedly see companies with creativity and power that are able to take unusual new technologies and make them mainstream.

**More information:** [www.fieurope.com](http://www.fieurope.com)



**The biggest challenge for vegan dairy alternatives is to keep up with the originals in terms of texture and taste (photo: Informa Markets)**

## The pioneer

for groundbreaking filling technology.

**GRUNWALD**  
Dosieren · Abfüllen · Verpacken



**FACHPACK 2021**  
GRUNWALD-ALM  
Halle 2, Stand 402

**The development has advanced – the GRUNWALD-FOODLINER 30.000UC**

The filling and packing line in peroxide-free ultraclean(UC) hygiene design, with guaranteed reliable UV(C) sterilisation system and verifiably confirmed, maximum hygiene level (min. log4) with extended functions.

# Join World Dairy Experts

## IDF Global Dairy Conference 2021



Author: Caroline Emond, Director General, International Dairy Federation (IDF)

This year, the Danish National Committee of the IDF is proud and happy to be able to host the first hybrid IDF Global Dairy Conference which will be held in Axelborg/NIMB in the heart of Copenhagen from 13th - 15th October 2021. The conference will be held as a hybrid event including live sessions in Copenhagen and the opportunity to attend online, allowing participants to engage virtually. With its official title "A changing climate for dairy", the sessions will review the latest science and address the most vital topics for the dairy sector now and in years to come.

The agenda of the conference is scheduled by a working group headed by the director of the Danish Dairy Board Brussels, Ms Kirsten Holm Svendsen:

*"The general theme of the conference is 'A Changing Climate for Dairy'. In other words, it deals with the work on climate solutions carried out by the dairy industry itself, and how the surrounding world – the political and economic conditions – currently changes due to national and international climate goals",* says Ms Kirsten Holm Svendsen.

The conference will open with welcome speeches by Danish Minister for Food, Agriculture and Fisheries Rasmus Prehmand and EU Commissioner Stella Kyriakides, followed with the IDF Dairy Leaders Panel, whereupon several CEOs of dairy companies will showcase their visions for the global dairy sector over the coming years and discuss several strategies and visions of their respective companies to nourish the world with safe, nutritious, and sustainable dairy products. Dr Judith Bryans, lead of IDF Task Force on the UN Food Sys-

tems Summit will also share the highlights of the Summit and the impacts on the dairy sector. The IDF Forum will be an occasion to invite participants to learn about the work of the organization.

The programme of the conference on day 2 follows these important issues, with detailed sessions on sustainable diets, and drawing attention to the importance of nutrients and the health benefits of dairy. Several frameworks will be presented with the aim of demonstrating the relationship between food patterns, health, and climate. Innovative solutions to dairy processing and technology will also be presented with an individual session on Processing and Technology, focusing on maintaining the quality and essential raw materials in dairy products to the consumer, and how this is possible through concrete steps, as well as displaying the potential of new technologies for dairy production and the sustainability aspects of these. This will move onto a session on reducing the climatic footprint of dairy farming.

The last day of the conference will look further into dairy markets and consumer behaviour, specifically during the COVID-19 crisis, and the challenges that lie ahead. Participants will also have the chance to obtain more insight into food safety culture (FSC), challenges in traceability and the newest developments in food culture and gut health. Further presentations will address new testing techniques and approaches in targeted and non-targeted screening.

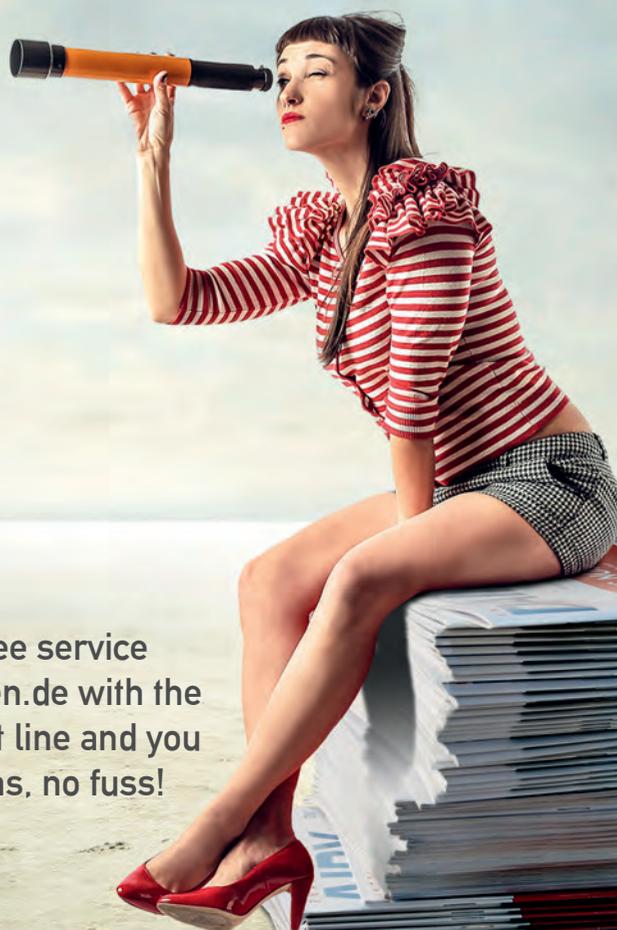
You can read more about the IDF Global Dairy Conference and the programme here: <https://idfglobaldairy.org/>

Don't miss on the opportunity to join the global dairy community for this unique event!

# PREVIEW **OUR** PREVIEWS

A FREE SERVICE BROUGHT TO YOU BY IDM – INTERNATIONAL DAIRY MAGAZINE

As a reader of IDM you will already know that we produce quality in-depth previews of all the major exhibitions relating to our industry but did you know that you could sign up to receive these special show guides before they are even published?



To take advantage of this free service just email [sossna@blmedien.de](mailto:sossna@blmedien.de) with the word Preview in the subject line and you will be registered – no forms, no fuss!

Don't delay, sign up today to receive your pre-publication PDF – completely free of charge!

# Save the date – EDA Annual Convention 2021

‘Sustainable Food Systems and European Dairy: Uniting dairy excellence and ambition’, a high-level conference in the heart of Europe



Just a few days after the long-awaited UN Food Systems summit, concretely on **Friday 1 October 2021**, the **European Dairy Association (EDA)** will celebrate its **2021 Annual Convention** in Leopold Hotel, in the EU quarter of Brussels, to bring the conversation on Sustainable Food Systems into the heart of Europe and highlight the vital role of European dairy. The conference will be a physical event with the possibility to watch live online.

In the context of the EU Green Deal and Europe's climate ambitions to lower greenhouse emissions in the upcoming years and



overcome the current climate crisis, the European dairy sector stands as a needed ally to ensure a smooth and fair transition for all, from farmers to consumers.

The event will start with **Professor Roel Jongeneel** of Wageningen University setting the scene and addressing the European ambitions for livestock and dairy. Under the **Slovenian EU Presidency**, the conference will continue with the keynotes of **Mr Aleš Irgolič** (Slovenian State Secretary for Agriculture), followed by Mr Lukáš Víšek (Member of cabinet of European Commission First Executive Vice President Frans Timmermans) and **Ms Hester Maij** (RFC Corporate Director Public & Regulatory Affairs).

A podium discussion moderated by journalist Angelo Di Mambro and a Q&A session will put the finishing touch to the event, before enjoying a delicious tapas-style light lunch.

Check out EDA website – [euomilk.org](http://euomilk.org) – for the full programme and more information on how to register, whether physical or online.

**The new EDA president Giuseppe Ambrosi will open the conference sharing EDA's view on the new political environment for European dairy.**

# International Conference Importance of Plant-based Alternatives for the Dairy Industry

Part 1: 10 & 11 November 2021 (digital) – Part 2: 21 & 22 June 2022 (Kempten)

**muva**  
kempten

 Akademie

  **Wednesday, 10 November 2021**

**13:00 Online Check-in (until 13:30)**

**13:30 Welcoming the participants**

*Dr. Monika Knödseder  
Managing Director muva kempten GmbH*



**13:40 Introduction to the topic of plant-based alternatives**

*Georg Herbertz,  
Herbertz Dairy Food Service*



**14:00 Milk and its "alternatives":  
Both white and what else?**

▶ Transformation processes in nutrition  
also determine the future of milk food  
products

*Dr. Hans-Jürgen Seufferlein  
Managing Director, Verband der Milcherzeuger Bayern e.V.*



**14:30 Plant-based alternatives for milk  
products: A global new standard**

▶ Player  
▶ Positions  
▶ Perspectives

*Peter Link, Editor in Chief - vegconomist*



 **Coffee break ( 15:00)**

**15:15 Trends and growth opportunities  
for plant-based milk alternatives  
and hybrid products**

*Dr. Dorothea Pein, Head of Product  
Management, Planteneers GmbH*



**15:45 Innovative alternative milk  
applications using sunflower  
protein**

*Monika Gälweiler, Head of Application  
Development and Customer Solution,  
Sunbloom Proteins GmbH*



**16:15 Summary & concluding discussion**

*Georg Herbertz, Herbertz Dairy Food Service*

**16:30 End of Day One**

**Cooperation partner**



Milchwirtschaftliches  
Zentrum Bayern  
Kempten/Allgäu

  **Thursday, 11 November 2021**

**09:00 Online Check-in (until 09:30)**

**09:30 Welcoming the participants**

*Dr. Monika Knödseder  
Managing Director muva kempten GmbH*



**09:40 Sensory properties of plant-  
based milk alternatives**

*Rebekka Wucher,  
Head of Sensory Dept. muva kempten GmbH*



**10:15 How your entry to the vegan  
market can succeed**

▶ Complete solutions as an opportunity for  
dairies and related entrants

*Dr. Frederic Tamm, Product Developer  
CONDETTA GmbH & Co. KG*



**10:45 Technologies for the  
manufacture of plant-based  
cheese replacement products**

*Dirk Schönfelder, Food Technologist  
ProXes Stephan Machinery GmbH*



 **Coffee break (11:15)**

**11:30 Process solutions for the  
production of plant-based  
beverages**

*Astrid Heller, Sales Support Engineer,  
Non Alcoholic Beverages, GEA*



**12:00 Plant-based milk  
alternatives for the dairy  
and food industries**

*Michael Koenen, Roland Gianotten,  
Zentis GmbH & Co. KG*



**12:30 Summary & concluding discussion**

*Dr. Monika Knödseder, Georg Herbertz*

**12:45 End of the conference**

**Conference language: german**

**Conference location: digital**  
**Participation fee: € 490,- (plus VAT)**  
**Closing date: November, 08<sup>th</sup>, 2021**

