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FiE Europe preview
60 second interview

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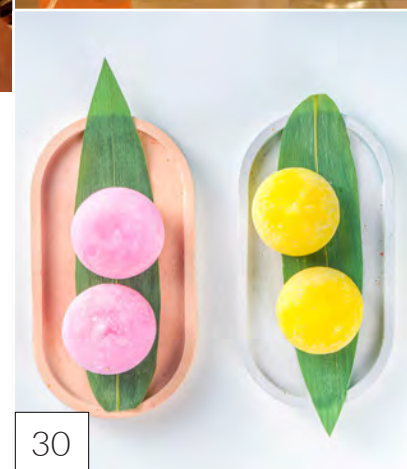
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Post-Christmas cheer, anyone?

Christmas looms large and expectations for a bumper return on sales are muted. European retailers fear the worst as shoppers cut spending while the costs of doing business show no sign of abating.

As Dirk Van de Put, CEO of Cadbury chocolate maker Mondelez International, says, "it is the European consumer I am most worried about". And with good reason. Despite enduring two Christmases under social restrictions, households will likely spend less across the festive season, both on gifts and socialising.

That said, close to two thirds of European consumers say they are 'looking forward to Christmas', according to a recent NielsenIQ Christmas Study, which is based on 7,600 interviews in eight countries.

Mondelez' Van de Put echoes this analysis as he expects holiday spending on chocolate – even if it's less expensive – to be strong.

Given the year we've seen, Christmas 2022 could still spring a surprise or two, which could have an impact on the year ahead. Inflation means greater demand for value without sacrificing quality. A key part of celebrating the holiday season will translate into taking the out-of-home experience home.

Undoubtedly, creativity has to come to the fore in the food and drink we choose to eat

and, in particular, how it's packaged. With Christmas a time for giving, it's hard to ignore the considerable waste we generate and how much more visible it is now, with sustainability of the earth's resources front of mind.

At every exhibition I have attended this year, sustainability is top of the agenda. Food Ingredients Europe in Paris will be no different. The organisers have already trailed that this year's show is set to be 'the most environmentally friendly ever' and with issues such as climate change and food waste to address, a new Sustainability Hub will offer attendees the opportunity to find solutions on topics including food waste, regenerative agriculture, the circular economy and more.

2023 may be tight economically, however it could be the year when consumers recognise how manufacturers and suppliers are increasingly making it simple for them to find information on how products are made, and the materials that are used. This focus on enabling consumers to feel that they are making informed decisions will no doubt play a big part throughout 2023.

Enjoy the festive season!

**Rodney Jack, Editor,
Food & Drink Technology**

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Frozen food perfectly placed to help off-set cost of living crisis, says BFFF president

The frozen food sector is perfectly placed to help consumers offset some of the effects of the cost of living crisis. That is the view of Ian Stone, the British Frozen Food Federation (BFFF) president who put forward his thoughts at an address to 750 business leaders at the Federation's Annual Luncheon at London's Hilton Park Lane in November.

Mr Stone said prolonged shelf life, reduced wastage and competitive pricing mean frozen food can help consumers and foodservice operators cope with pressures of double-digit food inflation.

"I believe that we, the frozen food industry, are perfectly placed to be part of the solution, not the problem. But only if we act as one and be stronger together," said Mr Stone. "Surely, we can garner the newfound enthusiasm for frozen food gained during the pandemic. An

enthusiasm that saw retail sales increasing by £1bn and sales of freezers rise by nearly 50%.

He added: "For the consumer we must constantly strive to offer the highest quality, best value nutritional food that provides the longest shelf life, reduces waste, and allows consumers to only cook what they want, when they want it.

"For the foodservice operator, we must provide the finest quality, nutritious ingredients that minimise waste, increase yields and provide utmost flexibility for the caterer. And we need to ensure that all caterers – whichever sector – see frozen food as an aspirational option, not just the option of last resort."

He also highlighted the challenges BFFF members have faced saying: "We may have put the pandemic behind us, but we have faced other 'once in a genera-



tion challenges' with inflation and energy being the main headlines of late. However, we have additionally had to face labour shortages and supply chain issues, resulting in huge and constant pressures on input costs and ingredients for all of us."

Suntory to reduce barley production emissions through regenerative agriculture

The Suntory Group has launched a new initiative to reduce greenhouse gas (GHG) emissions by procuring UK-grown barley produced using regenerative agriculture practices. In collaboration with UK based malt supplier Muntons, sustainable agriculture and supply chain consultancy Future Food Solutions (FFS), and local barley farmers in the East Anglia region, the project will start production from 2023 with the ambition to produce barley with 50% lower GHG emissions within five years.

