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DAIRY

July/August 2021

magazine

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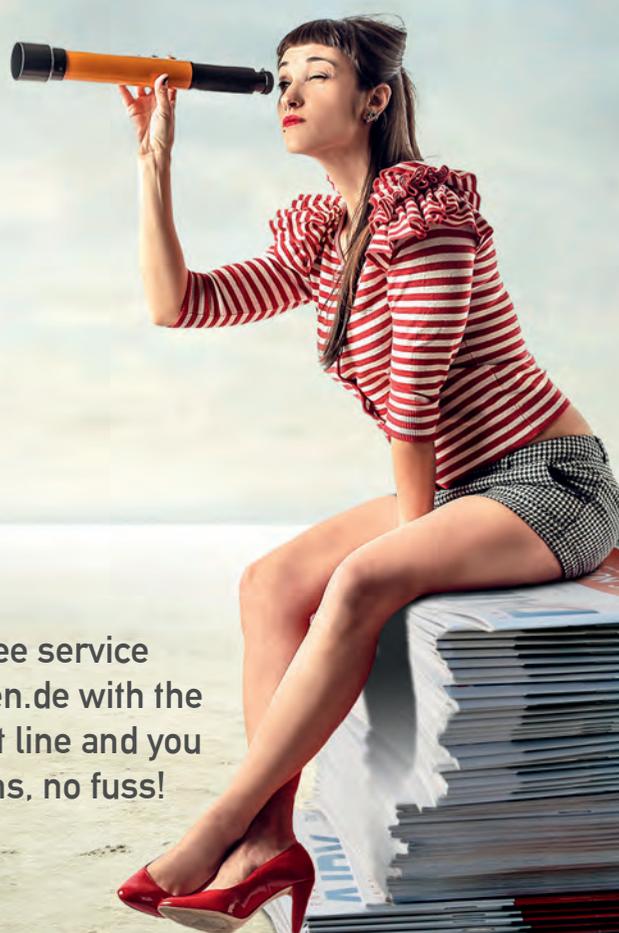
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A box full of crazy ideas

EU Farm2Fork strategy



Roland Sossna
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Where does the European Green Deal lead the dairy sector to? No one knows, no one can know at this stage, but assessments can be made. An article by Christophe Lafougere (Gira) in this issue summarises in part what we might reasonably have to expect.

Milk production could fall by up to 8%, and the price of milk could rise by more than 10%. All caused by making the EU dairy sector more sustainable, at least in the view of Brussels bureaucracy. The use of fertiliser and pesticide will see restrictions and given ever higher carbon taxes, the cost of virtually anything that is made using energy will increase. And that's about everything we use in our daily life or in production, processing and packaging of milk.

One central element of the Farm2Fork strategy is organic food. The share of organic agriculture is to grow to 25%, according to what was issued by the EU Commission. This might mean that several thousands of farms must be converted from conventional to organic. But what they produce must also end up on consumers' plates. It is highly doubtful whether this will work. People are confronted with rising costs for living (carbon tax ...) and should at the same time spend significantly more for food. And now Corona has torn a whole in the budget of every country in the EU, most of them having suffered from severe financial problems even before the pandemic. This means that taxes won't be lowered but may be increased instead. So it seems there won't be too much left in consumers' pockets to bring the Farm2Fork concept to life.

The EU ideology bears another danger: organic milk may become available in abundance and the oversupply may bring down the price levels. Organic milk production would then need even more subsidies if it was to survive. It is easy to see why this box of crazy ideas called Farm2Fork will fail miserably, thinks Roland Sossna.

Survey on tethered caps

Consumers prioritise product safety and user-friendliness

Tethered caps – closures that stay connected to the bottle when opened and used – will become an everyday part of life for consumers in the EU starting in July 2024. Sidel carried out a survey to get a better understanding of consumers' environmental perceptions, their requirements for closures in general and their opinions about these new tethered caps. Results show that although participants agree that tethered caps contribute to a greener perception of plastic bottles, a cap should mainly guarantee product safety and user-friendliness.

The survey results show that 87% of participants agree that plastic pollution harms the environment and that caps are a part of it. Meanwhile, 67% of consumers are convinced that changing their own behaviour in terms of waste sorting and reduction can make a difference for a greener environment. Interestingly, 45% of panellists realise tethered caps reduce the risk of cap loss because they remain attached to the bottle, therefore keeping them from getting dirty or lost. Only a minority of respondents (26%) believe that tethered caps will really help reduce plastic littering.



Sidel has conducted a survey on the consumer perception of tethered caps (photo: Sidel)

Digitalisation activities combined

Krones Ecosystem



Krones brings mechanical engineering and digitalisation even closer together

In line with the one-stop-shop concept, Krones is now bringing the fields of mechanical engineering and digitalisation even closer together. Everything will take place within the Krones Ecosystem, which will stretch over all the Group's new machines like an invisible dome and interlink them at the data level.

The resulting line and production data will provide the basis for using existing cloud services and other digital solutions that Krones will be offering in future.

40 Years of Weber Maschinenbau

Complete slicing and packaging lines

Family-owned company Weber Maschinenbau is 40 years old this year. From a small company in central Hesse, Germany, the company has developed into a globally active world market leader. Today, Weber is a strong partner for the food industry. The company develops and produces complete slicing and packaging lines for food processing, in particular sliced meats and cheeses.

Since the company was founded, the entire product range of high-tech machines has been manufactured exclusively at five production sites in Germany. Weber Maschinenbau operates at a total of 22 locations today and also has a large number of sales and service partners in its own network. This means that the system provider is close to its customers all over the world.



Picture from left: Tobias Weber and Günther Weber share the management of Weber Maschinenbau

Profitability of culture systems in case of (re)investing in cheese making

Chr. Hansen



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Profitability is a term commonly used in everyday life. Everyone has an idea of what profitability is. In business, it is the ratio between output and input. All expenses are considered input, and the output is measured by the revenue generated. However, there are nuances to the calculation of profitability that need to be evaluated which are often difficult to represent in monetary terms. They could be hurdles that need to be overcome, prerequisites for fundamental business or even opportunity costs. These factors have a major impact on true profitability.

This becomes very clear with starter cultures applied in cheese making, which have a continuous impact on the quality from addition to the milk in the vat, until the cheese is consumed. The quality of cheese is governed by many factors including a specification that is defined by the cheese buyer and number of internal and external requirements (regulations, certifications etc.). Quality is a prerequisite for generating any value at all in the market. On the flip side, inferior quality can be costly, not to mention damag-

ing to the cheese makers reputation. But even quality delivered according to specifications is not necessarily profitable – the cheese maker needs to deliver quality consistently and close to the specification limits in order to "give nothing away". Another important aspect of profitability is security. A little over a year ago, lockdowns, travel restrictions and border closures created uncertainty in the supply and production chains. The food industry was mandated to guarantee food supplies under all circumstances. Possible quarantine of staff and changing levels of demand for products required cheese makers to be very flexible. Cheese dairies therefore also built up higher stocks of cheese making cultures. Safety and security suddenly became an important factor in profitability. Through this uncertain time, Chr. Hansen continued to deliver products with no compromise in delivery performance. In some cases it involved using more expensive logistics solution e.g. air freight, but it was critical in ensuring an uninterrupted supply chain.

This leads to the last factor impacting profitability: the future. No one would

ever have thought that a worldwide pandemic would occur. But then no one would have thought 10 years ago that it would be possible to work so well digitally today either. And who knows how we will make cheese in 10 years? And how will climate change, scarcity of resources and a growing world population affect the cheese industry? How can we know all that? Nevertheless, every investment must first justify its profitability today and tomorrow. This is also evident for cheese cultures.

Cheese on an industrial scale is made using one of two systems of starter cultures: bulk starter cultures or direct starters (see figure 1). The usage of bulk starter involves its preparation, which is done at the cheese plant itself and involves several process steps. This includes the appropriate investment in technology, building, peripherals (energy, water, sterile air), personnel, know-how and continuous quality assurance. It typically takes 18 – 24 h to prepare bulk starter and you are left with a limited amount of time to consume it before it loses its activity levels.

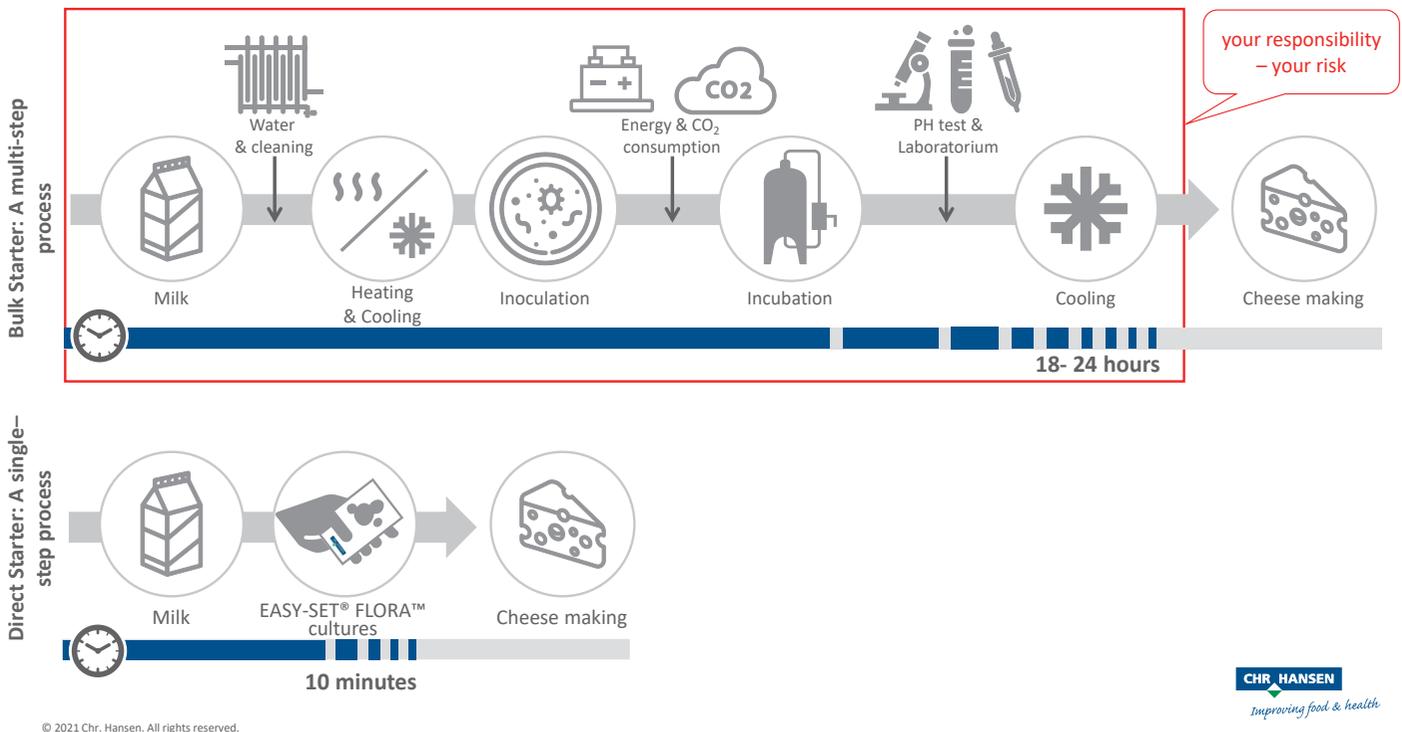


Figure 1: Simple comparison of the culture systems bulk starter and direct starters

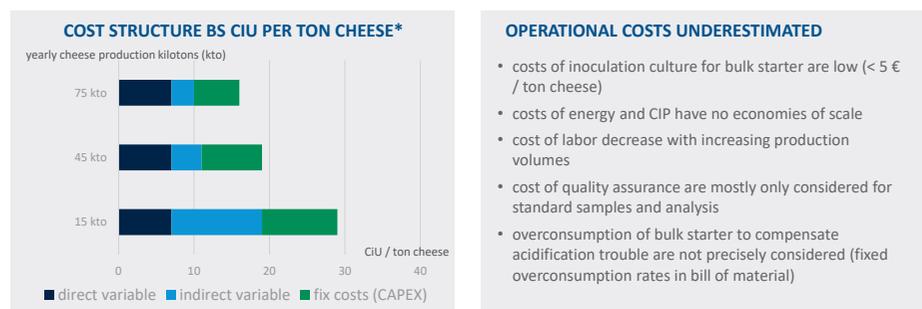
In the case of direct starters, you simply buy a culture bag pre-prepared and delivered by a culture house. These cultures have a defined quality with consistent properties that are well known and tested and can be used when and in the quantity needed. The use of direct starters takes the risk and responsibility away from the cheese makers. Every bag of direct starter culture contributes to the stability and safety of the cheese process. As a variable bill of material item, there is also full cost transparency.