Further informations: [www.muva.de/konferenz](http://www.muva.de/konferenz)

**Bundle:**  
**€ 1.350,- (plus VAT) when booking both conferences at  
the same time (Part 2: 21. & 22. June 2022, Kempten)**

**muva**  
kempten

**Registration**  
muva kempten GmbH / Herbertz Dairy Food Service  
Ignaz-Kiechle-Straße 20-22 | 87437 Kempten  
[conferences@muva.de](mailto:conferences@muva.de) | [www.muva.de/konferenz](http://www.muva.de/konferenz)

 **Herbertz**  
Dairy Food Service

**Cheese cutting machines**



**ALPMA Alpenland Maschinenbau GmbH**

Alpenstrasse 39 – 43  
83543 Rott am Inn, Germany  
Phone: +49 (0)8039 401 0  
Fax: +49 (0)8039 401 396  
Email: [contact@alpma.de](mailto:contact@alpma.de)  
Web: [www.alpma.de](http://www.alpma.de)



**GROBA BV**

Mangaanstraat 21  
6031 RT Nederweert, Niederlande  
P.O. 2740, 6030 AA Nederweert  
Telefon: +31-475-565656  
E-Mail: [info@groba.eu](mailto:info@groba.eu)  
Web: [www.groba.eu](http://www.groba.eu)



**holac Maschinenbau GmbH**

Am Rotbühl 5  
89564 Nattheim, Germany  
Phone: +49 (0)7321 964 50  
Fax: +49 (0)7321 964 55 0  
Email: [info@holac.de](mailto:info@holac.de)  
Web: [www.holac.de](http://www.holac.de)



**TREIF Maschinenbau GmbH**

Toni-Reifenhäuser-Str. 1  
57641 Oberlahr, Germany  
Phone: +49 (0)26 85/944-0  
Fax: +49 (0)26 85/1025  
Email: [info@treif.com](mailto:info@treif.com)  
Web: [www.treif.com](http://www.treif.com)

**Cheese technology**



**ALPMA Alpenland Maschinenbau GmbH**

Alpenstrasse 39 – 43  
83543 Rott am Inn, Germany  
Phone: +49 (0)8039 401 0  
Fax: +49 (0)8039 401 396  
Email: [contact@alpma.de](mailto:contact@alpma.de)  
Web: [www.alpma.de](http://www.alpma.de)

**Ingredients**



*Improving food & health*

**Chr. Hansen GmbH**

Große Drakenburger Str. 93-97  
31582 Nienburg, Germany  
Phone: +49 (0) 5021 963 0  
Fax: +49 (0) 5021 963 109  
Email: [decontact@chr-hansen.com](mailto:decontact@chr-hansen.com)  
Web: [www.chr-hansen.com](http://www.chr-hansen.com)

**Packaging technology**



**ALPMA Alpenland Maschinenbau GmbH**

Alpenstrasse 39 – 43  
83543 Rott am Inn, Germany  
Phone: +49 (0)8039 401 0  
Fax: +49 (0)8039 401 396  
Email: [contact@alpma.de](mailto:contact@alpma.de)  
Web: [www.alpma.de](http://www.alpma.de)

**Reconditioned dairy equipment**



dairy & food equipment

**Lekkerkerker Dairy & Food Equipment**

Handelsweg 2  
3411 NZ Lopik, the Netherlands  
Phone: +31-348-5580 80  
Fax: +31-348-5548 94  
Email: [info@lekkerkerker.nl](mailto:info@lekkerkerker.nl)  
Web: [www.lekkerkerker.nl](http://www.lekkerkerker.nl)

**Software**



**CSB-System AG**

An Fürthenrode 9-15  
52511 Geilenkirchen, Germany  
Phone: +49 2451 625-0  
Fax: +49 2451 625-291  
Email: [info@csb.com](mailto:info@csb.com)  
Web: [www.csb.com](http://www.csb.com)

The business IT solution for your entire enterprise

INTERNATIONAL

# DAIRY

September/October 2021

SPECIAL „PLANT BASED ALTERNATIVES“



magazine

PROCESSING | INGREDIENTS | PACKAGING | IT | LOGISTICS

[www.international-dairy.com](http://www.international-dairy.com)



**DAIRY-BASED. PLANT-BASED.  
LET YOUR CONSUMERS DECIDE.  
WITH UHT, YOU'RE PREPARED.**



At SPX FLOW, we are committed to staying ahead of trends. That's why the same UHT technology you've come to know and trust for efficiency, sustainability and taste for dairy products also doubles as a plant-based solution. Same machine. Dual outcomes. And because we've been doing this a while, we're the perfect partner for your foray into plant-based offerings.

It's time to give your consumers the options they demand. Visit [spxflow.com](http://spxflow.com) or scan below to learn more.



**SPXFLOW<sup>®</sup>**

Solutions in the Making





PALSGAARD NON-DAIRY EMULSIFIERS & STABILISERS

# Rich, creamy and high in fibre

Delicious plant-based, dairy alternative drinks are becoming everyone's favorite. Especially when, taste, texture and mouthfeel are on point.

The secret to obtaining creamy mouthfeel and texture in plant-based drinks lies in the emulsifiers and stabilisers you use. Palsgaard offers a series of emulsifiers and stabiliser systems designed to keep your customers wanting more. We can help you whether your main concern is cost-efficiency, shelf-life stability, or obtaining a special sensory property.

In our application centres around the world, our teams of industry experts are ready to help you refine your existing products or develop new ones.

Find out more at [www.palsgaard.com/vegan-drinks](http://www.palsgaard.com/vegan-drinks)

BRINGING GOOD THINGS TOGETHER

**Palsgaard**<sup>®</sup>

## Content

- 3 >>>> Imprint
- 4 >>>> Shaping the Spoonable, Plant-Based Yogurt Alternatives Market
- 6 >>>> How to stand out
- 8 >>>> Perfect plant-based frozen desserts
- 12 >>> What is better: plant or milk?
- 14 >>> Plant-based colors
- 15 >>> Dairy or Plant-based?
- 16 >>> Move into the future
- 18 >>> Plant-based ice cream
- 20 >> Take the innovation test
- 22 >> Plant-based power from Pulses
- 24 >> Full service, all from one source
- 26 >> New hybrid products

## Imprint

**Publisher:** B&L MedienGesellschaft mbH & Co. KG Hilden, Verlagsniederlassung Bad Breisig, Zehnerstr. 22 b, 53498 Bad Breisig/Germany, Fax: +49(0)2633/454099, Internet: www.international-dairy.com

**Object Manager:** Burkhard Endemann, Direct line: +49(0)2633/4540-16, Email: be@blmedien.de

**Editor:** Roland Sossna (responsible), Office Dülmen/Germany, Direct line: +49(0)2590/943720, Cell phone: +49(0)170/4185954, Email: sossna@blmedien.de

**Office Dorsten:** Anja Hoffrichter, ah@blmedien.de, Cell phone: +49(0)178/2330047

**Graphics, layout and production:** Katja Ledder, Direct line: + 49 (0) 172/325 70 99, Email: k.ledder@kontrastdesign.com

**Advertising Manager:** Heike Turowski, Office Marl/Germany, Direct line: +49 (0) 23 65/38 97 46, Fax: +49 (0) 23 65/38 97 47, Cell phone +49 (0) 1 51/22 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 (0) 1634 221360, Email: david@dcmediaservices.co.uk

IDM International Dairy Magazine is published six times a year (February, March, June, August, September, November).

**Cover page:** SPX

**Print:** Ortmaier-Druck GmbH, Birnbachstraße 2, 84160 Frontenhausen

The magazine is printed on chlorine-free paper.

Economically involved in the legal sense of § 9 (4) LMG Rh.-Pf.: Owner of B&L

Medien-Gesellschaft mbH & Co. KG D-40724 Hilden (shares in brackets):

Renate Schmidt (38.8 %), community of heirs Ulla Werbeck (31.2 %)

General Manager of B&L MedienGesellschaft mbH & Co. KG: Harry Lietzenmayer

# CP Kelco

## 5 Things Shaping the Spoonable, Plant-Based Yogurt Alternatives Market

**F**rom 2015 to 2020, there were 27 times more new product launches of spoonable, plant-based yogurt alternatives than dairy yogurt (Innova Market Insights, CAGR 2015 – 2020). The key factor powering this growth and demand for vegan/plant-based products is consumers' increasing focus on sustainability, health and wellness.

It's no wonder that dairy alternatives continue to grow in popularity. Besides attracting the flexitarians and curious food explorers, those who may be lactose intolerant or allergic to dairy are now enjoying the products. Using data from Innova Market Insights (2021), here is a deeper dive into the reasons behind its success:

### 1. Curiosity in plant-based diets expands.

Rising global interest in plant-based and flexitarian lifestyles has driven this subcategory onward. It also gained momentum following the emergence of "free-from" alternatives.

### 2. It appeals to developed regions as well as emerging markets.

Europe and North America dominate development in non-dairy, spoonable yogurt, accounting for a combined 84% of 2020 product launches. However, emerging markets are leading in growth of new product launches, particularly Australia, New Zealand and the Middle East/North Africa regions.

### 3. Consumers look for products with health benefits.

Many products feature multiple benefit positionings. Top claims include vegan, protein and lactose free.

### 4. An expansive range of ingredient options became available.

As demand for spoonable, non-dairy yogurt has risen, new, alternative ingredients have appeared as well. Soy was the traditional favorite, as it was in non-dairy beverages. Coconut, almond, oat and pea protein are popular now. Coconut is prized for its creaminess and pea for its higher protein.

### 5. Taste and texture are critical.

Dairy yogurts will always be the benchmark. Consumers want non-dairy, spoonable yogurt to have an equivalent

texture, taste, mouthfeel and appearance. Products without compromise will be the most successful in achieving mainstream consumer adoption. This is important both when appealing to the flexitarian and competing for shelf space with the traditional dairy yogurts that still own the category.

### The Right Ingredient Solution Helps Overcome Texture Challenges

Consumers are not willing to compromise on taste and texture. They want a similar eating experience as dairy yogurt. However, working with plant proteins has its challenges: the molecular structure and functionality of plant proteins are different than animal proteins and require formulation/process adjustments. Dairy proteins are well-studied, stable and functional. In plant-based systems, the isoelectric points may differ, which is related to solubility. Many do not have complete amino acid profiles so combining them can be a solution. Another important aspect is unwanted flavor notes, which are extracted along with the protein fraction. The high quantity of water, the lack of casein, and the quality variation of plant-based proteins impacts the overall quality.