It is estimated that approximately a quarter of the earth's GHG emissions comes from agriculture and forestry, and the Suntory Group estimates that agricultural raw ingredients

constitute approximately 20% of the total GHG emissions across the company's entire value chain – barley, being one of the main ingredients for the company's products, plays a role in this.

The project will start by baselining all crop-related emissions, which will inform a nature-based program of interventions that seek to reduce GHG emissions, enhance soil health and protect water, while maintaining crop performance and grain quality. The quality of the barley grown under this project will be evaluated by Suntory Spirits, Beam Suntory and other group companies, and then will later be examined for its contribution to the group's global ambition to achieve net zero GHG emissions across the entire value chain by 2050.

Brian Golden, senior general manager at Suntory Monozukuri Initiative, Suntory Holdings, comments: "Thriving agricultural systems is crucial to our business and we place regenerative agriculture as one of the core solutions in transitioning to sustainable agricultural practices."

Adrian Dyter, head of procurement & technical at Muntons, comments: "As the first maltster to develop a carbon calculator to help identify the carbon intensive areas of the supply chain from grain to glass, we are excited to be working with Suntory, Future Food Solutions and the farming group in East Anglia led by Dewing Grain on this pioneering project."



Sustainability legislation the primary challenge for senior packaging professionals

Sustainability legislation is the most challenging issue facing the packaging industry today, followed closely by the cost of raw materials, according to a survey of senior industry leaders carried out at November's Sustainability in Packaging Europe 2022 conference.

The poll, conducted by packaging sustainability consultancy Aura, found that 95% view keeping up with fast-evolving legislation as their primary concern. The survey of senior packaging specialists at global brands also highlighted that 70% of them don't yet believe their business is aligned to current and upcoming packaging legislation.

The concerns come as proposed revisions to the EU's packaging and packaging waste directive are due to be announced later this month, and the UK's EPR regula-

tions will be enforced from 1st January 2023.

Greg Lawson, managing director at Aura, said brands' concerns over packaging legislation are "justified".

"Not only are there new compliance standards being introduced across different categories on a regular basis, but significant UK, EU and US regulations are set to roll out over the next few years that will have a big impact on brands and retailers doing business in those markets," Lawson said.

"Add in the fact that there's still very little global legislative standardisation in terms of what materials are recycled and how, brands operating across territories face

an uphill struggle to make their packaging strategies sustainable and cost-effective."

The industry experts were also asked what changes they would like to see to improve data collection and analysis or packaging sustainability. Responses included greater simplicity and accuracy, as well as 'harmonised definitions', 'end to end data compatibility' and 'managing in real time'.

Lawson concluded: "The key to handling the shifting sands of legislation has to be data. Brands need access to real-time technical and sustainability packaging

data to enable them track progress against their current targets and future roadmaps. An important benefit of data transparency is the capacity to identify emerging regional and global trends that will underpin their longer-term strategic approach."



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NATURAL FOOD INGREDIENTS

EU looks at male chick ban

The European Commission is planning to propose a ban on the systematic killing of male chicks, EU health and food safety Commissioner Stella Kyriakides has said. Millions of male chicks are killed shortly after hatching because the broiler sector says consumers prefer female chicken meat and, of course, they do not lay eggs. Welfare campaigners have argued the slaughter of male chicks, by grinding or gassing, is inhumane.



CELLOBIOSE USE

EFSA has approved the use of novel food cellobiose as an additive made of two glucose monomers linked by a beta (1-4) glucosidic bond, helping to make food and food supplements.

Labisia pumila attains novel food status

Meanwhile, the EU food agency has also approved the use of the aqueous ethanolic extract of *Labisia pumila* as a novel food. The extract from a dried whole plant (including roots) of a Malaysian herb would be mixed with maltodextrin as a drying aid and be used as a food supplement in amounts up to 750 mg/day.

DRIED NUTS INGREDIENT

Finally, EFSA has approved the use in the EU as a novel food of *Canarium amboinense* Hochr dried nuts. These are widely consumed in Indonesia and would be used in the EU as an ingredient in cereal and bakery products, confectionery, snacks and prepared ready-to-eat dishes.