In large-scale industrial cheese making it is critical to keep variations as low as possible to ensure maximized yield and minimum wastage and downgrades – direct contributors to profitability. Variations in both the acidification process and ripening, are more likely with bulk starters. This is because the composition and activity level of the culture propagated during those 18-24hrs varies. Optimization is limited. It requires continuous effort to keep bulk starters working well. And what does it cost?

In principle, there are three distinct cost categories:

- 1. direct variable:** accrued proportionally to the production quantity (output in tons of cheese) and have practically no economies of scales. Examples: skimmed milk/media used, inoculated culture, energy.
- 2. indirect variable:** not necessarily proportional to the production quantity

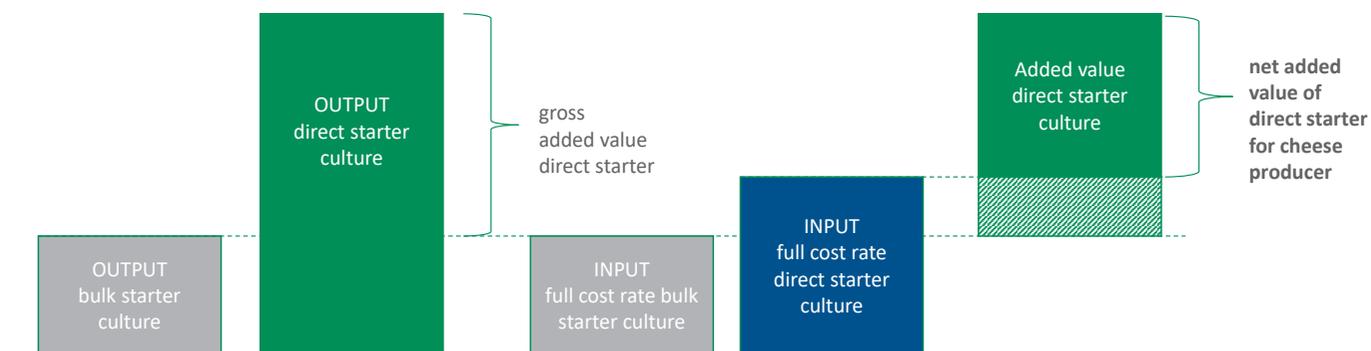
(output neutral), and offer economies of scale. Examples: staff, dosage of culture, disposal of surplus quantities (wasted bulk starter), maintenance or breakdown in the bulk culture system and quality assurance. These costs are often accepted as 'given' but mistakenly not specifically attributed to the usage of bulk starter.



* Source: Chr. Hansen experience from worldwide projects.

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Figure 2: Cost per ton of cheese as a cost-in-use (CIU) when (re)investing in a completely new bulk system with compartment, technology and peripherals (water, energy, sterile air).



CHR. HANSEN
improving food & health

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Figure 3: Calculation of the profitability of direct starter cultures

3. fixed: mainly investments in stainless steel (depreciation and interest) and associated maintenance and staff training. In addition, risk management, documentation and certifications are increasingly important prerequisites to run starter cultures.

Figure 2 indicates the full costs per ton of cheese when (re)investing in a bulk starter culture system scaled to different cheese volumes.

A dairy producing 15,000 tons/a of cheese incurs a true cost in use (CiU) of approx. 30 €/ton cheese. If media were used as culture medium instead of skimmed milk, it would be considerably more. With 5 times more cheese production capacity (75,000 tons/a), the CiU is halved to about 15 €/ton cheese. The calculation is based on the assumption of ideal conditions, which means, actual overdosing and extraordinary samples or analyses are only roughly taken into account.

So, what about the profitability of direct starters? As illustrated earlier, profitability is the ratio of input to output. Chr. Hansen has a systematic procedure to evaluate added value and profitability (see Figure 3). Based on the output with the bulk culture in terms of quality (e.g. texture/taste) and performance (e.g. yield), we work with the cheese makers to find out what improved output is achievable with direct starters. We

bring our experience, define measurement parameters and the corresponding analysis methods and go into trials with the cheese makers (qualification and validation). The result are figures, data and facts for an accurate evaluation of the output with direct starters. The added value is offset against the necessary input of the culture systems as a full cost rate. This is particularly important for (re)investments in the system of bulk starter culture as it should also pay off in the future.

But what about the future of the bulk starter cultures? In reality there is no further development in bulk starter cultures.

In contrast, Chr. Hansen created a modular culture system with individually defined culture components more than 15 years ago and consistently invests in the development of direct starter culture systems. State-of-the-art methods are used, the precision of which is very impressive – like ‘finding a needle in a haystack’ – and providing extreme accuracy, consistency and quality in the production of direct starters. With more than 40,000 fully defined bacterial strains and our focus on the microbial platform at our core, we can respond to the needs of cheese makers with great agility.

We offer microbial solutions for plants (plant protection) to animals (health)

to humans (probiotics). Chr. Hansen invests 8% of turnover per year in R&D and 17% of the employees work in R&D. This is a depth of knowledge, innovation and implementation that prepares us – and you – well for the future. All this is reflected in the proven Easy-Set® Flora™ direct starter culture series for semi-hard cheeses. We are constantly developing this further, for example with optimized acidification speed, more taste and texture formation as well as controllable gas formation and phage robustness of the latest generation. For precise and practical handling of direct starter cultures, we offer solutions ranging from optimized freezers to the concept of automatic culture dosing. We are increasingly available digitally – 24/7: whether it is online ordering of our products, support from our application engineers, joint innovation projects or simply because you seek advice.

And if one day cheese should be produced differently or milk is no longer the only raw material – you can be sure that we have the right direct starter cultures in place. Be profitable today and tomorrow with direct starter cultures from Chr. Hansen.

Now it is your turn to make the right decision for your culture system. I will be happy to help you.

DuraCirc circumferential piston pump

Alfa Laval

The new Alfa Laval DuraCirc circumferential piston pump offers robust design, high efficiency, and reliable operation; hygienic assurance with EHEDG as well as 3-A certification as standard; and, ease of maintenance. "The DuraCirc is a gamechanger," says Russ Kelly, Portfolio Manager, Pumps, Alfa Laval. "It's everything users want, all in a single pump – the perfect balance of supreme performance, superior hygiene, and simpler service."

With flow rates up to 150 m³/h, the pump is capable of handling operating pressures up to 40 bar, which is 15% higher than all other circumferential piston pumps available today. Optional ports make it easy to replace existing pumps from Alfa Laval and other brands with the DuraCirc, without having to adapt pipework.

Among the DuraCirc's innovative design features: a truly front-loading single seal; long-lasting bearings; a single, long-life gearbox lubricant; external shimming; and fully interchangeable components.



The new DuraCirc circumferential piston pump (photo: Alfa Laval)



BENEÓ has named **Inga Heine-mann** Head of Corporate Communication. In her new role, Heine-mann will lead the company's external and internal communications from BENEÓ's headquarters in Mannheim, Germany. She takes over the role from her predecessor, Claudia Meissner, who has recently joined BENEÓ's mother company, the Südzucker AG, as Director Corporate Internal Communication.



The new 3000 generation is starting...

In autumn 2021 we will present the third generation of wrapping machines for butter and margarine in industrial sizes.

SAB 3000, BPM 3000 and DKS 3000 combine the reliability of the last two generations with the increasing demands of hygiene, intuitive operability, data exchange and safety.

It would be our pleasure to present the new features to you in detail.



CHR. BOCK & SOHN
VERPACKUNGSANLAGEN

PP and PET remain the packaging materials of choice

IMA Dairy & Food reports on current developments

Two years ago the entrepreneur Thomas Becker took over a majority stake in IMA Dairy & Food. Part of the deal were the packaging machine companies Hassia, Gasti, Erca and Hamba. IDM inquired about the development the group has made during this period.

IDM: What happened in the two years you have the management control of IMA Dairy & Food?

Becker: We have restructured the group's companies a little. For example, Hassia now has three pillars, namely cup fillers for pre-formed cups, FFS cups and portion packs and VFFS for stick packs and sachets. We supply these machines either in aseptic or non-aseptic execution. With the expansion of the IMA Dairy & Food portfolio we were able to bring a lot more calm to the business. In addition to the FFS area, sachets and stick packs have developed very well. Food manufacturers who supply portion packs often also have a need for this special type of packaging.

IDM: How has IMA Dairy & Food got through the crisis caused by COVID19 so far?

Becker: Overall, we don't want to complain, but we have caught a little black eye over the volatility of orders. In spring 2020, orders for new machines fell sharply, but we were able to catch up again from summer on – the famous catch-up effect. In the current year we are back on a growth path.

IDM: With regard to the technologies you offer, where do you currently see particularly important developments in the market?

Becker: We have a very large number of FFS machines installed around the world. With the takeover of the majority in the punching and forming tool specialist Intecma last year, we are now di-

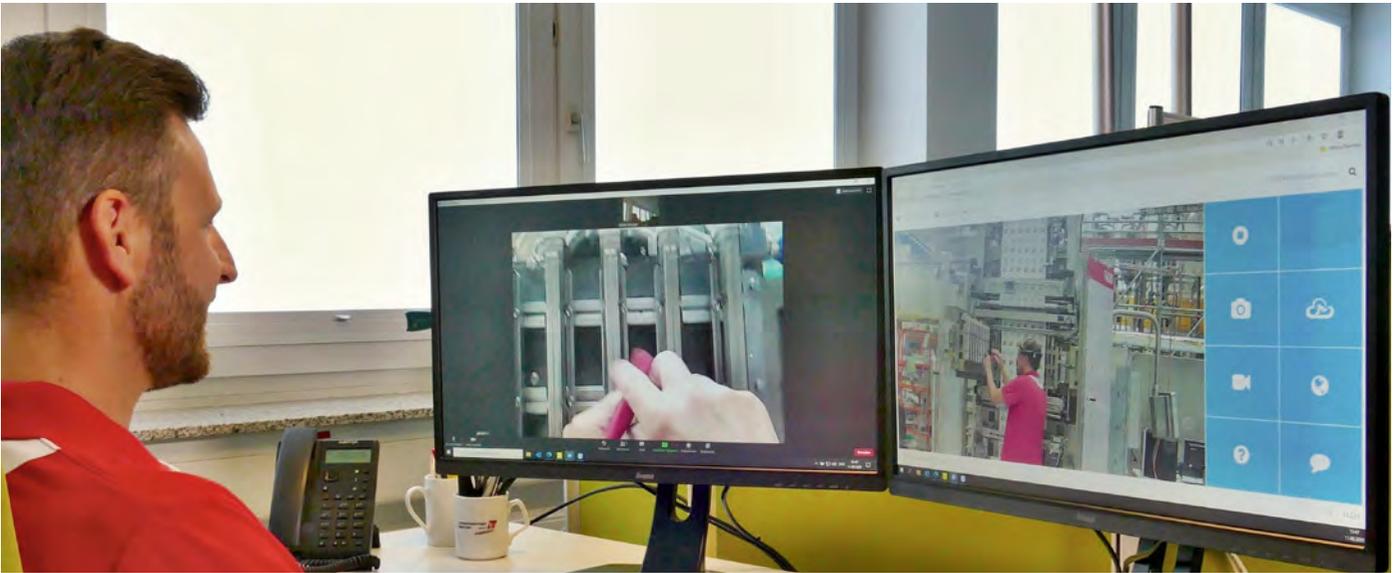


Thomas Becker, majority owner IMA DAIRY & FOOD: With an enlargement of the portfolio we were able to bring a lot more calm to the business.

rectly involved in ongoing refurbishing work on our thermoforming machines, which should be converted from PS to PET. Quite a number of large customers are doing exactly that. PET has similar shrinkage properties as PS, so that the switch to the more sustainable packaging material PET can be easily accomplished.

IDM: Do you even see a future for Polystyrol?

Becker: The replacement of PS is mainly a topic in European countries. On other continents there is, in my opinion, a limited interest in the recyclability of packaging, while in other parts of the world the idea of the circular economy is still subordinate. Energy and cost issues of current developments, such as a switch to modified PS, which can be reused after being broken down into its molecules, are not known at the moment.