*A clean, recognizable label is important to consumers. Using, multifunctional nature-based ingredients will complement the use of plant proteins and help keep the overall ingredient deck short (photo: CP Kelco)*



(photo: CP Kelco)

The right ingredients can help solve the most common formulation challenges:

- Provide the desired viscosity and body
- Control syneresis over shelf life
- Maintain texture
- Mimic a fat-like mouthfeel
- Reduce or replace starch

A clean, recognizable label is also important to consumers. Using, multifunctional nature-based ingredients will complement your use of plant proteins and help keep the overall ingredient deck short.

- Pectin is an easily recognized, label-friendly ingredient extracted from citrus peels. It can be used to protect proteins at an acidic pH and provide long-lasting stability over shelf life while also preventing sedimentation and syneresis. A well-known gelling agent, pectin can help formulators create a creamy, spoonable texture by delivering that missing “fat sensation” and optimize mouthfeel as it masks off-tastes.
- Gellan gum is a multifunctional, fermentation-derived ingredient for solving plant-based protein challenges. It improves overall structure.

- Citrus fiber is an innovative, label-friendly ingredient that supports dietary fiber intake. It can be used as an alternative to starch and also work in combination with pectin. It enhances body and appearance as it imparts a creamy mouthfeel and controls syneresis over shelf life.

When a product developer is able to connect all of the elements of innovation, there is no limit to the potential for success with plant-based yogurt alternatives.



# Here's how to stand out

The plant-based category is skyrocketing



(photo: Ecolan)



The popularity of plant-based alternatives is skyrocketing, and the global plant-based beverage market is estimated to be worth US\$ 22.8 billion in 2027, according to Vision Research Reports. But as the category balloons, the competition is stiffening. Choosing the right packaging has proved to be an essential part of the formula for success with plant-based products.

The global plant-based beverages market size was valued at US\$ 12.5 billion in 2020 and is anticipated to

*Without any additives, Wholly Moly! products retain their original nutrition and sweetness. We dare to use the original taste of healthy cereals (photo: Ecolan)*

grow at a CAGR of 8.0% during forecast period 2021 to 2027, according to Vision Research Reports.

So there is no denying that the demand for other plant-based products is rising sharply. Soy and almond are the most popular raw materials, but the demand for beverages based on oat, rice, coconut, cashew, and hazelnut is also increasing quickly.



**Ecolean lightweight packaging solutions address both consumer convenience and environmental awareness (photo: Ecolean)**

The unique possibilities of the plant-based category are attracting both traditional dairy companies and new plant-based manufacturers, and new products are launched at a breathtaking tempo. As the competition hardens, it gets tougher to build a brand and get picked from the shelves.

### **Make a plant-based drink stand out**

If you use the same type of packaging as the competition, there's a big risk that your drink doesn't get the attention it deserves. Ecolean's lightweight packages are based on the same ideas as the plant-based revolution: meeting new customer demands and lowering the environmental impact. In addition, they are convenient and have an eye-catching design. All this makes them exceptionally well suited to help make your plant-based drink a success.

Progressive companies within the beverage, dairy and liquid food industry turn to Ecolean's lighter packages when looking to stand out. The unique shape with a distinctive air-filled handle and large printing surface intuitively appeals to the eyes of the consumer on the store shelf, but also in the way the packages offer added convenience and less environmental impact. It is easy to see that many players in the plant-based

industry choose conventional packaging formats when launching their products, giving the store shelves a quite plain look. The match between Ecolean's lightweight packaging solutions and plant-based liquid food products exceeds the differentiation aspect – both offering significant reductions in environmental impact as well as appeal to modern, health and sustainability conscious consumers through their offerings.

### **Sustainability and health conscious Chinese consumers can now look to US-owned brand Wholly Moly! to enjoy dairy-free drinks with an oat base, in Ecolean's lightweight flexible packages.**

Wholly Moly! chose Ecolean's packages when looking to differentiate in the highly competitive, yet fast-growing plant-based beverage category.

Headquartered in Silicon Valley, California, US and Shanghai, China, Wholly Moly! is a leading brand in whole-grain and oat products tailoring to a new generation of Chinese consumers. Wholly Moly!'s oat drinks are set to innovate not only their product category by offering an oat product without any additives, but also through the packaging they have chosen to launch their drinks in. Ecolean's lightweight packaging solutions address both consumer convenience and environmental awareness. A minimal amount of packaging material means less resources used throughout the package's life cycle – for example less energy and water in production, and lighter packaging during transport. The result – a liquid food package with less impact on the environment, offering a lighter footprint for both customers and consumers.

"Without any additives, Wholly Moly! products retain their original nutrition and sweetness. We dare to use the original taste of healthy cereals. The oats grow in the fresh soil and sunlight of the Midwest of the United States and southern part of Canada, and are packaged under strict North American standards, bringing high-quality oat products to health and sustainability conscious consumers in China," says Claire Fang, CEO at Wholly Moly!. "We welcome the launch of Wholly Moly! oat drinks in Ecolean packages, as a great fit for our approach to sustainability and being a responsible business in the packaging industry," says Johnny Sajland, Chief Commercial Officer at Ecolean. "As a global packaging producer offering lightweight packaging solutions for both chilled and ambient distribution, Ecolean is active on more than 30 markets worldwide and partners with many of the most well-known brands within the dairy, beverage and liquid food industry."

Wholly Moly! is a subsidiary of Yum Delight, headquartered in California, US. The products are available in the Greater China region and the US, through both direct-to-consumer e-retail and supermarkets and has been available in Ecolean packaging since 2020.

# How to achieve the perfect plant-based frozen desserts

Palsgaard



**T**he global market for plant-based frozen desserts is booming, but replicating the mouthfeel, texture and creaminess of dairy-based products can be a challenging process. Marilyn Tan and Li Ying Chua, Palsgaard Asia Pacific's Application Technologists for Ice Cream & Dairy, have invested time and energy into creating inspirational recipe suggestions for dairy-free frozen desserts using different plant-based protein sources. Here, they share their knowledge.

## No longer a niche market

Dairy-free ice cream is no longer a niche market and with the ongoing popularity of plant-based diets in general it's clear there are opportunities for more new product development.

"Plant-based frozen desserts have become very popular in the market now and a lot of the bigger producers - such as the makers of Ben & Jerry's and Magnum - have launched into this space. It helped drive awareness of this market," says Li Ying.

Marilyn confirms that this is a trend that is here to stay:

"It's a lifestyle that a growing number of consumers are choosing to adapt. A lot of people are going vegan because of the environment. They want to reduce their carbon footprint and they want to see a reduction in our consumption of animal protein. There's more global awareness about plant-based diet, especially among younger generations."



*Li Ying Chua (left) and Marilyn Tan are Application Technologists with Palsgaard Asia-Pacific and have spent the last few months developing the four recipe concepts.*

## PRODUCTION CHALLENGES

So, the plant-based movement looks set to continue and consumers want to add indulgent plant-based frozen desserts to their shopping lists. But how easy are they to produce?

"It is very challenging, and it is very different from producing dairy ice cream," says Li Ying. "Certain plant proteins could contribute to high mix viscosity resulting in production difficulties."

Marilyn adds: "However, Palsgaard's emulsifiers still work in the same way as they do in dairy ice creams so we can help manufacturers to get the right texture. Another good thing is that Palsgaard's emulsifiers are based on vegetable oils, so it's already plant-based and therefore ideal for plant-based products."

## PALSGAARD TO THE RESCUE

Manufacturers of dairy-free frozen desserts often find it difficult to replicate the mouthfeel and texture of standard ice cream, and this is where Palsgaard can step in.

"We have a product, Palsgaard Extrulce 379, which is an integrated blend of stabilisers and emulsifiers,

and it's perfect for frozen desserts," explains Li Ying.

"Palsgaard Extrulce 379 provides very stable emulsions for the whole system, so it prevents ice crystal formation, and it also helps to give a creamier mouthfeel to the frozen dessert as well. Another benefit is that it can improve the heat-shock stability."

## FOUR INSPIRING NEW RECIPES

Li Ying and Marilyn have spent the last few months experimenting with different plant-based frozen dessert recipes.

"Through the studies we did, we can advise our customers better on how they should prepare the product, such as whether hydration of the protein is required or not," explains Li Ying. "We can also alert them to the challenges they might face and how to solve them. We can do this because we experienced these issues first-hand while working with various plant-based proteins.

"The recipe creation process also enabled us to try out our own Palsgaard emulsifier blends and we are now in a better position to give advice to our customers."

They now have four prototype reci-

pes, which show how adaptable and valuable Palsgaard Extrulce 379 is in enhancing texture, mouthfeel, stability and other sensory properties.

## Recipe 1: Fava Bean Based Frozen Dessert



The fava bean – or broad bean – is a widely available plant-based source of protein but it's not one many consumers will be familiar with as an ingredient in a frozen dessert.

Marilyn explains why it was chosen as a base for one of the recipes.

"We were trying to study the properties of different plant-based proteins. We did various studies with the fava bean, and it came up very neutral in taste, which we saw as a benefit for frozen dessert recipes.

"We wanted to work with ingredients which offered a wide range of different viscosity, and the fava bean was actually the highest level that we worked with.

"We wanted to make sure our emulsifier and stabiliser blend was strong enough and functional enough to ensure there is no separation in the frozen dessert mix and during the churning with a high viscosity protein base."

The duo created two fava bean options, one oat-based and one water-based.

"The oat-based one is creamier, but the use of oat also contributes to the viscosity," Marilyn explains. "We used two different bases to demonstrate that there will be a difference in the mouthfeel depending on whether you use water

or oat as a base, but it gives the manufacturer a choice. The water-based option can be easier for processing because not all manufacturers will have the pump that is capable of handling such a high viscosity mix.”

### Recipe 2: Coffee Oat Frozen Dessert



Oats are commonly used as a protein base for dairy-free milk alternatives and desserts, in part because they are widely available globally but also because consumers are aware of their health benefits. In frozen desserts, oats also do a good job of replicating the creaminess of dairy.

“This recipe was more straightforward because we used hydrolysed oat protein, which has lower viscosity,” explains Marilyn.

“We added instant coffee to this recipe, and we wanted to see if it would lower the pH of the product but in this case, it didn’t affect the texture and flavour unfavourably.”