India faces criticism

India came under fire from the USA at the committee for its unstable food export policy – the country has this year banned exports of rice, wheat and wheat flour. Senegal also criticised the Indian ban on trades in broken rice, which is an important poultry feed input.

Climate change hits oil production

EU food producer organisation Copa-Cogeca has warned that droughts and soaring summer temperatures will cause EU olive oil production to fall 35% to below 1.5 million tonnes in the 2022/3 marketing year, down from 2021/22's 2.26 million tonnes.



Australia-EU deal moving forward

Australia and the EU have agreed to "prioritise the conclusion of an ambitious and comprehensive trade agreement" having in October exchanged improved offers in reducing tariffs and streamlining rules on trades in services and making investments. Both food producing powerhouses are keen to improve access for their exporters while protecting key sectors from tough competition.

EC invests in Ukraine transport links

European Commission president Ursula von der Leyen has said the EU is planning to invest €1 billion in improving road and rail links to Ukraine, so that this major agricultural powerhouse can export more grain, sunflower seeds and other food products, while Russia's invasion restricts its maritime exports.

EU explores tougher restrictions on nitrosamines in food and drink

European Union (EU) food manufacturers are facing the potential imposition of new rules on the presence of nitrosamines in food products, following a European Food Safety Authority (EFSA) review that ended in November. EFSA has concluded that "it is highly likely that for all age groups dietary exposure to nitrosamines is above the level that could indicate a health concern". EFSA stressed how nitrosamines are found in a wide range of food products, from meat products, processed fish, cocoa, beer and other alcoholic beverages, processed vegetables, cereals, milk and dairy products. Plus fermented, pickled and spiced foods. "Some nitrosamines are genotoxic (may damage DNA) and carcinogenic (can cause cancer)," said EFSA.



LEADERS COMMIT TO ACT ON FOOD SECURITY

The EU, USA, African Union, Spain, Colombia, Germany, Indonesia and Nigeria have also backed a road map for tackling growing food insecurity. That includes more donations, keeping trade free (avoiding export restrictions), boosting fertiliser production, boosting sustainable food production and monitoring food markets.

New reports reveal best ways to label plant-based products

Two new reports published by global food awareness organisation, ProVeg International, provide insights into what the organisation describes as the “most effective ways” to label plant-based products.

The two reports are called “Plant-based labelling: How common labelling language impacts consumer perception of plant-based products” and “Plant-based’ vs ‘vegan’: understanding consumer perceptions of food-labelling terms.”

Based on consumer surveys, the reports give insights into how the food industry can label products to ensure clarity about ingredients, draw in target consumers and present their products in the most appealing way.

“With the plant-based food industry experiencing huge growth, there are now many products on the shelves to meet consumer demands. But this means that

targeting consumers with the right labelling has become more important than ever,” Stephanie Jacznikowska-McGirr, director of corporate engagement at ProVeg, said.

“These reports provide companies with insights that will help them more precisely hone in on their customer base with the right words for the right products,” she said.

In the first report on the impact of common labelling language, 1,000 consumers in the UK were asked in July 2022 to describe and rate their views on the terms ‘animal-free’, ‘meatless’, ‘meat-free’, ‘100% plant-based’, ‘plant-based’, ‘veggie’, ‘vegan’ and ‘vegetarian’.

The second report, on understanding consumer perception, draws on the results of an online survey conducted in October 2021 to establish the level of consumers’ understanding of the terms used to describe food products in the UK as well as in the US.



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NEW MD AT FAMILY BAKERS

Frank Roberts & Sons in Cheshire has announced the appointment of Bill Thurston as managing director to work with the family and senior management team to grow the business.

Bill's focus will be on creating more added value products under the Roberts Bakery brand and developing the firm's own label business, maintaining a commitment to innovation and the bakery's long-standing reputation for superior quality. Thurston was previously MD for Dawn Foods and senior vice president for CSM Ingredients.



GIN GUILD APPOINTS KATHY CATON

Brighton Gin founder, Kathy Caton has been appointed to the prestigious Gin Guild as board director. In the coveted role, Kathy will champion smaller distilleries advocating for the advantages that joining the respected industry body affords artisan producers in the UK and worldwide.

The Gin Guild was established in 2012 by The Worshipful Company of Distillers, one of London's traditional Livery Companies, incorporated by Royal Charter in 1638. Kathy will also provide leadership and focus to the promotion of gin and protection for the gin category in the UK and beyond.