Virtual maintenance support for customers

IDM: This leads us to the topic of sustainability. What is IMA Dairy & Food doing here?

Becker: Our main raw material is stainless steel. In Germany for example green material is increasingly used, which brings immense additional costs with it. As far as competitiveness in Europe is concerned, we really have to keep an eye on these additional costs.

IDM: Attempts are being made everywhere to replace plastics with "natural" packaging materials. How does it look in your area?

Becker: Alternatives are limited. Glass is a niche in the dairy market and not at all the big ecological alternative. If you use paper-based packaging, it must be coated. That makes recycling difficult. In the long term we see PP and PET as the best packaging materials for our target markets.

IDM: Let's come back to the consequences of the pandemic. How will the contact with your customers be handled in the future?

Becker: The restrictions imposed by the pandemic have of course greatly encouraged virtual meetings. As a consequence we are now doing virtual FATs (factory acceptance tests). Our machines can all be integrated into the customer's control systems so that there is less need to visit the site. Nevertheless, meetings cannot be omitted in the long run, because it is not just the machines alone that are at stake. The personal conversation cannot be replaced by virtual meetings. However, we now reevaluate the importance of trade fair events differently. Events organized in an annual cycle are losing importance, while events organized in multi-year rotation which take into consideration our innovation cycle are unlikely to lose their importance.



One of the new pillars of Hassia: vertical FFS machines for sachets



Easy breakable PET multipacks realized with the tools of ZERO Technology.

Cloud and remote work boosting the business

SPX FLOW Automation

Like virtually all suppliers of processing lines, equipment and automation solutions, Corona caused things to change dramatically at SPX FLOW. But business went on. Not as usual, however. A lot of things changed in short time and the way of operating the business will not return to a pre-Corona status. That could be good for the company, the customer and even the environment. IDM spoke with Jonathan Reed, Global Head of Automation, Electrical & Digital Engineering, SPX FLOW.

"The restrictions of business travel hit us and forced us to change the way we did our jobs," Jonathan Reed says. "It is very simple in the automation business: if you can't go to a customer site there is no commissioning and the plant does not go into production. So we had to find new ways to keep projects running despite all the problems, and we did that in a way where customers could access more of our process specialists and software code experts worldwide".

The answer: creating a digital twin of customers' solutions in the cloud. In turn, that helped create the final solution before SPX FLOW implemented the innovation at customer facilities.

Technologies at the edge

When the pandemic broke out, remote technology was already available but it was at the edge as Reed says, but was not yet fully accepted and in use. Covid proved to become a driver for the broad utilisation of just such remote technologies. "We were able to swiftly convince our customers worldwide that we could manage all sorts of projects remotely and that it was



not necessary to do laborious and costly travel just for project commissioning. In fact, in the after-Corona world, we will return to a more normal way of operation but we will definitely cut down on business travel. This saves costs for our customers and reduces our environmental impact," Jonathan told IDM.

Cloud technology

But it was not only remote video and desktop technologies that moved automation forward, it was the increased use of cloud technology that really accelerated things by allowing people to work simultaneously from remote places on one project. SPX FLOW can now combine the skills of process specialists and software code experts working from virtually any place in

the world. This ensures that SPX FLOW can ensure the right people are supporting a project. If it suddenly turns out that a specialist from another SPX FLOW location is required to step in, he or she can be easily brought into the work.

"Things have changed completely," Jonathan says. "We build, test and modify solutions for customers in a cloud environment. Every one of our people involved can feed work into the cloud platform for software development and test the final solution. We then install the complete automation software on the site servers and PLCs and ship them to the customer. The whole automation can be switched on once it arrives on site in a plug & play operation reducing the time for installation and setup on site. We can also hibernate this



The SPX FLOW team brings real time data to the customer, enabling fast data-driven production decisions

cloud automation solution and when the customers requires a change we modify, test and optimise the system in the cloud before bringing a perfect modification to site in the same way".

Needless to say that all this cloud operations are strictly separated from the customer's IT. When developing, testing and modifying solutions, SPX FLOW generates input data like tank level, throughput or temperatures from the traditional simulation tools. The virtual PLCs can't detect the difference, of course, so that all work can be done in a clean and safe environment. Also, a migration from say Windows 7 to Windows 10 for increased cybersecurity, the test can be made (and tested for driver and communication functionality for example) in the cloud first before it is actually applied to the customer's automation hardware. This greatly reduces downtime and risk once on site in the real environment.

Even FATs (Factory Acceptance Test) can now be done remotely via the cloud. And instead of sending three to five SPX FLOW workers to the customer's plant for installation there may be only one, if any, required to attend. This, Jonathan adds, reduces costs that the customer has to bear

greatly. Having the cloud image, customers with the help of SPX FLOW can easily add machines or modify the line set-up at any later stage and test the full integration before attending site for a shut down.

Optimisation and modification

Line optimisation is a constant demand that SPX FLOW gets from customers. Jonathan told IDM of a very special case that was all solved remotely. A customer's finance leader was alarmed that a production line consumed more electricity than in period before and called SPX FLOW for clarification. Talking to the production manager, SPX FLOW saw that the reason for the "flaw" was a sequence of products that were heat treated in a less efficient production schedule. Changing the sequence took out several intermediate CIP phases and energy consumption was down again to normal.

The Automation, Electrical & Digital Engineering part of SPX FLOW is growing rapidly now, says Jonathan. Headcount-wise it is currently one third of the Nutrition and Health solutions delivery engineering team and is rapidly expanding to signifi-

cantly increase headcount. In recognition of its success, Automation, Electrical & Digital Engineering was recently awarded by SPX FLOW CEO Marc Michael with the Global Award for Innovation at the annual awards ceremony. As a prestigious award in an environment of innovation it was a real success for the team.



Jonathan Reed, Global Head of Automation, Electrical & Digital Engineering, SPX FLOW: All our cloud operations are strictly separated from the customer's IT

Natural claims appeal

Sweeteners must be compromise-free in the dairy sector

In the wake of the pandemic, consumers are placing greater emphasis on healthy eating and drinking as they look to maximize their wellbeing. This is resulting in consumers being more attentive to the ingredients used in product sectors such as dairy than ever before, with a specific focus being on the use of natural ingredients. Natural ingredients are associated with a variety of benefits such as being healthier and better for the environment. However, despite these positive connotations, the dairy industry should apply caution when using natural sweeteners, especially as consumers can be concerned about the taste of such products.

Over the last twelve months, consumers have become more conscious about their health as they have questioned their vulnerability to disease and illness, something that has ultimately shaped their eating and drinking habits. For instance, research conducted in 2021 shows that 76% of consumers plan to eat and drink more healthily. As a result of this, there will be a greater focus on ingredients used in products than ever before, something that will significantly impact on the dairy industry – especially given that consumers can give polarizing opinions on the healthiness of the sector. Indeed, on one hand consumers associate dairy with positive ingredients such as calcium and protein. However, on the other hand, they can also associate the sector with ingredients such as sugar and fat. Over the last twelve months, 63% of consumers say that they have been more attentive to ingredient listings on products. A specific focus on this is because consumers are seeking out products that they deem to be real and authentic and contain ingredients that are natural and nutritious.

Consumers attach a high level of importance towards natural claims in dairy categories such as cheese (62%) and yogurt (61%). This is because natural products are associated with a

variety of benefits such as being healthier and more sustainable – two important topics within the dairy industry in a post-pandemic environment. Additionally, consumers also want to see a variety of free-from claims in products, such as non-GMO, additive-free, and minimally processed. As well as wanting to avoid ingredients that are chemical, consumers are also making greater efforts to avoid dietary evils. For instance, of those who said that they were looking to eat and drink more healthily, 60% say that they will look to reduce their sugar intake. This shows that the war on sugar will intensify throughout 2021, especially as most recognize the link with obesity and diabetes.

However while consumers want natural ingredients and want to avoid sugar, the dairy industry should be conscious about using natural sweeteners unless they can offer maximum assurance that they are compromise-free. This is because consumers are not overly prone to seeking out natural sweetener claims within the dairy sector and this can be linked to such ingredients being

associated with an unpleasant after-taste by some. Irrespective of concerns over health and the environment, consumers are unwilling to compromise on sensory appeal. This is especially true in an era of uncertainty when consumers turn to products on a regular basis for moments of escapism to deal with the pressure of everyday life.

While dairy brands should look to capitalize on consumers seeking out real and authentic products more frequently and being prone to checking nutritional labeling, focus should be on free-from claims and purity. In addition, if brands are to use alternative sweeteners, it is crucial that they are not seen to compromise on taste.



Consumer Experts, Insight Driven

For more information contact info@fmcggurus.com

Whey protein and casein star in meal replacement

AFI

Arla Foods Ingredients has launched a new concept highlighting the power of whey and milk protein ingredients to create on-trend meal replacements. A key trend in the category is demand for healthy, natural ingredients. The most successful weight management products are low in sugar and high in protein, as well as offering convenience and great taste. Whey protein and casein account for over 80% of protein ingredients in RTDs, powder shakes and bars marketed as meal replacements.

Arla Foods Ingredients' new concept features three convenient solutions which showcase the versatility of the company's Lacprodan® range of whey protein and micellar casein ingredients. High in protein, the three recipes also provide carbohydrates, fibre and fat, and are rich in essential vitamins and minerals:

- **RTD beverage:** A ready to drink beverage with 100% native micellar casein isolate – a slow-digesting protein for long-lasting satiety. It combines heat stability and low viscosity with a neutral taste that is easy to flavour



Whey and milk proteins are ideal for creating meal replacements (photo: AFI)

- **High-protein bar:** With a blend of casein and whey protein for optimal texture and satiety, this nutrient-rich bar maintains its soft texture throughout its shelf life
- **Protein shake:** A blend of slow-digesting micellar casein and fast-absorbing whey with a neutral taste that is easy to flavour

Organic lecithins from Europe

AgroHorizon

Special lecithin supplier AgroHorizon Lecithin & Solutions Ltd has developed organic Lecithins to be used for the instantisation of organic powder products. The products are called Agrolec LVL-5 BIO and Agrolec LVL-8 BIO, which are different in viscosity to allow different temperature profiles while applying to the powder.



AgroHorizon has launched organic lecithins from European manufacture (photo: AdobeStock)

The following advantages result:

- Use focused on organic whole milk powder and organic infant formula, also organic whey- and milk-proteins.
- Complete manufacturing process of organic Lecithin in Europe.
- Excellent traceability of the organic raw materials.
- Low viscosities for spraying on dairy – agglomerates depending on the preferred temperature profile.
- The Lecithins are highly filtered. No clogging of spraying nozzles.
- Stable storage of the Lecithins at room temperature.
- Packaging in 1000 l IBC, 200 l steel drum or by arrangement.
- Compliance with EU regulation 848/2018 and all amendments.

Fully automated antibiotics testing

DSM

DSM launched the Delvotest Accelerator Smart – a fully automated system designed to be used in combination with DSM's internationally validated Delvotest plates to optimize antibiotic residue detection in milk. Delvotest Accelerator Smart helps milk control laboratories and dairies reduce costs, bolster accuracy and achieve faster, more reliable results, while also preventing milk loss and ensuring complete traceability.

Thanks to fully automated incubation, determination of control and barcode plate reading, milk control laboratories and dairies can optimize workflows more than ever before. Technicians only need to start the incubation, with no requirement to attend the device during the process – saving up to 40 minutes per plate. In addition, the new Delvotest Accelerator Smart has a compact design, allowing multiple units to be connected to one computer.



Delvotest Accelerator Smart greatly eases life for lab personnel testing for antibiotic residues (photo: DSM)

Follow the Food

As individuals, do we have the power to change how our food systems work?



Our entire food system is, to a large extent, set up to provide consumers with what we demand of it. With that power in mind, BBC World News and BBC.com's Follow the Food: Consumer Power delves into what we, as consumers, can do to help make sure that our food system is sustainable, secure and delivers the nutrition we need to feed 10 billion people by 2050.

How to eat well and influence agriculture

Consumers have the power to influence what is planted in, or grazes on, the world's fields. Each purchase we make is like a vote for the food we want to eat, and those decisions can have a dramatic impact on how diverse, resilient and nutritious our food supply is.

In the programme, author of the book *The Fate of Food*, Amanda Little, said: "I

think the consumer has a lot of power. Many of the major producers look at consumer trends – they understand that millennials and gen Z are really interested in alternative products. There is so much shift and radical change in what we eat, and how will grow it, the change is going to come both from consumers and from large scale producers.