### Recipe 3: Almond Oat Frozen Dessert with Inulin



Nuts are one of the most widely used plant-based protein sources in dairy-free products, so almond was chosen as a base for the third concept.

“We used it here with an oat base and it worked well,” says Li Ying. “Almond has a fairly mild flavour and it’s a taste that is favourable to many consumers as well.

“We added inulin, as a bulking agent to the plant-based frozen dessert to increase the solid content and at the same time improve the overall texture and achieving a creamy mouthfeel on the final product.”

### Recipe 4: Sesame, Chickpea Frozen Dessert



However, it’s not just about the popular flavours of the moment.

Li Ying and Marilyn wanted to demonstrate that lesser-known protein sources can also be used to create frozen desserts and for manufacturers who want to experiment with new concepts, Palsgaard’s emulsifier and stabiliser blends can help boost new product development.

“We’ve been working with sesame paste for other products so we thought we would try it out here in a frozen dessert and it turned out well,” confirms Li Ying.

### TIPS FOR MANUFACTURERS

There’s a lot of things to take into consideration when developing a plant-based frozen dessert, so where’s the best place to start?

“I would say the most important thing, first of all, is to identify the

plant protein that you want to use, as every plant-base has different texture and functionality. Depending on the choice of plant-based protein, the ingredients in the recipe should be adjusted accordingly.” says Li Ying.

Marilyn agrees, noting the importance of understanding that a plant-based recipe won’t be the same as a dairy’s recipe, “so manufacturers need to think about what qualities they want to replicate.”

She says: “As these recipes demonstrate, Palsgaard Extrulce 379 can contribute to a different mouthfeel so if you have a dessert which is very high viscosity, we can help solve this. Palsgaard has a wide range of emulsifier and stabiliser blends that can address different requirements of manufacturers like better melt-down resistance, excellent heat-shock stability, and rich and creamy mouthfeel to name a few.”

### CARING FOR THE PLANET

The ingredients used to make plant-based frozen desserts are wide-ranging and as such, the finished products can vary significantly when it comes to sustainability. “It often depends on the different protein base of the plant,” explains Li Ying. “Almonds might have a higher carbon footprint compared to other nuts, for example, so it’s difficult for the finished product to be entirely sustainable.”

However, manufacturers can be confident that Palsgaard Extrulce 379, like all Palsgaard’s ingredients, will meet the needs of eco-conscious consumers.

Marilyn says: “Every product we produce is made in CO<sub>2</sub> neutral facilities, so Palsgaard is at the forefront of lowering carbon emissions. That is definitely a plus-point for manufacturers who want to promote the sustainability of the ingredients and the product.” Photos: Palsgaard



DON'T WASTE RESOURCES

## LIGHTWEIGHT PACKAGES MAKE A DIFFERENCE

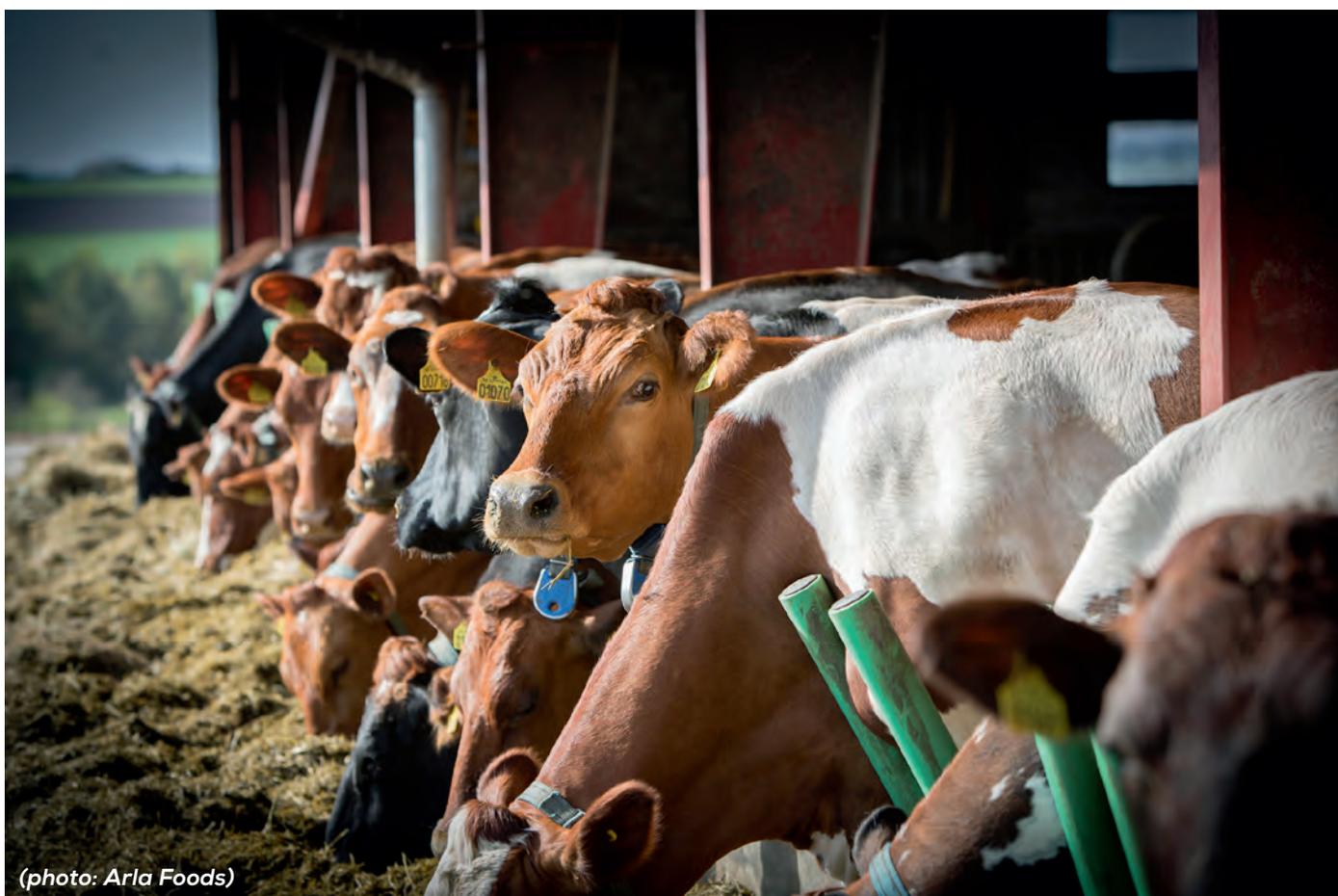
Ecolean's approach to packaging is light - to the benefit of both consumers and the environment. We are a global producer of lightweight packaging solutions for liquid food, for chilled and ambient distribution. We reduce your impact on the environment with convenient, innovative and eye-catching packages, by using less resources from the start. Join our approach to sustainable packaging!

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

**ecolean**  
a lighter approach to packaging

# It is not possible to make a blanket statement

What is better: plant or milk?



**A**re plant-based alternatives more ecologically beneficial than dairy products? To answer this question, a differentiated, comprehensive ecological assessment of the products is necessary, which goes well beyond the CO<sub>2</sub> footprint. Of the milk alternatives, only the oat drink performs better overall ecologically than milk. In the case of fat-containing dairy products such as butter, cream and cheese, both the light products and the respective plant-based alter-

natives can be assessed more favourably from an overall ecological perspective. This applies to cases where the plant-based alternatives replace the respective dairy products in equal quantities.

This is the conclusion of the renowned German ifeu Institute for Energy and Environmental Research from Heidelberg. For this purpose, the ifeu Institute analysed the ecological impacts of the production of various dairy products and their plant-based alternatives.

## Life cycle assessments

In addition to the contribution to climate change, the ecological evaluation of food must also necessarily assess the consumption of water and the occupation of land, because agriculture uses a considerable amount of these finite resources. The carbon footprint takes into account not only carbon dioxide (CO<sub>2</sub>) but also other climate gases such as methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O). These have a different climate impact in rela-

tion to carbon dioxide (CO<sub>2</sub>), which is why their respective amounts are converted into CO<sub>2</sub> equivalents. A similar procedure is used for the water footprint, taking into account how scarce the resource water is in a particular water catchment area. And in the case of the land footprint, not only is the amount of land required determined, but also the extent to which nature is affected by land use. Both are included in the calculation of land use.

Another key feature of the life cycle assessment of milk and dairy products and their plant-based alternatives is the consideration of the complete life cycle of the products under consideration, from farming (including all farm inputs and feed), through processing and packaging, to sale in the supermarket. For all production steps - from milk production to the supermarket - the associated climate gas emissions are determined. Typical, average conditions (for Germany) are used as a basis, e.g. for the yields per unit area of feedstuffs or the milk yield of cows.

In the case of milk, in addition to feed production, methane emissions from cows play a major role in the carbon footprint due to the high climate impact of methane. Credits for by-products and recycling of packaging are of only minor impor-

tance in the climate gas balance of milk.

### Milk and yoghurt compared to plant-based alternatives

The figure compares the carbon footprint and water footprint of cow's milk with some possible alternatives based on soy, almonds or oats. For comparison purposes, the results are related to the average daily footprint of a German citizen and are therefore expressed in inhabitant-days. In terms of the carbon footprint (green bars), milk consistently performs worse than plant-based alternatives. This is mainly due to the high methane emissions of the dairy cows, the farm manure emissions, and the carbon footprint of the dairy products. Packaging, transport, storage and refrigeration in the supermarket have only a small share in the carbon footprint.