"COVID-19 has really exposed a lot of the problems in our food system, and you see consumers responding to those problems. For example, in the United States, we've seen the demand for alternative meats more than double in just six months. Consumers started stockpiling sustainable food supplies, and that has certainly driven investment in that sector."

Does meat need to come from animals?

Approximately 80% of global agricultural land is dedicated to rearing livestock,

and growing the crops to feed them, generating up to 14% of all greenhouse gas emissions, yet it produces less than twenty percent of our calories. The move to meat-free could make a big impact on global warming.

One of the companies whose growth is being fuelled by the current consumer demand in plant-based protein is Beyond Meat, founded in 2009. The company has developed a range of plant based products designed to accurately mimic the texture and flavour of animal meat.

Ethan Brown, founder of Beyond Meat, said: "The consumer is beginning to hear more that there are reasons that they may want to reduce their consumption of animal protein, and at the same time, our technology is getting stronger and stronger, so we're able to build meat directly from plants in a way that's more compelling and convincing to the consumers' palette and sensory system."



How to tackle food waste: fresher produce costs more, simple as that

Climate vs Cost

One reason that shoppers might be switching to meat-free products could be down to one of the biggest problems facing our planet – climate change. It's an existential threat, and the plant-based meat market is demonstrating some impressive stats to combat this.

At the University of Michigan, a recent study showed that plant-based burger, Beyond Burger, uses 99% less water, 93% less land, and produces 90% fewer fossil fuel emissions than a quarter of a pound of regular ground meat.

"I've never seen anything in my career where you could focus on one thing, get that to the centre of the consumer's plate and, in doing so, you can simultaneously impact four things – human health, climate, natural resource and animal welfare," said Ethan Brown. "If you can get the price to a point where it's cheaper than animal protein, I think it'd take an unusual consumer to say they're still not going to eat it," he added.

Driving down the price of any product relies on scaling up and selling more, which is ultimately in the hands of the consumer. What we choose to spend our money on has the power to make significant changes within the food chain. With the demand for proteins like pork and chicken soaring in recent years, due to the increasing affluence of some developing countries like China, the need for alternative protein is even more important.

The whole topic of meat-free alternatives has really become a bigger part of the public conversation in recent years, and it

doesn't necessarily mean it's going to replace meat; you don't necessarily have to be a vegan – or even a vegetarian – to include some of these products in your diet, and adding that as part of a suite of solutions, if done in the right way, could well be a way to reduce some of our carbon footprint.

Informed choices

Hot off the press at a British printing firm is the latest innovation by globally recognised brand Quorn, a company that blazed a trail 35 years ago with a new source of protein made from fermented micro fungi, which produces 90% less greenhouse gas emissions than beef. In 2020, the brand took the step of declaring the carbon footprint of their products on the packaging.

Marco Bertacca, CEO at Quorn, told *Follow the Food*: "It has been a major undertaking to calculate the carbon emissions of our products. The ingredients, where they come from, how they get to our factory, the conversion of the product, the storage costs, the distribution to the retailers, how the consumer might get the product, how they store it, cook it and dispose of the packaging – that's how complicated the calculation is. But it's the role of producers, including companies like Quorn, to provide the consumer with the choice, and for the consumer to make the right step."

But consumers are only able to make those intelligent choices if they have the information in front of them, which is what labelling is all about. It's a fantastic idea, but things will only really make a difference if other companies, including their competitors, can be convinced to adopt this kind of

labelling. It is this kind of transparency that is vital if consumers are going to be able to make informed decisions about how our food is produced, something we more often than not feel powerless about, but there is one part of a food chain that we have very real and practical influence over – waste.

Waste not want not

"Food waste might be the most difficult consumer challenge to address. Roughly 35% of food waste is produced by households. The real challenge is avoiding the food waste to begin with – taking the emphasis away from recycling and composting food, and figuring out how to shop more efficiently," said Amanda Little.

We produce enough food every year to feed the planet one and a half times over. Yet, every ten seconds, someone dies due to starvation or malnutrition. Therefore, our food system must improve. While our farmers, food processors, manufacturers and retailers could all do more, crucially, so can the consumer.

With around 6% of the annual turnover of a supermarket evaporating through expired products, one idea starting to gain momentum across Europe is protecting highly perishable products from ending up as waste by helping the consumer and the retailer work together.

Wasteless is an Israeli company that has introduced a pioneering concept already showing the potential to bring down the numbers significantly. Using a dynamic pricing algorithm, it tracks the expiry date of fresh products and, using special digital barcode, reduces the price accordingly.

“The food system, where one third of everything produced is never consumed, is incredibly broken,” said David Kat, VP Business Development at Wasteless. “Imagine you’re going into your favourite supermarket, and you have the choice of two sandwiches – one that expires in two days and the other that expires in five days – which one are you going to pick? People are wrong to pick the item with a longer shelf life. The sooner-expiring product is just as healthy, just as fresh and just as high quality. With the help of artificial intelligence, we find the optimal price points to make that sandwich more attractive to the shopper by lowering its cost. The result is retailers waste less, sell more and are able to reward shoppers for conscious consumer behaviour, which is extremely important.”

It’s an idea that retailers have tried to harness over the years, with daily mark downs on fresh products, but their capabilities of AI dynamic pricing is a potential game-changer in food waste globally.

“We calculated that, if all grocery retailers in the developed world used dynamic pricing to prevent food waste, that we could be reducing 500 gigatonnes of greenhouse gases annually, which is about the annual output of the UK,” added Kat.

People power

Watching news footage or documentaries on the state of the planet can sometimes make you feel a little bit powerless and



Robotics will change the way of our food production

leave you wondering what difference you can make on a planetary scale. The good news is, if you’ve eaten today, you’ve already made a difference. Every time you make a food purchase, you’re voting with your wallet, you’re voting with your palate, to slowly shift the agricultural system.

The stories in Follow the Food show that, to create a secure food system for the future, that’s prepared against climate change, a population boom or even another global pandemic, it’ll be the application of multiple solutions from farmers, scientists,

retailers and consumers, all working together, which will have the best chance of collectively making a difference.

Follow the Food: Consumer Power :To find out more or watch the series in full, you can also visit <http://www.bbc.com/followthefood> and follow @BBCFuture on Facebook and Twitter for all the latest from the series.

All photos: Rima Armstrong



Quorn Foods label the carbon foot print of their products on packaging

"We Texture Taste" Hydrosol brand relaunch

Hydrosol has adopted the new corp slogan "We Texture Taste". "In recent years, Hydrosol had deployed its strong in-house capabilities to develop new solutions in the plant-based category as well," reports Dr. Matthias Moser, Managing Director of the Food Ingredients Division of Stern-Wywiol Gruppe. "In the autumn of 2020 that booming unit was spun off to form the new company Planteneers, which is growing rapidly along with the industry. Simultaneously, stabiliser specialist Hydrosol greatly expanded its expertise in texturing, to go beyond the physical stabilisation of food products." As a result the company formerly known as "The Stabiliser People" has redefined itself. Now Hydrosol says "We texture taste."

Dr. Moser comments, "we've steadily built out our portfolio in the past decades and massively expanded our expertise, in breadth as well as depth. Our products enable the optimum adjustment of consistency and mouthfeel. Together with our knowledge of flavourings and colourings, this gives customers solutions they can use to offer consumers the perfect taste experience. 'We texture taste' is thus a very accurate description of what Hydrosol does on a daily basis."



"The Stabiliser People" have turned into "We Texture Taste" (photo: Hydrosol)

Benefitting from the pizza boom Planteneers

Euromonitor International forecasts global pizza market revenue growth of almost 11% this year, to \$132.3bn. For Eastern Europe the projected rate is 16%.

With Planteneers' compounds, manufacturers can offer the entire range of pizzas with purely plant-based ingredients. fiildDairy CHG can be used to make plant-based alternatives to grated cheese. These are relatively easy to produce and have very good functional properties. They don't stick during grating, have the ideal melting behaviour during baking, and stretch just like real pizza cheese. The cheese alternatives can be made in popular varieties like mozzarella and cheddar.



With Planteneers' compounds, manufacturers can offer the entire range of pizzas with purely plant-based ingredients (photo: Planteneers)

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How is the global dairy industry tackling the sustainability challenge?

Sustainability is in everyone's mind today and policy as well as markets have reacted and keep on changing.



Author: Christophe Lafougere, CEO Gira, contact@girafood.com, phone +(33) 4 50 40 24 00, www.girafood.com. Summary of a presentation at the Eucolait General Assembly, 10th of June 2021.

Food production and consumption contribute 20% to the global GHG emissions and account for over 90% of world-wide freshwater consumption. The likely growth of world population to 10 billion until 2020 may increase food-related emissions by 46% and land-use by 49%. To meet climate-change goals we simply need to change the way we live, eat and drink.

There are many different trends in the food markets like food safety, convenience or indulgence. But sustainability has evolved into a mega trend that seems to become one of the most important moves for industry and consumers alike. In a recent survey, 55% of 30,000 interviewed consumers in 60 countries said that they are willing to pay more for foods and services from sustainable produce. Companies are about to exploit this and developed means to reassure consumers that they supply exactly such products by developing labels such as the Eco-Score.

Organic in the focus

Organic food production moves to the core of the whole sustainability movement. Organic has long been perceived as the most sustainable means of food production. The market has grown over the years and reached mainstream after discount chains have added organic products to their portfolios – making organic cheaper in general. But naturally, there is a ceiling to this segment. Figures from France indicate that retail sales of organic foods may have reached a peak already. Whether sales will stay on this level or will decline again has to be seen.

The European Green Deal has proclaimed the target to grow organic food sales to 25% of total food sales by 2030. If that will become a reality, we need more organic producers. It can be expected that about 65,000 conventional dairy farms in Europe may convert to organic. That means that we have 65,000 farms less producing

conventional. But more important is that organic milk may turn into a mass product going the same way as GMO-free milk which is the new "normal". If organic production becomes a normal itself, margins will decrease and the need for state intervention/subsidies will grow. Premiumisation in this segment could be lost.

The Green Deal will also see for less use of fertilisers and pesticides. This may decrease yields in plant growing, thus decreasing available feed. The EU milk production will no more increase at the rates we are used to (1.7% CAGR in the past decade). In best case a 0.9% growth will be possible during the next 5 years. At the same time, production costs will increase bringing producer margins under pressure and making the EU dairy sector less competitive. Last, consumer prices in the EU may increase accordingly. All in all, EU milk production could decrease by 8% in the wake of the Green Deal. If

The dairy sector and the Green Deal LIVE

Last Climate Change Announcement by Major Dairy Companies

Carbon neutrality is on everyone's lips

The infographic features a central milk drop surrounded by logos of major dairy companies. Arrows point from these logos to various climate-related announcements and goals:

- Nestlé:** "2030: 'zero environmental impact on activities'" and "2030: 'zero environmental impact in our operations'"
- Danone:** "Carbon neutrality 2050"
- Fonterra:** "Carbon footprint monitor 'CO₂-neutral' + 'become circular where possible'" and "Farm emission profiles for every farm by end 2020"
- Fonterra (continued):** "Target of 30% reduction in CO₂ from 2015-2030" and "Carbon zero net by 2050"
- 2019:** "First sustainable international supply chain network"
- Sustainable 2030 Agenda:** "Introduced ISO 14001 Environmental and ISO 50001 Energy Management System"
- Following UN Sustainable Development Goals:** "DMK 2020" sustainability strategy
- Emmi Group:** "20% reduction in our global CO₂ emissions by 2020"
- Valio:** "Carbon neutrality by 2035"
- Land O'Lakes, Inc.:** "Carbon bank (Microsoft – 2021)"
- Amul:** "We contribute directly and indirectly to 11 sustainable development goals"
- LALA:** "Member of the international Science Based Targets initiative (SBTI)"
- Bel:** "Based on the ISO 14001 standard for environmental management"
- AGROPUR:** "Reduce the carbon footprint of our milk collection by 300,000 tons of CO₂ equivalent by 2025"
- SAVENCIA:** "Reduce our carbon footprint and to support our farmers in adopting similar practices"
- SODIAL:** "Reduce our carbon footprint and to support our farmers in adopting similar practices"

Update: February 2021

The analysis of Gira is incomplete insofar as it has been made in March and does not list each and any dairy company engagement in plant-based offerings

gross margins are to stay unchanged, a price increase of 10.3% would be necessary (see the study "The Green Deal and the CAP: policy implications to adapt farming practices and to preserve the EU's natural resources" commissioned by the EU commission and published in November 2020 and only released in June 2021

[https://www.europarl.europa.eu/think-tank/en/document.html?reference=IPOL_STU\(2020\)629214](https://www.europarl.europa.eu/think-tank/en/document.html?reference=IPOL_STU(2020)629214).

Plant and cell-based

Plant-based dairy alternatives must also be seen in the context of sustainability and the Green Deal. Vegan diets are said to produce 88% less CO₂ emissions than meat and milk-based nutrition styles. Health and wellness as well as animal welfare and said sustainability are the drivers of sales of alternatives. However, plant-based "milk" is not likely to push original milk out of the market as product quality may

never ever reach that of original dairy products. Two thirds of consumers are omnivore and may stay omnivores for the time being. The real danger for original milk constituents is cell-based and precision-fermented production of nature-identical milk proteins. The flexitarian, vegan and vegetarian community in the EU alone is over 140 million consumers. They will be the addressable target group for nature-identical milk protein. But before this kind of products will produce havoc in the milk market a number of issues have to be solved. Such issues are production capacity and mass market reachability and ingredient availability, given the fact that the producers of cell-based and precision-fermented milk proteins are start-ups. Crucial for any success will be legislation and future definition of "natural" products. And it may well be that real sustainability of alternative proteins solutions production is not as good as we are made to believe.

New culture for stirred yogurt

DSM

DSM offers now a new yogurt culture: Delvo Fresh YS-042. The culture – an extension of DSM's Delvo Fresh culture portfolio – enables manufacturers to create stirred yogurt that stays extra mild, creamy and thick throughout its shelf life, without the need for texturizers or additional proteins.

Thanks to its fast and consistent fermentation time, Delvo Fresh YS-042 facilitates cost-effective and streamlined yogurt production, enabling producers to create yogurt with indulgent appeal while also optimizing efficiencies.

Plant-based “yogurt” production installed during lockdown

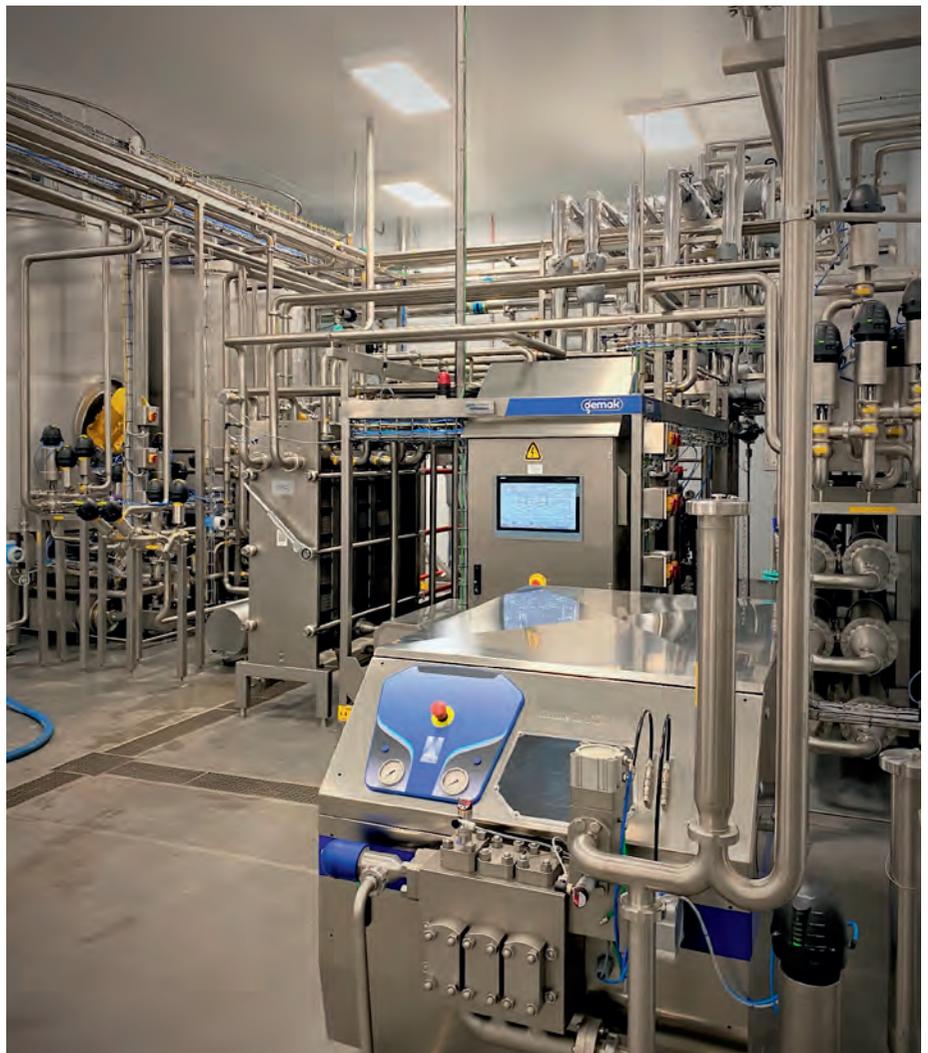
Gemak /Filltech

Gemak have designed, manufactured, installed and commissioned a state-of-the-art process and packing plant built specifically for the manufacture of plant-based “yogurts” and other dairy alternatives. Working closely with their UK-customer Meadow Foods over the last two years, Gemak were able to deliver the project on time despite the pandemic – exceeding all expectations. The plant was built to produce The Collective’s new range ‘Plant’, the UK’s first dairy free, Greek-style “yogurt” made from a blend of oats, coconut and rice.

Established in 1992, Meadow Foods, based in Marlston Cum Lache, is the UK’s leading supplier of dairy ingredients to the food and drink industry. The new facility comes on the back of a four million Pound investment, designed to produce high-quality plant-based ingredients in a dedicated, segregated facility that does not compromise on taste, texture or quality.

The Collective best known for their “thick ‘n’ creamy” gourmet yogurts and renowned for innovation, have been driving the project and In January 2021 they successfully launched their first range of delicious tasting plant-based “yogurts”.

Gemak was chosen as the process partner for the project and has successfully designed, delivered and executed the project on time and on budget despite the huge challenges faced during the COVID-19 pan-



View of the blending and pasteurisation unit for production of plant-based “yogurt” alternatives at Meadow Foods



Gemak supplied the whole production line incl. the fermentation tanks

demic, thanks to their team and Meadow Foods working tirelessly and in harmony.

This was made possible following a new 150,000 sq.ft. installation and assembly factory Gemak acquired at the end of 2019 on top their existing 200,000 sq.ft. manufacturing plant. Meadow Foods floor plan and Gemak process equipment and pipework installation was drawn in 3D and fully erected and installed within Gemak assembly plant, a first in the industry before it was dismantled and shipped. This allowed installation time of the plant to be reduced by a full 8 weeks.

Gemak had the advantage of being a manufacturer that can do a full factory installation including electrical, ring mains, supports and utilities off site at their plant to minimise time on customer site and installation.

Paul Jackson, Strategic Projects Director of Meadow foods: "We are excited to manufacture a range of new plant-based products that extend the strength and depth of our product portfolio. Gemak has been a crucial part of the project allowing us to finish the project on time and on budget by coming up with solutions to eliminate the disruption caused to all by the pandemic and lockdowns. We are very happy with the whole experience with Gemak and would happily work on future projects with them."

Ciaran Adam, Product Manager, The Collective stated "After 2 years of tinkering, building and designing we are very proud to finally reveal the first plant based

Greek style "yogurt" in the UK made from a blend of oats, coconut and rice in a fully segregated facility. Grown from a love of dairy and made from plants. The products come in a PET tub made from 100% recycled plastic and are available nationwide at Waitrose, Tesco, Sainsbury's and Asda. We have been in contact with Gemak for nearly 2 years and having seen their high quality work on other plants and because of their experience with yogurt processing, they were our preferred supplier. The team at Gemak have worked closely with us throughout the project and have been a

great asset in delivering the project on time during unprecedented times."

The plant based system includes a dry and wet automatic multi recipe blend, process and preparation unit, pasteurisation plant, storage and fermentation unit, an IBC filling station a Filltech double indexing, linear, layered yogurt pot filling line capable of filling 2 different diameter of pots with auto change over. The raw and pasteurised CIP sets were also supplied as part of the turnkey solution.

The plant will be capable of producing plant-based yogurt, drinks, cream, sour cream, soft cheese, milk, custard and variety of other alternative products and ingredients.

Kursat Uysal, Gemak UK and Filltech stated "This is the first project where due to disruption caused by the pandemic and lockdowns we had to change and adapt our approach to installation by utilising our new assembly plant to do a full factory installation including full pipe works with ring mains, electrical installation not just for each skid unit but as a whole process plant within our factory floor prior to numbering, dismantling and re assembling on customer's site. We would like to thank Meadow Foods and The Collective for their fast, flexible approach and their trust in Gemak to deliver the whole process and packaging plant."



The Collective is using a new Filltech machine for filling the 'Plant' range

Dairy Technology Award 2021

Concepts for increasing hygiene standards and efficiency in production and cleaning

The Dairy Technology Award is made every three years by the trade journals *molkerei-industrie* and *IDM International Dairy Magazine* together with the Association of Ahlem Engineers. The award was supposed to be presented to the winners at Anuga FoodTec in April, but Corona threw a spanner in the works.

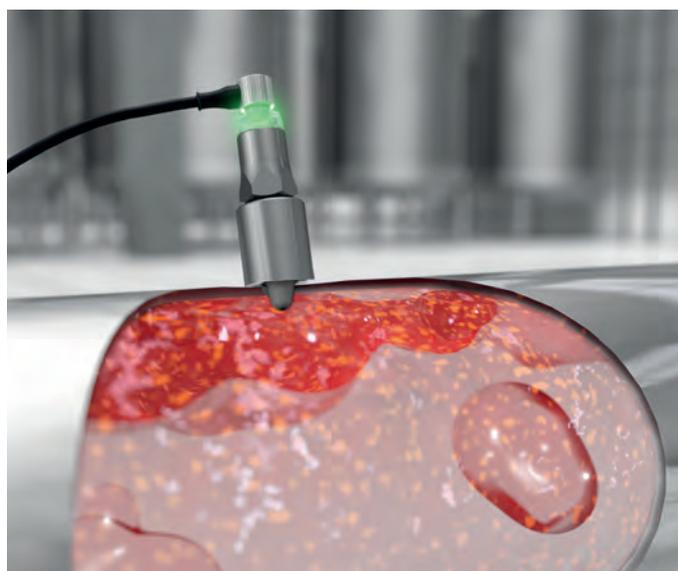
The jury, consisting of Prof. Dr.-Ing. Jörg Hinrichs, Faculty of Dairy Science and Technology, University of Hohenheim, Dipl.-Ing. Klaus Schleiminger, KSI Ingenieurbüro, Krefeld, Prof. Dr.-Ing. Saskia Schwermann and Prof. Dr.-Ing. Matthias Weiß, Hannover University of Applied Sciences and Arts, Faculty 2 Mechanical Engineering and Bioprocess Engineering, made a selection from the 15 applications submitted in a video conference at the end of 2020. The winners are: the Baumer Group, Fischer Planning and Joachim Löw.

In the following, we briefly describe the concepts that were awarded. On moproweb.de, interested readers will find the appreciation of these concepts by our jury and recordings of the individual award presentations.

Baumer PAD20 sensor Higher plant availability, saving of valuable resources

Thanks to an air trigger function, the Baumer PAD20 sensor enables more efficient use of fruit preparations in yoghurt production, thus reducing plant downtimes. This is due to the fact that the Baumer sensor can precisely measure the fill level of containers with fruit preparations. The sensor measures air in liquids of all kinds – whether liquid, pasty or sticky – reliably and quickly.

This means that the containers can really be emptied during production. Until now, up to 8 kg of fruit preparation had to remain in the container for safety reasons, so that no nitrogen got into the piping system and pumps were protected from running dry. The PAD20 sensor, which is equipped with



Thanks to the PA25 analysis sensor for air detection, air pockets are reliably detected in a filled pipe (Fig.: Baumer)

an air trigger, shows its particular advantage when there are frequent changes of type of product. Raw materials, time and cleaning chemicals are saved and the efficiency of yoghurt production is increased.