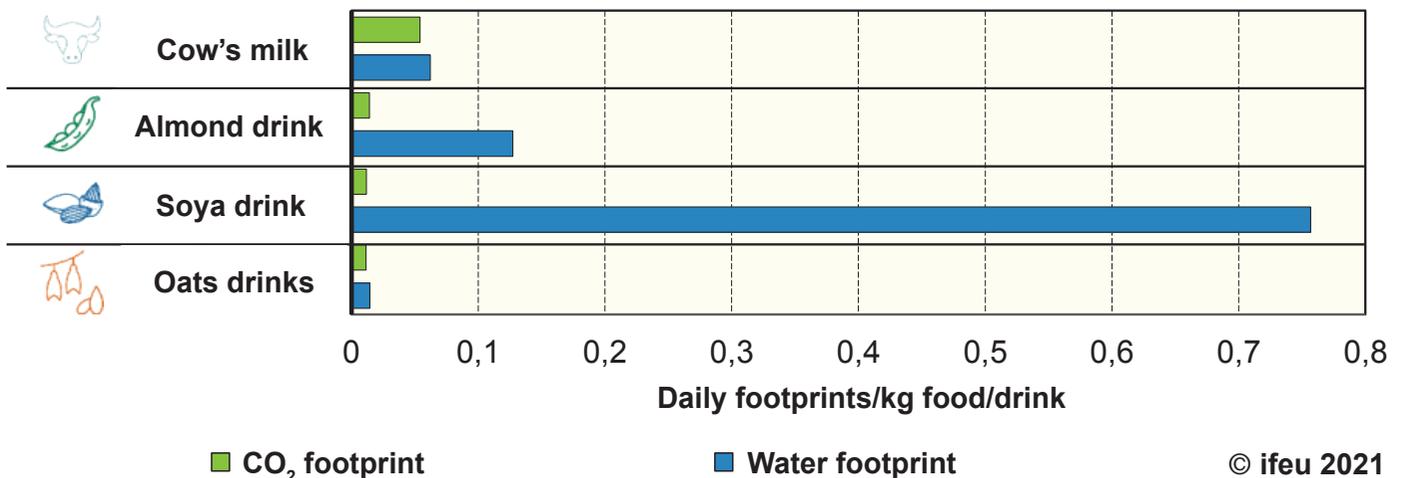
Comparing only the alternative products, their carbon footprints are similar, with slight disadvantages for the soy drink. In the case of the water footprint, however, a different picture emerges when water scarcity is taken into account: cow's milk from Germany causes a significantly lower water footprint than soy or almond drink. The same conclusion is reached when consid-

ering other ecological impacts such as the land footprint. Incidentally, these results do not only apply to milk: yoghurt and its plant-based alternatives behave in the same way.

This means that not all plant-based milk and yoghurt alternatives can be rated as ecologically more advantageous than milk or yoghurt without reservation. Only the oat drink performs better. This conclusion applies without reservation to cases in which milk and yoghurt are replaced by the plant-based alternatives in equal quantities, for example as a component of a muesli. A nutritional analysis with a focus on nutritional values (e.g. protein content) may yield other results.

### Organic versus conventional farming

If one compares organic products with conventionally produced products, the land footprint of organic farming is systematically higher than that of conventional farming, the water footprint tends to be lower and the CO<sub>2</sub> footprint usually somewhat higher. Nevertheless, there are many arguments in favour of organic farming, in particular the extensive avoidance of pesticides and the generally higher nature conservation benefits.



# Plant-based ice cream

## Plant-based colors

**T**he growing popularity of plant-based ice cream is leading brands to develop innovative new products. EXBERRY Coloring Foods can showcase exciting new flavors while maintaining completely clean and clear labels, writes Steven Taylor, Key Account Manager GNT.

The plant-based trend is shaking up the ice cream sector. Dairy alternatives now account for 10% of all new ice cream products, with launch numbers rising at a CAGR of 30% between 2016 and 2020.<sup>1</sup>

In an increasingly crowded marketplace, manufacturers are helping their products stand out with innovative new flavors, from agave and acai to banana split and beet-root. Between 2018 and 2020, the fastest growing flavors among plant-based ice cream and frozen yogurt launches globally were peanut butter, caramel, and banana and chocolate.<sup>2</sup>

### Color plays a huge role

Color can play a huge role in maximizing these products' appeal. Whether using rich and indulgent browns, deep pinks and purples, or vibrant greens and yellows, the ice cream's shade is the first sensory signal as to its quality. As well as influencing expectations of the flavor, research shows that both the hue and the color intensity can affect the tasting experience.<sup>3</sup>

In the modern market, the choice of coloring ingredient is important, too. Artificial colors are no longer acceptable to the majority of consumers worldwide, and even 'natural' colors with chemical-sounding names can fall short of expectations. A recent FMCG Gurus survey found that 56% of consumers worldwide actively look to avoid artificial ingredients, with the same proportion saying they seek out products containing recognizable ingredients.<sup>4</sup>

EXBERRY Coloring Foods are made from well-known fruit, vegetables and plants grown by farmers working as part of our vertical supply chain. To create our color concentrates, we use gentle physical processing methods such as chopping and boiling. Based on the straightforward principle of coloring food with food, EXBERRY can deliver hundreds of powerful shades while maintaining completely clean and clear labels. For example, a coconut ice cream with a kiwi fruit puree might feature a green shade that could be listed on the label as "Coloring Food (concentrate from spirulina and turmeric)."

EXBERRY colors are suitable for almost any food and beverage application, including both dairy and plant-based dairy products. Having spent more than four decades working with Coloring Foods, GNT has all the



**GNT offers plant-based food colors that are suitable for popular plant-based ice creams (photo: GNT)**

knowledge and experience required to deliver the coloring solutions you need. Our experts are available to assist customers through each step of the commercialization process, from color matching and stability testing all the way through to regulatory support and upscaling.

<sup>1</sup> Innova 'Flavor is king, but is not the only trend in ice cream' (2021)

<sup>2</sup> Mintel GNPD

<sup>3</sup> Spence, C. 'On the Relationship(s) Between Color and Taste/Flavor' *Experimental Psychology* (2019)

<sup>4</sup> FMCG Gurus 'Clean & Clear Label in 2021 Global Report' (2021)

# Dairy or Plant-based?

## SPX FLOW has you covered

**T**o stay ahead of the trends, nutrition and health product manufacturers constantly look for ways to partner with technology suppliers. Today, that means finding ways to make healthier, environmentally friendly, plant-rich diets that also help manufacturers become industry leaders.

SPX FLOW's market research and our partnerships with dozens of world leaders in dairy and plant-based companies, help us create value with our technology, processes and equipment. Our UHT technology, for instance, doubles as a solution for both dairy products and plant-based food. We make trials to provide proof of concept, launch the product and then scale it up.

There are three pillars of plant-based innovations primary production, value creation and consumer uptake. SPX FLOW creates value for companies worldwide – from dairy industry leaders to startups and innovation houses. We help perfect the recipes for plant-based foods that can often be complex. The first step: understanding the raw material. We work with beans, nuts, grains and greens, and we can standardize the process to grind, blanch, mix or decant any of the materials. We can also treat it with enzymes or heat.

At SPX FLOW, we partner with other disciplines, universities and research institutes to bring wholesome solutions to customers. We call it: "Solutions in the Making."

There are many critical processes in making a plant-based UHT beverage. One of the most critical steps is heat treatment. Apart from being an important bacteriological critical control point, this step also helps stop enzymatic activities. SPX FLOW has a com-

prehensive range of thermal processing solutions, backed by more than 1,800 references and more than 70 years of experience. The technologies include direct heating, such as infusion (SHD) or injection (SDI), as well as indirect heating, such as tubular (STH), plate (SIH) or scraped surface heat exchangers (SSHE).

These heat-treated, plant-based beverages can be packed in aseptic packages. Some beverages are for drinking, and some plant-based juices can help create other products. Examples include plant-based fermented products, plant-based cheeses, plant-based ice-creams and plant-based dry ingredients. As this field emerges, SPX FLOW offers testing facilities at its innovation centres in Silkeborg, Denmark, ENIL University, Mamirolle

France and Shanghai, China

Traceability and up-to-mark CIP protocol is another primary requirement. The two areas where cross-contamination can occur are mixing and CIP stations, so those areas must be separated. SPX FLOW's expertise on this subject can be made accessible with the right automation, methodology & CIP program.

SPX FLOW is a brand with extensive expertise in plant-based products and 30 years of experience in the market. We offer state-of-the-art production equipment and process-line solutions for manufacturing different types of plant-based fermented products and milk. Contact us at [learn-more@spxflow.com](mailto:learn-more@spxflow.com) / [www.spxflow.com](http://www.spxflow.com) if you are ready to ride the plant-based revolution.



(photo: SPX)

# Move into the future with plant-based foods

Delicious plant-based 'hamburger' now possible



**A**s the demand for dairy alternatives/plant-based/vegan food grows, opportunities abound for food production companies worldwide to expand their product base with the help of innovative cooking machinery. Natec Network offers global experience and technology for your plant-based project.

## Solving problems here and now

In the past, vegans and vegetarians have been frustrated by the lack of nutrient-rich plant-based foods. Thanks to experience and research and development Natec Network cooking technologies – such as the batch and continuous cooking systems – production

methods have become more refined, and optimally process plant-based recipes, including with added vital nutrients!

*“The Natec Network have been actively participating in the plant-based market for a substantial time now. We’ve been addressing its needs by developing our cutting-edge food technology for the recipe specifics and performance”*,

said Harry Miess, Managing Director of Natec Network.

## The case to fulfil the needs of plant-based eating consumers

The reasons people are making the move to plant-based products are also growing. Whether they are vegetarians, flexitarians, vegans, animal rights activists or people with other related convictions, they all need real animal-product alternatives to eat...



For animals



For balance



For health



For the environment



For indulgence

 **Plant based & vegan**



**Such as vegan cheese!**

Vegan cheese products can come in a whole range of formats including spread, portions, IWS (Individually Wrapped Slices), SOS (Slice On Slice – generally for commercial use) and jar to name a few.

*“We have broad experience in the production of high quality, innovative vegan cheese products through our direct affiliation with the Hochland Group. They are traditionally known as one of the largest cheese manufacturers in Europe, but in line with their innovation strategy, they took the bold step with two start-ups to diversify into plant-based products – resulting in market successes.”* Harry Miess added.

simple/standard pleasures - like a burger. The burger is an excellent example that a diet without animal ingredients is not only possible but is delicious too and being produced at an industrial scale.

Whether it's the cheese, 'meat' patty, mayonnaise or sauces, everything can be made free of animal products with Natec Network's innovative food processing solutions.

manufacturing companies all over the world for production rates from 100 kg/h up to 10,000 kg/h.

Need plant-based products that are homogeneous, chunky, fibrous, with special emulsions or ingredients? Natec network offers over 30 cooking systems that feature a wide variety of flexible and controllable processing abilities to suit every requirement.



Natec Network also offers the M4E (Magnet for Emulsion) to further elevate the productivity of plant-based foods. The M4E is brand new innovative technology for the efficient creation of emulsions and dispersion that are often a vital base of many products.

**Exciting developments in dairy-free products**

The desire for alternatives to dairy-free as well as meat-free products is growing exponentially. However, many people still want to enjoy

This includes pasta filata/mozzarella alternative cheese... vegetable puree, fruit puree, baby foods, pasta sauces, dressings, more.