The Baumer PAD20 has already been installed several times; the pioneering development took place together with Sachsenmilch and Bawaco.

Fisher Planning Sterile milking technology

Fisher Planning has developed a patented process for hygienised milking technology that does not allow that raw milk is contaminated by stable air. The development, in combination with a Sterivent type overpressure filter technology for

the storage tanks, is aimed at both the agricultural sector and milking machine manufacturers as well as dairies and planners of process plants for dairies. The patent allows the construction of ultra-clean chains from farm to packaging. Since the sterile air process reliably protects the food from bacteria, the addition of preservatives can be minimised (if applicable).

In principle, there are four possible sources of pathogens: the animal (cattle, sheep, goats), the barn or the barn air, the road transport of raw milk and processing. The hygiene problem of processing, i.e. the production facilities as the fourth source, is caused by the often inadequate filter technology. When the container is full, the vacuum created sucks contaminated air past the filter via leaks in the connections of the storage and intermediate containers and thus destroys the success of the upstream sterilisation of both the semi-finished product and the air. The positive results of trials by Fischer Planning in Israel were confirmed by test series in Germany.

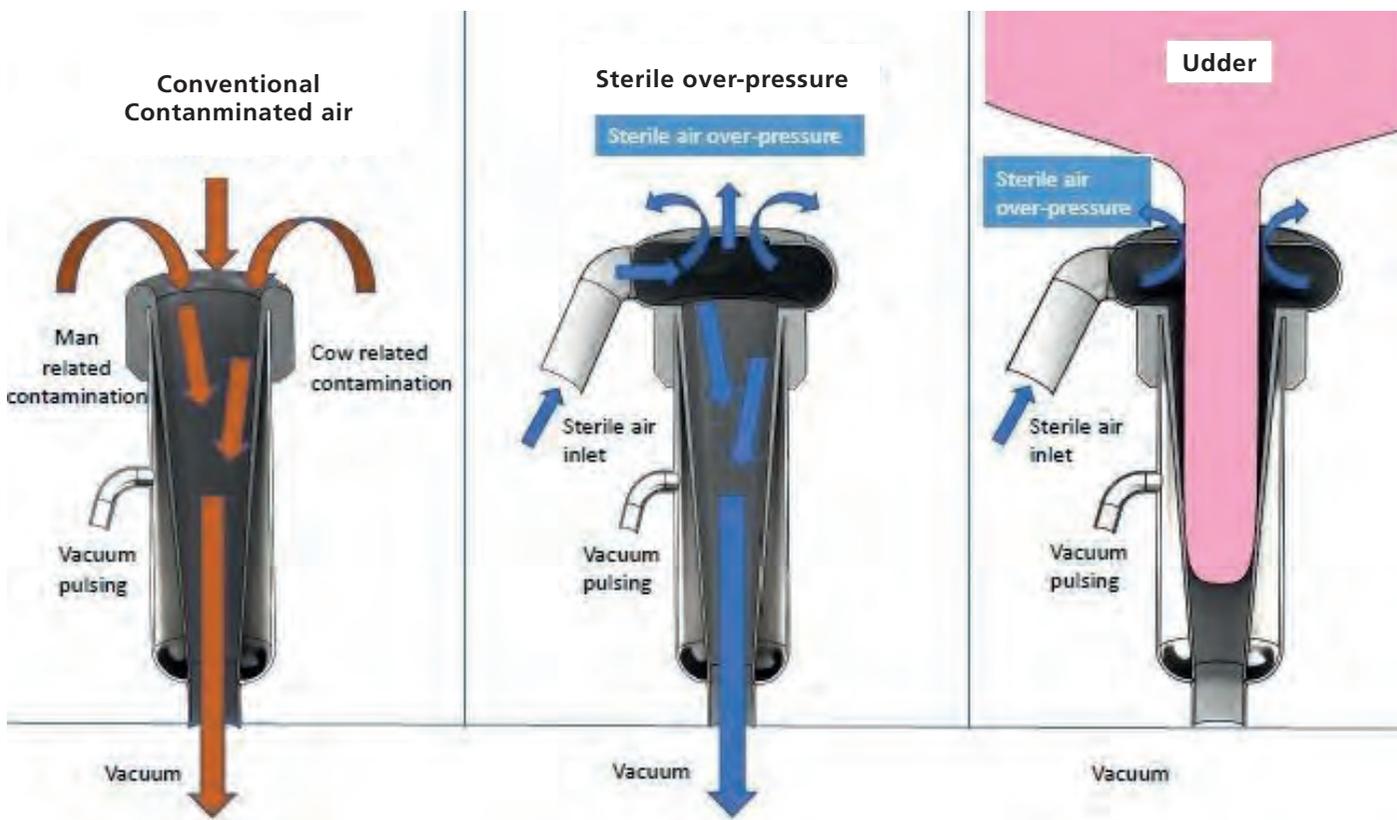
Fischer Planning installed a test facility on the Häfele farm near Hergatz, Bavaria, and entrusted the scientific evaluation to the Hübner Dairy Institute. Fischer Planning was also invited by DMK Deutsches Milch Kontor to compare vacuum extraction with and without Steriveint technology on the farm of the Karbowner Agrargenossenschaft in Karbow/Mecklenburg-Vorpommern.

The evaluation referred to the bacterial count in the cow's milk directly after milking in an airtight container. The results: In Israel, the laboratory staff measured less than 100 CFU/ml in the "Fisher milk", but between 3,000 and 7,000 CFU/ml, depending on the cow, in the milking process without sterilised air. In Hergatz, a group of bacteria including pseudomonads had concentrated from 900 after the first day to 37,000 CFU on the fifth day. In the containers with "Fisher milk", on the other hand, the pseudomonad germ count remained at less than 10 CFU after five days.

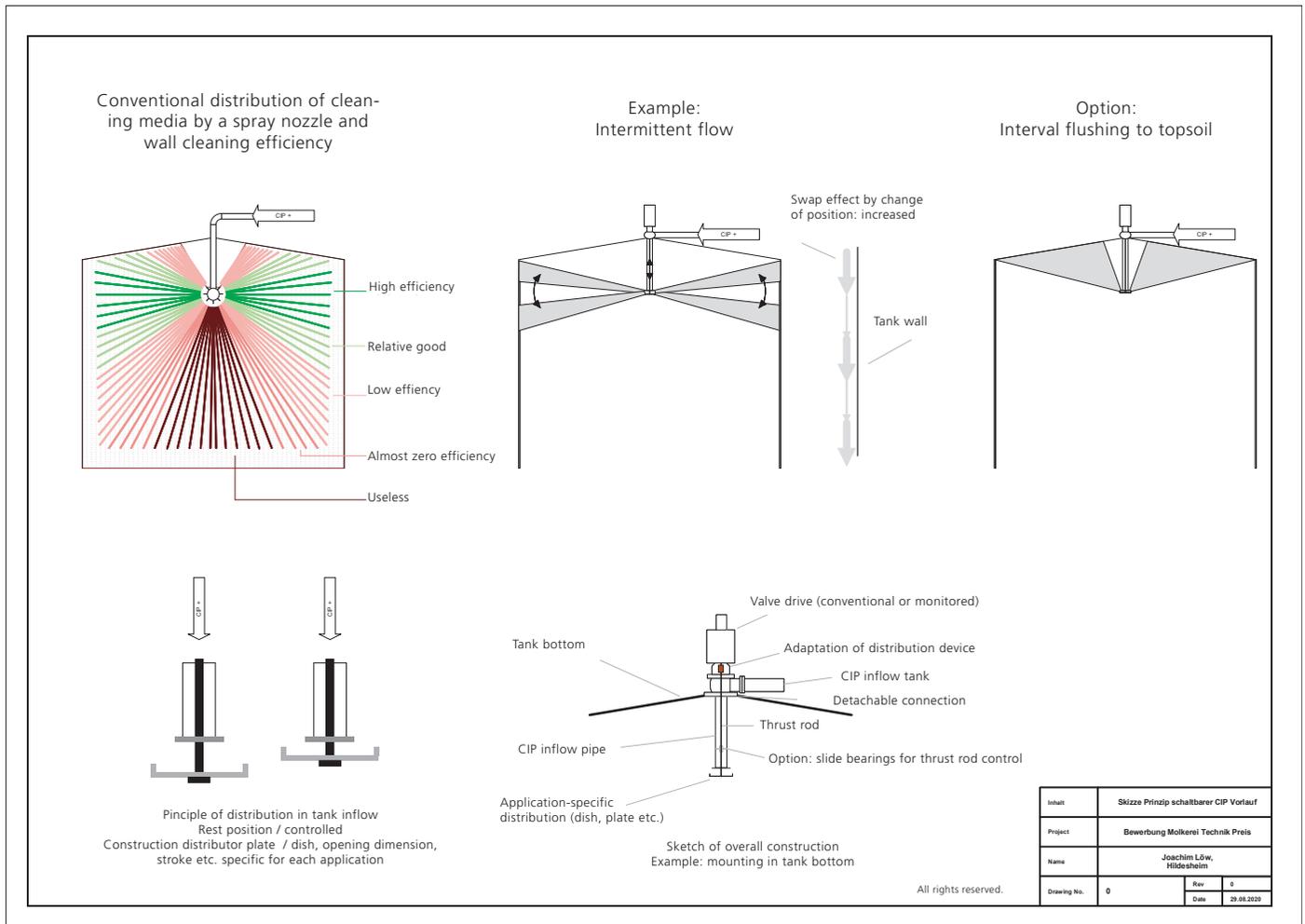


You can access the video documentary of the award ceremony via this QR code

containers with "Fisher milk", on the other hand, the pseudomonad germ count remained at less than 10 CFU after five days.



Improved hygiene in milk production has a clearly positive impact on the entire process and distribution chain (Fig.: Fisher Planning)



Principle of a vertically adjustable, ring- or disc-shaped distribution of the feed medium in CIP processes (Fig.: Joachim Löw)

Joachim Löw Optimised CIP

Vertically adjustable, ring-shaped or disc-shaped (horizontally aligned) distribution of the feed medium (CIP medium, fresh water, etc.) results in significant advantages in cleaning compared to conventional systems (spray nozzles). Above all, the consumption of electrical energy (less pumping power required in the supply and return lines in terms of quantity and pressure) and thermal energy (through more targeted heating of the surfaces that come into contact with the product to be cleaned and not so much of the air volume) is reduced. In addition, there is less product loss and waste water pollution in combination with automated tank rinsing, cleaning times are shortened due to faster and more accurate phase changes as well as higher cleaning efficiency with oscillating liquid flow.

The "disc-shaped" distribution of the liquids by means of a plate or a corresponding horizontal distributor has advantages:

1. all the liquid that hits the tank wall in a ring shape can run down from there over the entire tank wall. The amount of liquid, which with nozzles only comes together in the lower, cylindrical area, is here already easily adjustable in the upper area. A ring-shaped distribution of liquids for tank cleaning requires significantly less volume flow for the same cleaning effect.

2. new medium washes off the "old" liquid much more consistently from top to bottom. Liquid flows that fall directly downwards and thus virtually "overtake" adhesions of older media in the upper area do not occur. The separation between the phases takes place with less mixing.

3. product residues are flushed "linearly" from top to bottom into any remaining product with little water. The tank wall can be kept clean with little dilution of the product, drying of product is prevented.

Due to the changed distribution of the medium, the air volume is heated up or cooled down later and less. The heat energy exchanges much more directly with the stainless steel; i.e. where it is also important.

4. The vertically variable mobility of the "distribution plate" increases the advantages of the system even more: The "distribution pattern" of the medium is no longer always the same, but can change. This means that the liquid on the tank wall no longer necessarily runs off at a constant speed within a phase, but can be changed by changing the emergence plane (vertically) several times. With the same cleaning effect, the volume flow can be lowered or the effective time reduced.

Since the vertical adjustment is carried out specifically via the automation, the functions such as time, position, frequency, etc. can be adapted to the cleaning of each tank.

APV Pilot 4T Homogeniser SPX FLOW

SPX FLOW unveiled a new APV Pilot 4T Homogeniser to help customers test recipes with a new level of versatility in a compact unit. IFF began testing the compact homogeniser late last year to develop recipes for food and beverages, including dairy products and plant-based food, such as peas and oats, said Erik Krabsen, Group Manager Pilot Plant Dairy and Beverages. The abrasive particles on those recipes can cause heavy wear on the homogenisers, but the new machine is durable and requires less maintenance. "We need a homogeniser that's reliable, flexible and must guarantee scalability to large production," Krabsen said. "The 4T's control system with variable speed drive makes made it very easy to control the flow rate accurately. It's also quieter than other homogenisers and it takes up less space."

Other features of the new homogeniser include:

- Flexible capacities that can be easily adjusted for flow and pressure because of integrated variable speed drive and controls.
- Easy ways for operators to meet batch capability needs. Options vary from manual to fully automatic touchscreen PLC control that can link to plant control systems for remote operation.
- Compact modular construction options that can be easily added as market needs change.
- Plug-and-play technology that saves time and money because of the integrated controls and variable speed drive which do not require additional electrical or control panels.
- A three-plunger design that improves stability for pump, single- or two-stage homogenization.



New homogeniser model APV Pilot 4T by SPX FLOW

Easy breakable PET multipacks IMA DAIRY & FOOD offers new tools

With the patented tools of the ZERO Technology range IMA DAIRY & FOOD offers a solution for the use of mono-materials such as adaptable to its FFS machines. A unique punch is a technical solution for high-quality cutting and precutting of PET, PP and PLA and thus enabling easy breakable multipacks. The cup can get a PET lid and label, making the packaging completely recyclable.



(photo IMA)



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Used machines:

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Brands: Stephan, Karl Schnell, IMA Corazza, Kustner

Margarine machines

Brands: SPX Gerstenberg - Schröder, Bock & Sohn

Butter machines

Brands: Benhil, SIG Ecopack, Hassia, Trepko, GEA Ahlborn, Egli, SPX

Also complete dairy factories

Trends in the African dairy market

Market Report

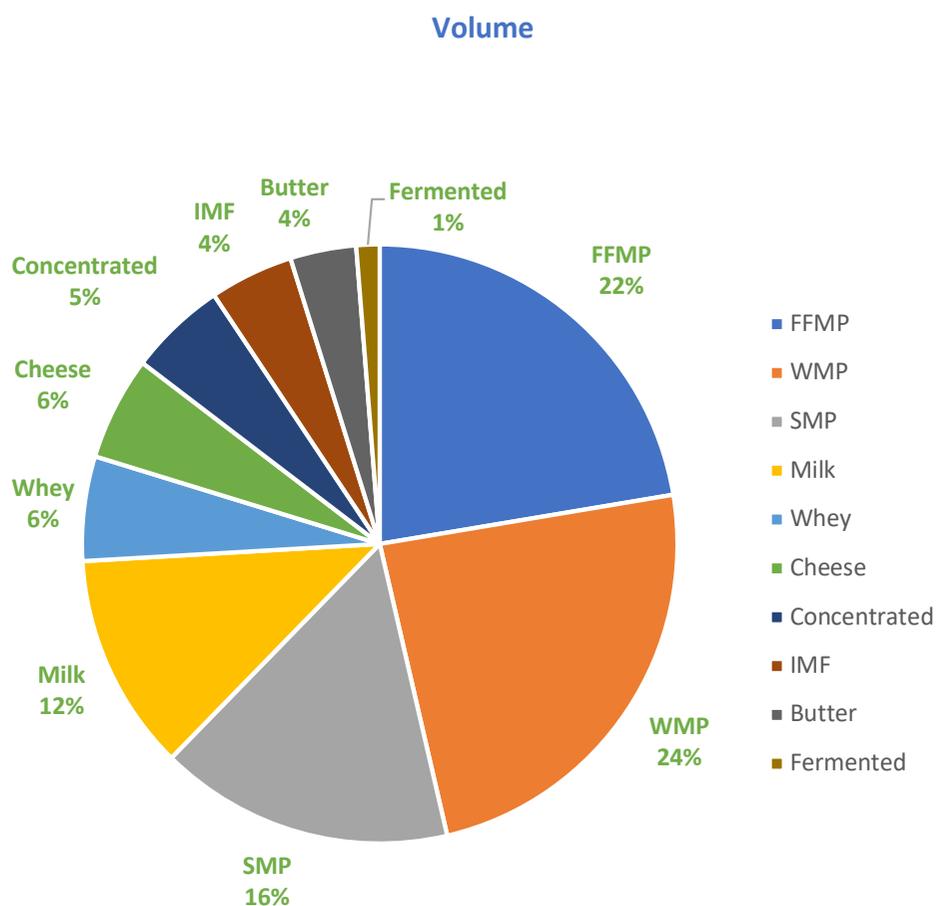


Author: Brian McNulty and Associates, a market research consultancy focused on dairy markets in Africa and the Middle East recently published: *The African Dairy Market: Companies, Products, Markets*. Building on over twenty years' experience travelling in and researching African dairy markets, the report presents a unique insight into the development of dairy markets in Africa. Here Brian presents some of the top level findings. Further information from info@bmna.ie, and <https://www.bmna.ie/publications>

In 2019 Africa imported 2.1 million tonnes of dairy products including fat filled milk powder (FFMP) and infant milk formula (IMF) worth some €4.8 billion. The chart below shows a breakdown of these imports by product, in both volume and value terms. Note data is based on mirrored imports (i.e. exports to Africa from the rest of the world) from Global Trade Tracker and excludes intra Africa trade.

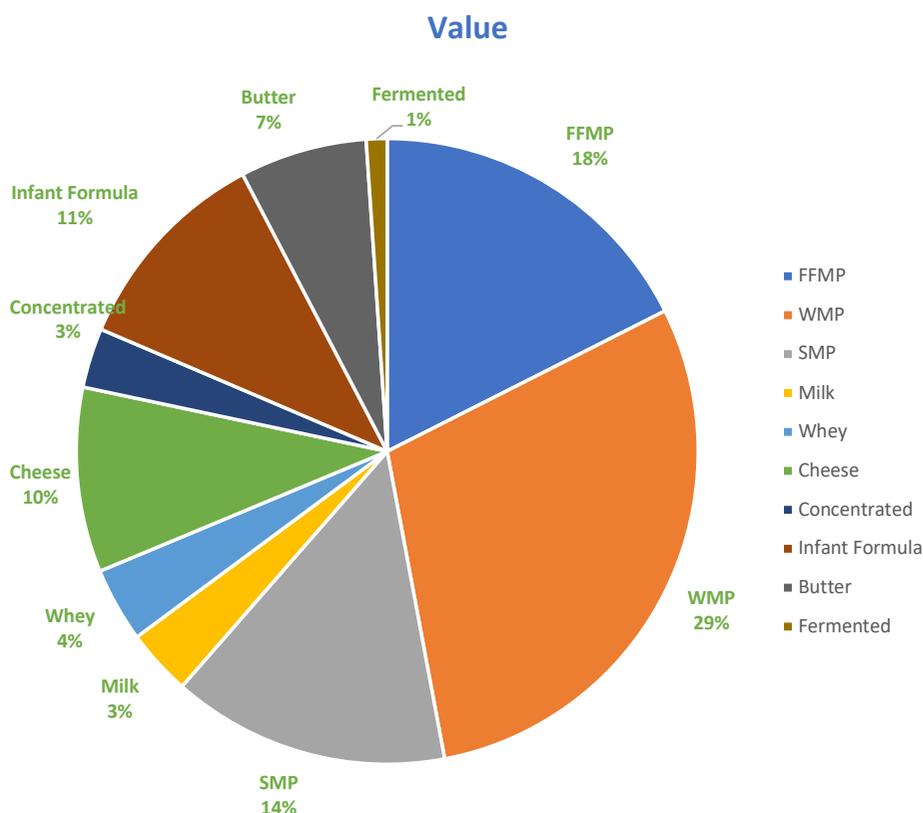
Whole milk powder (WMP) – is of course Africa's largest dairy import due to its versatility. Essentially WMP is milk dried mainly in milk surplus producing countries, for preservation and to facilitate transport mainly to milk deficit regions such as Africa. In African markets it is reconstituted by industry, by artisan processors and in the home into dairy products such as milk beverages and yoghurt. It is also used as a source of fat and non-fat milk solids in confectionery and baked goods. In 2019 WMP accounted for 24% of African dairy imports in volume terms and 29% in value terms. FFMP, increasingly popular as a low cost substitute for WMP accounted for 22% of volume and 18% of value, while skim milk powder (SMP) accounted for 16% of volume and 14% of value. Altogether some 1.3 million tonnes of WMP, FFMP and SMP were imported in 2019 – of which 504k tonnes of WMP, 470k tonnes of FFMP and 335k tonnes of SMP.

Africa: Dairy Imports by Product 2019



Source: BMNA, Global Trade Tracker

Africa: Dairy Imports by Product 2019



Source: BMNA, Global Trade Tracker

These are the three most important import categories in both value and volume terms, with infant formula and cheese next most important (in value).

Development of African Dairy Imports 2009-2019

The table below summarises the progression of African dairy imports by

product over the period 2009 to 2019. Total dairy import volumes have grown by some 3.7% per annum on average over the decade (6.7% in value terms) slightly ahead of population growth which was running at 2.5% – 2.6% p.a. over this period. But there have been some notable changes in product demand particularly for milk powders. Demand growth for WMP and FFMP combined is running at some 4.0% per annum on average (in line with total import growth) but there has been a substantial shift to FFMP which has seen imports up from 166k tonnes in 2009 to 470k tonnes in 2019 (representing average annual growth of 11%). Meanwhile WMP imports have seen negligible growth at a continent level as consumers switched from WMP to FFMP in most countries (see chart). Algeria, Egypt and Somalia were notable exceptions as countries recording significant growth in WMP imports, but in most sub-Sahara markets WMP imports declined sharply while imports of FFMP have grown dramatically.

Imports of liquid milk, SMP and infant formula also saw good growth while butter consumption and concentrated milk imports declined.

Leading Dairy Companies in Africa

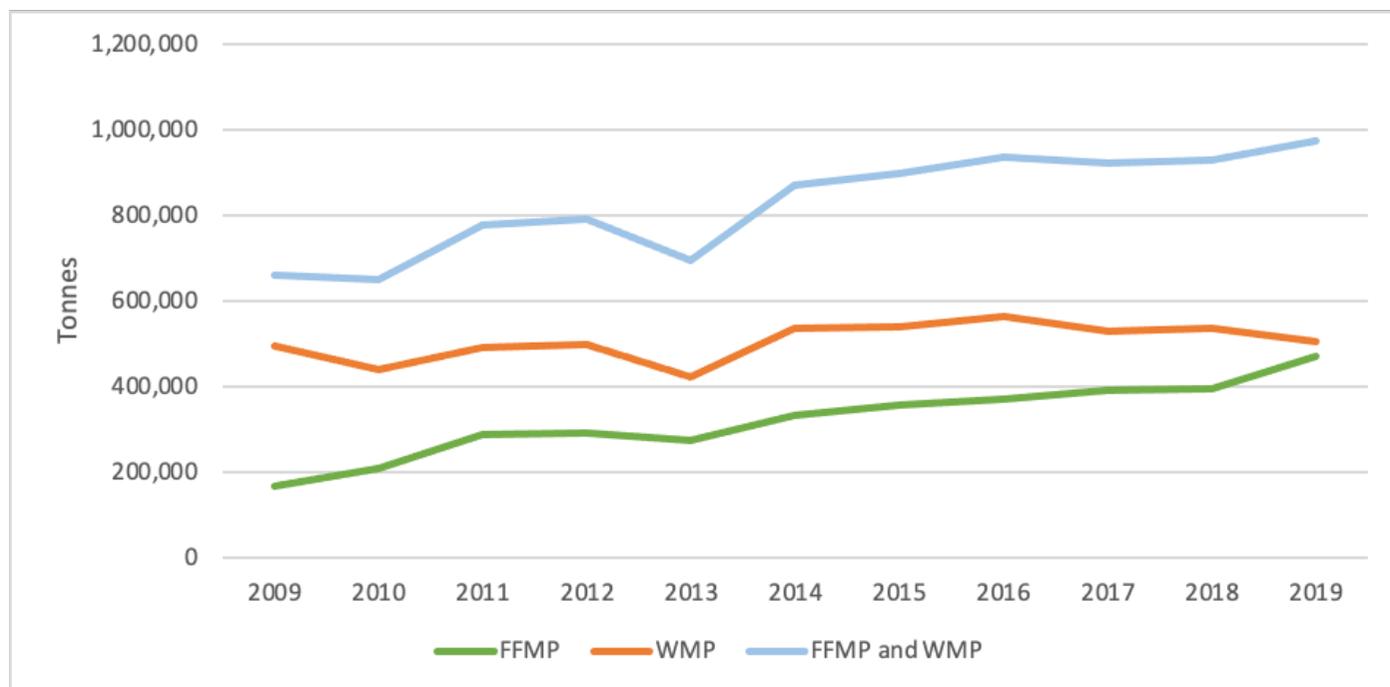
Nineteen of the largest and most influential companies in the African dairy