**First-class equipment for plant-based food production**

Natec Network provides diverse and innovative cooking solutions to food

For food manufacturers, entering the production of plant-based products is a chance to develop the existing market potential and be at the forefront of food technology. No matter what stage of business you are in, whether new to food production, or wish to expand your product offering, everyone can join the global club of leading food producers with Natec Network's cooking solutions. Photos/Images: Natec Network



# Trendy & delicious

## Plant-based ice cream

**P**lant-based foods are booming and are a solid constituent of a healthy and modern sustainable lifestyle. With plant-based nutrition being part of today's everyday life, plant-based options for sweets and desserts are just as important for consumers. For example, the market for plant-based ice cream is estimated to grow at over 13% CAGR between 2020 and 2026.

Doehler has created product solutions for a range of delicious, in-

dulgent, and creamy plant-based ice creams for consumers looking for premium plant-based treats and sensational moments of indulgence. The products are made from nuts, seeds, coconut, cereals, and plant-based proteins, such as pea, bean and chickpea – resulting in combinations that create creamy textures and delicious tasting applications.

Currently, plant-based ice cream launches account for around 24% of all plant-based new prod-

uct introductions in Europe. This results in 7% of all launches in the last 12 months – with the market expected to continue to grow within the next months. Europe makes up 61% of all plant-based ice cream launches.

### **Natural ingredients for plant-based ice cream**

The plant-based ice cream market is mainly dominated by raw materials such as coconut, rice, oat, soy and almond. Doehler has created



*Currently, plant-based ice cream launches account for around 24% of all plant-based new product introductions in Europe (photo: Doehler)*



(photo: Doehler)

concepts for a range of delicious, indulgent and creamy plant-based ice creams, which are made from nuts, seeds, coconut and cereals. Plant-based proteins, such as pea, bean and chickpea provide outstanding creaminess & texture.

Coconut cream is a taste-neutral base, while coconut paste provides the taste of the fresh coconut. For ice cream based on nut pastes, low roasted almonds provide a neutral taste, while hazelnut and pistachio bring an authentic nut taste. Functional powder blends such as plant-based proteins and plant fibres for added mouthfeel, texture and nutritional composition refine our ice cream applications.

As plant-based ice cream contains no animal ingredients at all, the source of protein are plants. Doehler has identified different green proteins from pea, chickpea & beans and is continuously extending its portfolio to ensure deliciously creamy plant-based ice cream so-

lutions. Variations of plant-based ice cream are created with liquid cereal extracts such as rice with a very neutral taste and oat for authentic cereal notes, while protein concentrates enrich the functionality and creamy texture of the final application. Next to nuts & cereals, seeds, such as sunflower, pumpkin and hemp seeds are increasingly becoming popular in plant-based ice-cream applications. Taking this into account, innovations to the markets are mostly positioned with high added protein with plant-based proteins.

### **Traditional and modern natural colours and flavours**

With the colour of any given product being the eye-catcher for consumers, the success of any food or beverage product is also related to its appearance. Doehler's natural liquid and powder colours as well as colouring concentrates are fat solu-

ble and provide any plant-based ice cream with a natural brilliant colour. Thus, delicious looking brown and creamy tones for chocolate, nut and vanilla and more intense colours such as red, orange and yellow for the fruity variants.

Since there is no one-fits-all-solution for the huge variety of ingredients that can be combined, Doehler offers a broad portfolio of premium natural ingredients and the knowledge of how they can be combined in an optimal way. Be it an authentic vanilla or nut taste, an outstanding colour or creamy mouthfeel – Doehler's portfolio contains natural ingredients for unique multi-sensory experiences. For a great variety in taste and texture, the company also offers tailor-made solutions for ice cream with fruits, vegetables, fruit & non-fruit preparations and sauces, natural flavours, natural colours as well as botanicals & health ingredients for a great variety in taste, functionality and texture.

# Take the innovation test in plant-based frozen desserts

And win consumer hearts in a niche category  
that's on the rise



*photo: AdobeStock*

**T**hey may represent just 1% of the frozen dessert market right now, but plant-based brands are set for meteoric growth over the next five years<sup>1</sup>. As health and environmental concerns drive more consumers to cut their dairy consumption, rising demands from the plant-based mainstream will be a true test of manufacturers' innovative capabilities.

Market research specialist Mintel has already noted an impressive development in global product launch activity. From 2015 to 2019, plant-based frozen dessert launches went up 31% year-on-year, with low allergen, vegan and dairy-free the most common claims on product labels.

Although the launch rate has since slightly subsided, there are plenty of reasons for keeping an eye on this \$800 million market. The most obvious one, of course, is the consumers.

### Health is the driver

Anyone with an interest in consumer purchasing habits will have noticed the growing movement towards a more plant-based diet in recent years. A Euromonitor survey has revealed that health – specifically digestive health – is the major driver. Consumer interest in the environment and animal welfare are important secondary factors.

"Only 4.5% of consumers are currently vegan, so the trend is very much about reducing rather than eliminating dairy from the diet while increasing the protein content. Plant-based frozen desserts are also lactose-free by nature. Though this is not a top growth driver, it's obviously an advantage for the many consumers who are lactose intolerant," says Michelle Nguyen, regional dairy marketing manager at IFF.

### The regional difference

As a long-time supplier of ingredient solutions to the ice cream industry, IFF has a habit of publishing monthly concepts to inspire new product de-

velopment – the first time back in 2006. Over the years, the concepts have gained an increasingly dairy-free focus, always with a view to the varying expectations and preferences of consumers around the world.

"The key is to develop different solutions for different regions," says IFF's sweet dairy group manager and senior principal application specialist Finn Hjort Christensen

"In the US, for example, ice cream is perceived as a food item that is part of the daily diet. This is where consumers of plant-based products are most likely to look for a clean label and are more willing to accept a small sensory compromise for the sake of health.

"For most European consumers, on the other hand, ice cream is an indulgent treat, so they have high expectations with regard to taste and texture and are less inclined to choose a low-fat or low-sugar product. The same applies when they choose a plant-based alternative."

### Sensory challenges

This may explain why, according to a Mintel report, North America is by far the biggest market for plant-based frozen desserts, while Europe is the primary centre for product innovation.

"The plant-based segment offers many opportunities to utilize the nutritional and sustainability potential of soy, pea, oat and other protein sources. But, from a sensory perspective, taste and texture are always a challenge," Christensen adds.

Compared to a traditional dairy ice cream, the formulation of plant-based frozen desserts simply requires more attention. Many plant proteins are characterized by a beany or cereal flavour and tend to have a thin, watery texture. Proper hydration is essential to attain full functionality. And, when used in frozen dessert mix, there is a high risk of excessive viscosity formation, causing problems in production.

### Inspiring innovation

Today, tailored ingredient solutions make it possible to overcome these challenges. IFF uses its concepts to highlight the latest opportunities to create creamy textures and a pleasant mouthfeel and taste using functional proteins sourced from soy, pea or carob.

Until recently, the category was mainly oriented towards vegan and vegetarian consumers. The rise of flexitarian consumers, who want to cut down on dairy rather than cut it out completely, is now adding another layer to the innovation challenge – how to optimize appeal and motivate consumers to buy a product more than once. This is driving a new tendency among manufacturers, who are exploring how plant-based alternatives can mimic the sensory quality of dairy ice cream. Several multinationals have already launched plant-based variants of their well-known brands.

### Indulgence before health?

However, manufacturers don't have to leave health on the back seat just because they go all-in on indulgence. As Christensen points out, ingredient technology has come a long way since the food industry first started addressing challenges like fat and sugar reduction.

"Even though the plant-based frozen desserts category is relatively new, we are often able to apply our know-how to filling sensory gaps. That knowledge also provides a foundation for building new sensory solutions for specific plant proteins or creating indulgent plant-based concepts with probiotic cultures and prebiotic fibres."

That's not to say there is a solution to every innovation challenge just yet. But it does give manufacturers a good head start as the buzz around plant-based frozen desserts grows louder. Their ability to capture a loyal mainstream following will be the measure of their success.

<sup>1</sup> Euromonitor

# Plant-based power from pulses

## Functional flours from lentils and peas for sustainable and delicious dairy and cheese alternatives

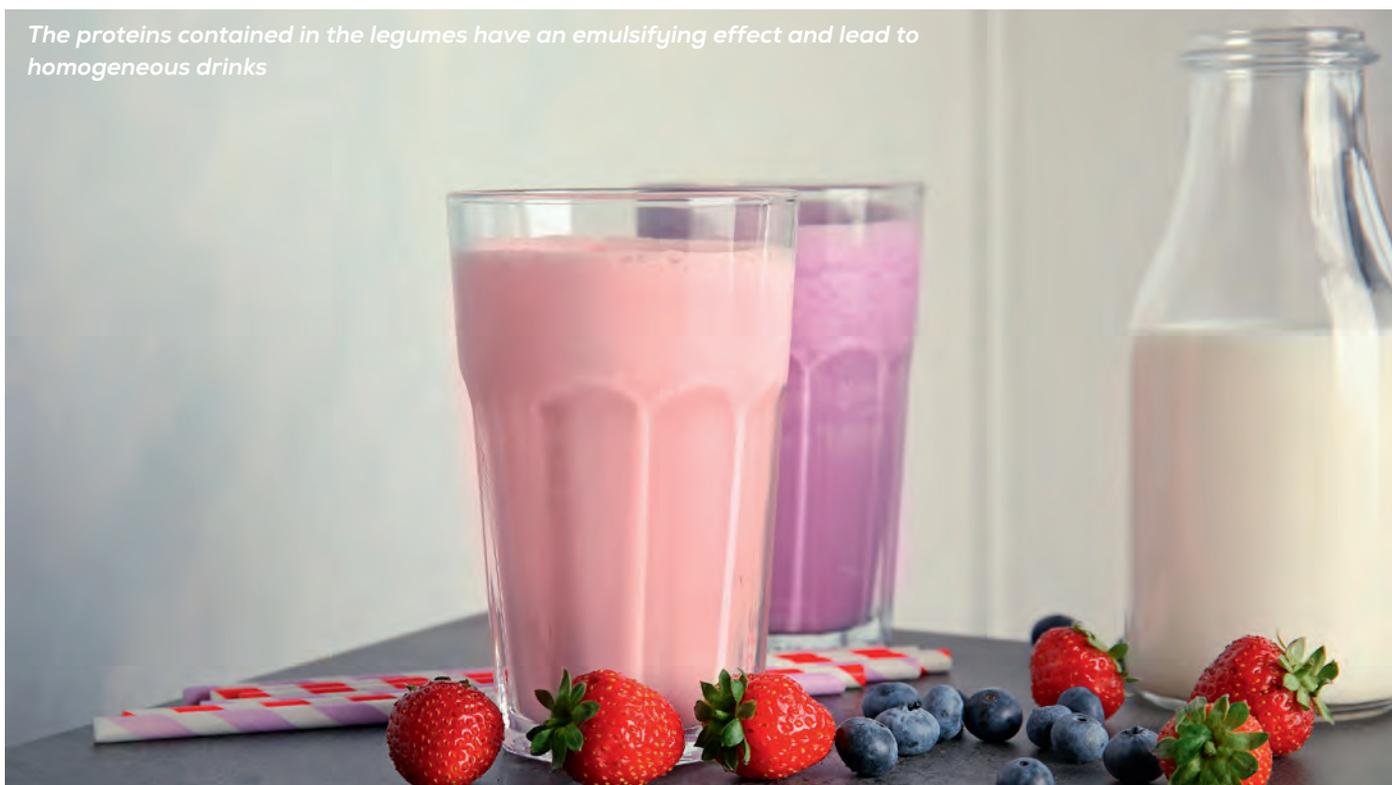
**T**he dairy alternatives market is on the rise: According to MarketsandMarkets, it is projected to reach USD 40.6 billion by 2026, recording a CAGR of 10.3% from 2020, when it was worth an estimated USD 22.6 billion.<sup>1</sup> The reasons for this almost doubling in value are the change in consumer diets towards “greener” lifestyles and increased health awareness. The dairy alternative segment is likely to be going through a very similar pattern of development as the meat substitute sector. Here, the growing number of flexitarians provided impetus for a tremendous uplift in choice

on supermarket shelves – as well as the setting of completely new sensory standards. Part-time reducers, in particular, will not tolerate any loss of enjoyment.

Compared to the meat substitutes category, however, the dairy alternatives sector is still in its infancy – plant-based cheese, for example, holds a lot of growth potential. And this is precisely what makes this market very exciting and full of opportunities for manufacturers, who can now benefit from a wider choice of innovative ingredients that combine indulgence and premium taste from a growing pool of suppliers.

Müller’s Mühle, for instance, offers a portfolio of functional legume flours that score points by meeting consumer demands for taste and nutrition. Their low-resource methods of cultivation means their sustainability credentials are excellent, too. From a food and beverage manufacturing point of view, legume concentrates are particularly suitable for dairy alternatives because of the legumin they contain. Also known as vegetable casein, this protein is analogous in structure to animal casein, so it produces substitute products that are close to the originals.

*The proteins contained in the legumes have an emulsifying effect and lead to homogeneous drinks*



## Plant-based drinks with perfect “milky” foam

With its emulsifying properties, legume protein naturally ensures homogeneous liquids, so emulsifiers and stabilisers can become superfluous. When it comes to plant-based drinks, the experts at Müller’s Mühle have a clear raw material favourite: Red lentils. Sensorially, this ingredient convinces with its mild flavour profile. Being high in protein, it is also nutritionally valuable, and its foam forming qualities make it especially interesting for barista specialities such as cappuccino and latte macchiato. Christian Bärenwalde, Business Developer at Müller’s Mühle, explains: “The consistency of vegetable-based milk foams depends primarily on their protein content. Drinks made from protein-rich flours produce high volume and compact foams. In practical tests, our red lentil prototype performed best. Chickpea drinks, on the other hand, showed comparatively poor foaming properties – without a doubt due to chickpea flour’s lower protein content, and probably also because it is higher in fat. The more proteins that are bound to fat molecules, the fewer are available to lodge at the interface between the water phase and air.”

True all-rounders, legume flours can also be combined with other raw materials such as rice, oats or almonds, and can be used specifically as natural emulsifiers.

## Chickpeas: When consistency matters

With their balanced protein–starch ratio, chickpea concentrates form good gels. This makes them ideal for applications where a creamy texture is required, such as yoghurts, curd products, desserts and cream cheeses. As they are very light in colour, they also contribute to an authentic look.

## Vegan cheese: an R&D masterpiece

According to the “Plant-based Food Sector Report” by Smart Protein, the

European market for plant-based cheese more than doubled between 2018 and 2020, and was worth 60 million euros in 2020. With demand set to continue to increase, the R&D team at Müller’s Mühle is currently testing a plant-based substitute for feta, as well as cheese spread based on chickpeas. The biggest challenges from a product development point of view are semi-hard and hard cheeses. Christian Bärenwalde says: “In classic cheese production, fermentation is what creates texture and taste. Unfortunately, it’s not easy to transfer this ripening process to plant-based alternatives – the difficulty lies in making technological adjustments that deliver the desired properties. Our R&D team is working flat out on solutions that are convincing in terms of functionality as well as sensory appeal.”

## Outlook

The market potential for alternatives to dairy products is enormous. Not only are more and more people opting for a purely plant-based diet, it also seems certain that the “dairy flexitarianism” trend will continue to grow. Legume-based ingredients are a contemporary approach because they deliver in terms of nutritional physiology and sustainability. They have a low water requirements during cultivation. They also bind nitrogen from the air into the soil, increasing its fertility naturally, without the need for nitrogenous fertilisers. In addition to their high protein content, they contain fibre and minerals, B vitamins and trace elements, and are far superior to plant protein isolates in this



**Chickpea concentrates provide creamy textures in plant-based milk substitutes**

respect. Their excellent nutritional profile can also have a positive impact on a product’s NutriScore – a label that more and more health-conscious European consumers value. In addition, they are clean-label ingredients which are naturally free from gluten and soy. Thus, they meet a multitude of current consumer expectations.

Until now, pulses have played a minor role in the dairy and cheese substitute segment – so they offer enormous potential to create differentiating features that stand out from the competition in a still relatively unsaturated market. That the relevance of legume variants will change is obvious: Only recently, food giant Nestlé launched a plant-based drink made from yellow peas.

## Research into sustainable nutrition ce

Müller’s Mühle is one of a total of about 30 partners from industry and research participating in the EU-funded Smart Protein project. The overall goal of the project is to establish and promote a sustainable, plant-based diet. A sub-goal is to identify the individual nutritional and sensorial properties of different vegetable proteins and, based on this, to determine the best food and beverage applications for each one. The next step will be to commercialise these solutions. With its expertise in the procurement and processing of legumes and its experience in producing legume-based ingredients on an industrial scale, the company brings valuable practical input to the project. Photos: Müller’s Mühle



**Legume flours from red lentils are ideal for barista vegetable drinks**

<sup>1</sup><https://www.marketsandmarkets.com/PressReleases/dairy-alternative-plant-milk-beverages.asp>, retrieved 23 Aug 2021

# Contract manufacturing: keeping pace with the times

Full service, all from one source



*Can filling capacities have been installed at SternMaid (photo: SternMaid)*

**M**ore and more companies are outsourcing the manufacture, blending, filling and packaging of their products to specialized service providers. Product cycles are becoming shorter all the time, and circumstances like the corona crisis have shown that manufacturers sometimes have to react quickly to new market conditions

and consumer needs. Changing buying habits, peaks in demand and lockdowns can lead to shortages in the supply chain and are just a few examples of the challenges companies may have to face. Cooperation with contract manufacturers allows them to respond quickly and efficiently to such developments and new trends in the market.

## **Focus on core business**

Quite apart from that, the company placing the order cuts costs as well as saving time – especially in administration and preparatory work. There are no further costs for plant adjustments, training and personnel, no need for investments in operating supplies or the firm’s own premises and plant. The customer can concentrate fully on its core business, for instance research & development or marketing and sales. In times when there is a shortage of skilled labour and temporary workers are hard to find, service providers can help to handle peak demand or safeguard the basis for a regular supply. So nowadays there is an ever-greater demand for experts who can offer an “all-round carefree package”.

## **The whole production chain, from raw materials to packaging**

The contract manufacturer SternMaid specializes in the production, filling and packaging of food ingredients and supplements in powder form. On various blending lines, filling machines and a fluidized bed processor it manufactures premixes for the downstream food industry and finished products such as dietetic and whey drinks, protein preparations and dry beverage bases for the retail trade. The service chain extends from blending and processing through contract packaging to procurement of raw and packaging materials, warehousing and delivery. Even the development of new formulations or the enhancement of existing products can be arranged within the Stern-Wywiol group of companies.



**Processing products on the fluidized bed plant of SternMaid (photo: SternMaid)**

“Our customers decide individually which services they wish to make use of, depending on their needs,” Commercial Director Mark Riemer explains. “Some only want to have bagged goods filled into FIBCs, for example, while other companies outsource the entire production chain and opt for an overall solution.”

It makes sense to outsource processes if, for example, the company’s own plant is working to capacity or if it simply lacks the necessary technical equipment or does not wish to invest in it. For instance, if a manufacturer of dietetic drinks receives an enquiry for a very large delivery but his own production capacity is exhausted, contract manufacturers can absorb such peaks.

As Mark Riemer says: “Outsourcing is an interesting option for smaller firms that are expanding but hesitate to make additional investments. For after all, plant of one’s own binds capital, space and personnel. And there is no endless planning and construction phase if you engage a contract manufacturer. Larger companies, on the other hand, may want to reorganize

their production processes and outsource only a part of them.”

For well-known brand manufacturers, especially, it is becoming more and more important to have a second-supplier strategy to safeguard their own ability to deliver in the event of large orders or as a buffer against crises. But enhanced quality or additional know-how may be arguments in favour of outsourcing to contract manufacturers, too.

### **Service providers as partners**

The know-how of service providers like SternMaid is not restricted just to handling the products. They know the market, can identify the latest trends and give their customers comprehensive advice, for example on suitable packaging. In this way, customers benefit from their partner’s long years of expertise.

One current example is ecological aspects such as sustainability and recyclability that are becoming more and more important to many customers. At SternMaid, customers can have their products filled into spiral-wound

cardboard cans with an aluminium-free interior lamination. A sealing machine for cardboard can bottoms is also available, making it possible to replace the traditional tinplate bottom and thus improving recyclability.