Africa: Dairy Imports By Product 2009, 2014, 2019 (Tonnes and € million)

Product	Tonnes				€ mil.			
	2009	2014	2019	c.a.g.r	2009	2014	2019	c.a.g.r.
WMP	493,155	537,145	504,230	0.2%	910	1,762	1,401	4.4%
FFMP	166,275	332,628	470,258	11.0%	218	712	837	14.4%
SMP	204,729	367,253	335,931	5.1%	321	1,103	687	7.9%
Infant Formula	56,601	89,082	95,607	5.4%	242	479	520	7.9%
Cheese	92,945	121,074	117,754	2.4%	261	477	454	5.7%
Butter	134,673	119,807	75,302	-5.6%	211	387	315	4.1%
Whey	58,296	79,330	118,582	7.4%	73	171	183	9.6%
Milk	114,002	210,774	246,962	8.0%	67	152	163	9.2%
Concentrated	123,225	186,953	110,934	-1.0%	144	256	147	0.2%
Fermented	22,492	32,364	26,579	1.7%	35	65	51	3.9%
Total	1,466,393	2,076,410	2,102,139	3.7%	2,482	5,564	4,758	6.7%

Source: BMNA, Global Trade Tracker Data

Africa: Imports of WMP and FFMP 2009-2019, (Tonnes)



Africa: Imports of WMP and FFMP 2009-2019, (Tonnes) (Source: BMNA, Global Trade Tracker)

industry are identified and the development of their business on the continent is outlined in detailed profiles. These are the companies building dairy brands and driving the development of the African dairy industry. The nineteen include eight of the world's largest dairy companies (Nestlé, Danone, Lactalis, Fonterra, FrieslandCampina, Arla Foods, Savencia and Sodiaal) and the two largest carbonated drinks suppliers globally (Coca Cola and PepsiCo).

The table below lists the companies and provides an estimate of their African sales, which for some includes non-dairy sales. Thus for example, Danone's turnover includes sales of water, the Lactalis figure includes juice products and a wide

range of non-dairy foods are included for Nestlé.

Total sales are shown for the African based companies i.e., any exports outside Africa are also included.

Product and Market Focus

These companies sell a full range of dairy products in Africa, but as African markets vary significantly so too does suppliers' product focus by market. Countries differ in size, population, population density, level of urbanisation, state of economic development, distribution of national wealth, development of retail sector and of cold chain distribution, local milk production, dairy tradition etc. These and other factors influence demand for dairy

products, the nature of that demand and the opportunities presented for suppliers in each country. Thus for example, while concentrated milk has been a key product for FrieslandCampina in West Africa, cheese is a higher priority in North Africa where concentrated milk is in less demand. Similarly Arla Foods, which focuses mainly on powdered milk in Sub Sahara Africa, has a joint venture in Egypt to focus on cream, cheese and butter. Indeed each of Africa's fifty-four countries is a completely different market, with a different set of opportunities. The report highlights where the opportunities are being found and how the leading companies are targeting the large and complex opportunity that is the African dairy market.

Leading Dairy Companies in Africa, 2020

Company	Country	Global Dairy Ranking ¹	Estimated African Sales 2019 (€ million)
1. Nestlé	Switzerland	1	3,825
2. Danone	France	4	1,500
3. Lactalis	France	2	1,400
4. Fonterra	New Zealand	6	730
5. Promasidor	South Africa		600
6. Clover Industries Ltd	Israel		560
7. FrieslandCampina	Netherlands	7	500
8. Juhayna	Egypt		424
9. Bel Group	France		307
10. Delice Group	Tunisia		300
11. Ornu	Ireland		250
12. International Dairy and Juice (Almarai/ PepsiCo)	KSA/ US		203
13. Arla Foods	Denmark	9	180
14. Arabian Food Industries – Domty	Egypt		148
15. Obour Land	Egypt		144
16. Arab Dairy Products Company	Egypt		70
17. Savencia	France	15	n.a.
18. Sodiaal	France	14	n.a.
19. Coca-Cola	US		n.a.
Total			>€11.1b

Leading Dairy Companies in Africa, 2020 (Source: BMNA Research)

¹Global dairy ranking based on 'Rabobank Global Dairy Top 20', Rabobank, 2020

The European Dairy in Sustainable Foods Systems

An essential actor and our will to strive further



Author: Alexander Anton, EDA Secretary General

With a specific UN Summit approaching and the EU Green Deal rolling out, we wish to state the movement of change in which we live and the major contribution our dairy sector can give, promoting and enhancing the sustainability of our food systems.

The European dairy sector is a core component of sustainable foods systems – in Europe and beyond

At the origin of a circular food systems, dairy animals provide essential nutrition to humans and provide fertilisers to the soil, allowing to grow plants edible for humans and inedible ones that again these animals convert into food. This 'miraculous cycle' is the origin of any food system and of human prosperity and health.

We are still part of these living systems, and happy to have diversified food options, adapted to diverse regions and human preferences as well as to climate. Prosperous grasslands in hills or minimalistic dry herbs in an arid region can be converted to delicious food for humans. Dairy helps improving soil, plant, animal and human nutrition. Dairy actors are essential guardians of rural areas, keeping wealth, education and health infrastructure, landscape and biodiversity alive.

A 'single' sector that can interact on a multitude of levels is a core element of any sustainable food system.

The European Dairy sector is engaged in active change towards continuous improvement of the food systems and planetary boundaries

The current agri-food system faces many challenges and the planetary boundaries have shown limits of certain production and consumption practices. The European dairy sector is actively engaged in facing the challenges ahead, and has already shown tremendous improvement in the past times. We produce milk and dairy products in Europe with an average lower environmental footprint than other parts of the world, and this at a high level of food safety, quality and welfare. The carbon impact per cow has decreased as productivity increased; we now face a point where further improvement demands much higher investment, and farm level productivity needs to be taken into account to continue safeguarding European production.

The crucial role of dairy in our food systems is also the basis for traditional eating habits of all European countries. We wish to save this wealth of knowledge for future generations. Food and nutrition security for Europe is a growing topic, and it will need to combine environmental and nutritional aspects of dairy as of any food production (as well as economics) for an overarching evaluation and true improvement, thus avoiding negative trade-offs. We know scientific assessment of these combinations are only starting now, and we would welcome further knowledge on a wider footing for our upcoming efforts.

The European Dairy sector supports the Sustainable Development Goals and provides active support in a wide range of them

Dairy production is essential for rural areas and their infrastructure, the social aspects of employment and independence, health via a wide range of essential nutrients in a natural product, a good circularity providing food, feed and industrial products and reducing food waste to a minimum, and many more aspects.

We are proud to contribute to a wide variety of goals relating to sustainable development in all regions of Europe (and nearly the world).

The European Dairy sector speaks its part in the climate debate

Sustainable food systems need to consider a wide range of aspects, starting with food and nutrition security, over wealth via economic opportunities at all levels of society, social protection, animal welfare, biodiversity and many more. Most of the environmental aspects can be found in the concept of planetary boundaries or the product environmental footprint.

While climate is the main target of much of the current debates, it remains a 'single-criteria' item. It needs to be seen in a wider context of environmental criteria together with social and nutritional aspects.

The European dairy also recommends integrating the important benefits it provides into the methodology, esp. the aspect of carbon sequestration by dairy pastureland, that in addition allows keeping land covered with plants in areas where else aridity or erosion would destroy it. Methane calculation methods are being discussed on global scientific level, and certainly a balanced view needs to be taken in the debates.

We favour a wider approach and are proud to present the product environmental footprint methodology for dairy products as part of the solution, allowing quantification of sixteen different environmental indicators. It allows global use and can be adapted to further products.

The European Dairy sector supports dietary recommendations

All of the EU countries have dietary recommendations, based on their national eating habits and needs. These have been laid down to allow growth and long-term health of the average person, but often also certain groups of age or needs. A recent overview of EDA has shown that in most countries the population does not fulfil the dietary recommendations for dairy. From a public health perspective as well, we can only encourage more support to align to the recommendations and personal needs.

The high-quality protein, many macro- and micronutrients including essential amino acids provided by dairy consumption can only hardly be replaced by something else. Dairy products

provide these nutrients in the most affordable manner for all ranges of the population.

The European dairy keeps animals at the centre of its chain's attention

Our whole production is based on healthy animals at the best of their wellbeing. Only healthy animals can give milk in the best quality and be part of the circularity between human food, animal feeding, plant production and the environment.

Our suggestions for the take-aways

Environmental assessment is a main task for a credible and coherent change, necessary to keep up a good image of dairying activities. We would recommend taking a wide approach based on several environmental indicators, more than on a single one, and making the link to nutrition, meaning considering environmental impact in relation to nutritional benefits of dairy.

With regards to nutritional assessment, it seems often forgotten or left out due to poor data basis to consider the dietary recommendations and true needs of the population, particularly of special groups, although they are essential from a public health perspective. It's also relevant to consider the affordability of food and the diets of our populations as important – dairy is a low-cost and high-nutrition food group.

Social aspects of sustainability nutrition – as already mentioned – are key. Dairy is a crucial actor for rural areas to maintain employment, wealth and infrastructure, and allowing simple start into self-sufficiency in poorer parts of the world is an integral part of our social role.

Both environmental and social aspects can be found in the role of dairy animals in keeping landscapes alive, first by keeping the population there, then by grazing and safeguarding difficult areas in e.g. mountains, dykes, etc. The role of dairy for carbon sequestration is also important in safeguarding the planet in better state, so it should be also recognised as of social importance.

Some overarching aspects can be mentioned to close the view on sustainable food systems for dairy and in general. The scientific basis of food systems assessment is slim, and only few studies exist; we recommend further studies and a balanced approach on the way to more knowledge, especially as negative trade-offs are not all known or predictable.

Improving consumer trust in A2 products

SwissDeCode

Swiss food testing company SwissDeCode has launched the "A2 INSIDE Label", an exclusive label intended to guarantee consumers authentic A2 milk products and to fight food fraud. SwissDeCode has developed the DNAFoil A2 Family of Tests: the world's first rapid, on-site DNA tests for A2 cows and A2 milk. Customers who purchase and conduct the DNAFoil A2 Cow Test and/or the DNAFoil A2 Cow Milk Test can apply to receive exclusive access to the new label.



SwissDeCode's new label guarantees authenticity of A2 milk products (photo: SwissDeCode)

Cheese cutting machines



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Reconditioned dairy equipment



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The business IT solution for your entire enterprise

Swiss cheese specialties in shape Cutting technology from holac

Swiss cheese manufacturer Imlig relies on cutting technology from holac. The company, has just installed a new high-performance machine by cutting specialist holac into their line operation. For Imlig, the focus was on being able to hygienically process a wide range of different types of cheese with a single machine. The high demands on hygiene were also decisive in the company choosing for holac.

Imlig produces a wide range of different types of cheese, the cutting machine had to be adaptable to process complete blocks with varying consistencies and fat contents. Imlig was also convinced by the ease of use and hygiene as well as by the quality and reliability of the system.



Swiss cheese manufacturer Imlig relies on cutting technology from holac (photo: holac)

Separating cold cut slices or prolong shelf life

Weber

Weber SprayTech allows for better separation of cheese slices (photo: Weber)



Weber SprayTech makes it possible to spray a non-stick agent that cannot be detected by consumers onto a product, allowing individual portion slices to be removed more easily and without damage. It is used for products that are highly sticky due to their consistency, such as cheese and vegan products. In many cases, Weber SprayTech can replace the function of traditional paper or foil separators and is therefore an environmentally friendly, sustainable alternative to the interleaver.

The use of SprayTech technology is particularly exciting for products where it is simply impossible to use paper or foil for separating the individual slices. One such example is the use for shaved applications.

Weber SprayTech only starts spraying when the blade releases the product, in order to use resources more sustainably. SprayTech can also be used for the application of agents that extend the product's shelf life (bioprotection).

Weber SprayTech can be integrated in all current Weber and TEXTOR slicers.

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

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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:

DSM

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 %)

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

**THE BOOK
HAS 9 CHAPTERS**

Further information and order:
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.