“Customers’ expectations concerning the range of services offered by a contract manufacturer have increased enormously over the past few years”, says Mark Riemer. Contract production now includes a diversity of services from mechanical packaging through making up to quality assurance, warehousing, logistics and procurement of raw materials, that go far beyond mere production processes like blending, granulating or microencapsulation. That is why we continuously invest in new plant and machinery in order to respond even more flexibly to customers’ needs and the demands of the market.”

SternMaid GmbH & Co. KG  
[www.sternmaid.de](http://www.sternmaid.de)

# Animal original meets plant-based alternative

New hybrid products

*Compounds from the fiildDairy+ range allow for making blends that reduce the amount of milk by 50 percent (photo: Planteneers)*



“Hello Hybrids” was one of the Top Ten Trends identified by Innova Market Insights last year. “Hello Hybrids” is also an apt description of a new retail product segment: Meat and milk products that contain greatly reduced amounts of animal ingredients but still appeal to confirmed carnivores, consumers who want to reduce the amount of animal products they eat for reasons of climate protection, animal welfare, sustainability or health, but who are unwilling to make any compromises on flavour or consistency. This is where combinations of animal and plant proteins come in. For this new category Planteneers has developed stabilising systems that already contain the plant component. They make it easy for

meat producers and dairies to cut the animal ingredients in the final products by half. Thus, they can profit from the plant-based hype without completely eliminating meat or milk from their formulations.

Flavour, texture and appearance are advantages for hybrid products in the dairy space as well. With the compounds from the fiildDairy+ range and normal cow’s milk, dairies can make blends that reduce the amount of milk by 50 percent, replacing it with plant components. The final product might be a drink consisting of half milk and half oat drink, for example. “In the development of our fiildDairy+ range we paid special attention to getting the original flavour of the milk products,” reports Planteneers Product Manager Katharina Schäfer.

The new compounds form the basis for drinks, pudding, fermented milk products like yogurt, and cheese preparations. Katharina Schäfer adds, “the final products can naturally be enriched with proteins, vitamins or minerals. In this way it’s possible to appeal to the steadily growing number of consumers who want to eat healthier.”

A survey done for an in-house master’s thesis shows the potential that the combinations offer. Of 2000 respondents, most of them students, just under half would try a combined milk and plant-base beverage, for example. A third would even buy it. 46% would like to see further hybrid dairy products. Thus, the combinations offer many new possibilities for dairies as well as for the meat industry.

# Innovation...

## *Powered by nature.*

Plant-based. Protein-enhanced. Simple, cleaner labels. Good for you. Good for the planet, too. Consumers expect a lot from their food and beverages. We're here to help. We're passionate about solving your formulation challenges with nature-based, sustainably sourced ingredients and sharing our insights from around the world. Join us as we explore the new products, applications and trends that will shape our future.

Have a look:



GENU® Pectin  
KELCOGEL® Gellan Gum  
KELTROL® Xanthan Gum  
GENU® Carrageenan  
SIMPLESSE® Microparticulated  
Whey Protein Concentrate  
NUTRAVA™ Citrus Fiber

**CPKelco**  
A HUBER COMPANY

**Unlocking Nature-Powered Success®**

© 2021 One or more of CP Kelco U.S., Inc. or CP Kelco ApS. All Rights Reserved.



# IDM has a brand new website!

www.colourbox.de

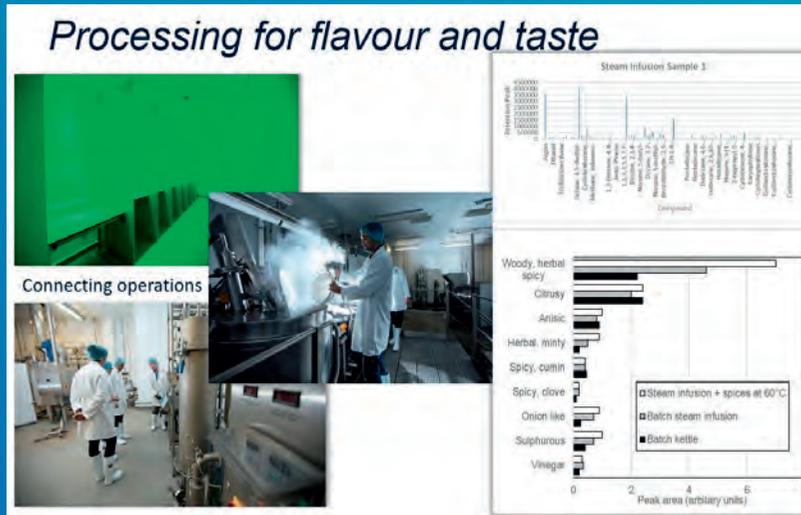
Have a look at [international-dairy.com](http://international-dairy.com)

## OAL Group

### Steam Infusion reduces energy consumption

New research spearheaded by the National Centre for Food Manufacturing (NCFM), University of Lincoln, has found that Steam Infusion can reduce energy consumption by 17% per batch compared to basic direct steam heating by saving 278 hours of production time, cutting 9 tonnes (10 US tons) of greenhouse gas (GHG) emissions per kettle production line each year. The research, led by NCFM's Dr Wayne Martindale and OAL's Development Chef, Christopher Brooks, has been reported in a peer-reviewed paper, 'Transformational Steam Infusion Processing for Resilient and Sustainable Food Man-

ufacturing Businesses'. Published in Volume 10, Issue 8 of Foods, the team also found that Steam Infusion can improve the quality of a wide variety of end products, meeting consumer demand for great tasting food & beverages with added green credentials. By realising a reduction of 17% in energy consumption when using Steam Infusion, and achieving a similar decrease in GHG emissions, food & beverage manufacturers can make meaningful headway on the journey



towards the worldwide net zero ambitions. For more visit [steaminfusion.oalgroup.com/](http://steaminfusion.oalgroup.com/)

## Imprint

### Publisher:

B&L MedienGesellschaft mbH & Co. KG Hilden, Verlagsniederlassung Bad Breisig, Zehnerstr. 22 b, 53498 Bad Breisig/Germany, Fax: +49 (0) 26 33/45 40 99, Internet: [www.international-dairy.com](http://www.international-dairy.com)

### Object Manager:

Burkhard Endemann, Direct line: +49 (0) 26 33/45 40-16, Email: [be@blmedien.de](mailto:be@blmedien.de)

### Editor:

Roland Sossna (responsible), Office Dülmen/Germany, Direct line: +49 (0) 25 90/94 37 20, Cell phone: +49 (0) 1 70/4 18 59 54, Email: [sossna@blmedien.de](mailto:sossna@blmedien.de)

Office Dorsten: Anja Hoffrichter, [ah@blmedien.de](mailto:ah@blmedien.de), Cell phone: +49(0)1782330047

### Food Ingredients:

Max Schächtele, Mengener Str. 2, 79112 Freiburg im Breisgau, Germany, Direct line: +49 (0) 76 64/61 30-96, Cell phone: +49 (0) 172 357 0386, Email: [ms@blmedien.de](mailto:ms@blmedien.de)

### Correspondents:

Ferda Oran, Middle East, [ferdaoran@hotmail.com](mailto:ferdaoran@hotmail.com); Jack O'Brien, USA/Canada, [executecmktg@aol.com](mailto:executecmktg@aol.com); Joanna Novak, CEE, [Joanna.Novak@sparks.com.pl](mailto:Joanna.Novak@sparks.com.pl); Tatyana Antonenko, CIS, [t.antonenko@molprom.com.ua](mailto:t.antonenko@molprom.com.ua); Mario Schacher, South America, [supermario@gmx.com](mailto:supermario@gmx.com); Brian Norwood, Australasia & Pacific, [ttoronto@bigpond.net.au](mailto:ttoronto@bigpond.net.au); Chris Walkland, UK & Ireland, [chriswalkland@ntlworld.com](mailto:chriswalkland@ntlworld.com); Bent Oestergaard, Scandinavia, OCon ApS, [bent@ocon.one](mailto:bent@ocon.one); Claudia Vasquez Alarcon, Spain/Portugal, [cva@blmedien.de](mailto:cva@blmedien.de)

### Graphics, layout and production:

Katja Ledder, Cell phone: +49 (0) 1 72/3 25 70 99, Email: [k.ledder@kontrastdesign.com](mailto:k.ledder@kontrastdesign.com)

### Advertising Manager:

Heike Turowski, Office Marl/Germany, Direct line: +49 (0) 23 65/38 97 46 Fax: +49 (0) 23 65/38 97 47, Cell phone +49 (0) 1 51/22 64 62 59, Email: [ht@blmedien.de](mailto:ht@blmedien.de)

### Publisher's International representative:

dc media services, David Cox, 21 Goodwin Road, Rochester, Kent ME3 8HR, UK, Phone: +44 845 393 1574, Email: [david@dcmediaservices.co.uk](mailto:david@dcmediaservices.co.uk)

### Subscriptions:

B&L MedienGesellschaft mbH & Co. KG, Office Munich, Ridlerstr. 37, 80673 Munich/Germany

Sales manager: Patrick Dornacher, Direct line: +49 (0) 89/3 70 60-3 71 Email: [p.dornacher@blmedien.de](mailto:p.dornacher@blmedien.de)

IDM International Dairy Magazine is published eight times a year (January, February, April, June, August, September, November). Annual subscription rate: € 86.00 incl. postage Subscr. in Germany: € 70.00 incl. postage + VAT Single copy: € 16.00 incl. postage Orders from Germany add VAT

Bank details: Commerzbank AG, Hilden; IBAN: DE58 3004 0000 0652 2007 00; SWIFT-BIC.: COBADEFFXXX

### Cover page:

Chr. Hansen

### Print:

Ortmaier-Druck GmbH, Birnbachstraße 2, 84160 Frontenhausen, Germany The magazine is printed on chlorine-free paper.

Economically involved in the legal sense of § 9 Abs. 4 LMG Rh.-Pf.: B&L MedienGesellschaft mbH & Co. KG, Verlagsniederlassung Bad Breisig, Zehnerstraße 22b 53498 Bad Breisig.

Economically involved in the legal sense of § 9 (4) LMG Rh.-Pf.: Owner of B&L Medien-Gesellschaft mbH & Co. KG D-40724 Hilden (shares in brackets): Renate Schmidt (38.8 %), community of heirs Ulla Werbeck (31.2 %)

General Manager of B&L MedienGesellschaft mbH & Co. KG: Harry Lietzenmayer

# Learn from the expert!

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.

**THE BOOK  
HAS 9 CHAPTERS**

Further information and order:  
[www.cheese-technology.com](http://www.cheese-technology.com)

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.