WRAP appoints new chair

Sebastian Munden, former executive vice president and general manager for Unilever UK & Ireland, has joined WRAP as its new chair to drive forward action against critical climate milestones. Munden, who stepped down from Unilever earlier this year, officially joins the climate action NGO later this month to replace Julie Hill, who was chair for two consecutive terms.

Sebastian Munden is well known for his work on brands that are both commercially successful and champion more sustainable behaviour, tackling the issues of plastic, food and packaging waste while at Unilever, and for spearheading efforts to reduce them. He is also chair of Ad Net Zero, which is working with the advertising industry to deliver sustainable behaviour change and net zero goals by 2030.



Paul Slupecki appointed as head of Tomra Fresh Food

Tomra Food has appointed Paul Slupecki as senior vice president, head of Tomra Fresh Food. This follows the reorganisation of Tomra Food into two business areas, Tomra Fresh Food and Tomra Processed Food. Paul was previously Tomra Fresh Food's vice president, head of global sales.

Foodtech Nick's appoints three industry experts to board

Sweden-born foodtech company Nick's has appointed three new industry experts to its board:



Rebecca Messina – Uber's first-ever global chief marketing officer, where she built a world-class marketing team and elevated marketing as it prepared for its IPO – will contribute to building a world-leading brand with Nick's.



Henry Karamanoukian – who previously spent 34 years at Procter & Gamble, most recently as president of digital commerce, global – will primarily focus on assisting Nick's growing global presence, sales strategy, and distribution expansion.



Rob Bellezza – chief operating officer at Curio Wellness following 24 years at Unilever across several key roles within the supply chain – will help Nick's improve operations worldwide and become a world-leading snacking company.

Former Hovis COO joins Bakers Basco

Bakers Basco, the membership scheme set up by Allied Bakeries, Fine Lady Bakeries, Frank Roberts & Sons, Hovis and Warburtons to manage an industry wide bakery equipment solution, has appointed baking industry veteran Simon Devereux as its new chairman.

Devereux brings over 30 years' experience within the food and baking industry, with a career spanning a wide range of operational, supply chain and general management roles in addition to board level positions in PLC, private equity and pension trustee environments at companies including RHM, Premier Foods, Promise Gluten Free and Modern Baker. Notably, he was chief operations officer for Hovis for more than two years before taking up the role of transformation director.



Carlsberg Group appoints new CFO

Carlsberg Group announces Ulrica Fearn will join Carlsberg as chief financial officer and member of the executive board. Ulrica Fearn brings strong international financial experience from multiple senior positions in global companies and industries, most recently as the CFO of Equinor, Norway. Prior to that she has 19 years of experience in the beverage industry. She replaces Heine Dalsgaard who announced his resignation effective 31 December 2022. Ulrica Fearn will join as the new CFO at Carlsberg Group as of 1 January 2023.



Nestlé appoints MD for CPW UK & Ireland

Nestlé has appointed Nicolas Wahli as the managing director of Cereal Partners Worldwide (CPW) UK & Ireland, a partnership between Nestlé and General Mills. Wahli will lead the division, oversee the production and delivery of new products to the market and prioritise the company's commitments to sustainability. CPUK is responsible for the full range of Nestlé Cereals in the UK & Ireland. He also will join the Nestlé UK & Ireland leadership team headed by CEO Stefano Agostini.

Sofina Foods appoints new head of group packaging development

Sofina Europe, owners of Young's Seafood and the Karro Food Group, has announced the appointment of Einar Olgeirsson as its new head of group packaging development. Einar, a Grimsby local, started with Young's Seafood 18 years ago in a temporary administrative support role, eventually becoming an assistant packaging technologist and working his way up through the company. His new role is to lead on the development of new packaging, with an emphasis on promoting and progressing Sofina Europe's sustainability measures through waste reduction across all Sofina UK sites. Einar will help drive Sofina's sustainability strategy, with a target of 100% recyclability on all packaging by 2025.



Upcoming Events

In-Person | Online | Hybrid

DECEMBER

Food Ingredients Europe / Health Ingredients Europe

Date: 6-8 December

Web: figlobal.com/fieurope/en/home.html

Location: Paris Expo Porte de Versailles

MARCH 2023

Food Expo Greece

Date: 18 March - 23 March

Web: foodexpo.gr/en/

Location: Metropolitan Expo, Athens

APRIL 2023

ISM/Prosweets Cologne

Date: 23 April - 25 April

Web: ism-cologne.com/trade-fair/ism/

Location: Messe Cologne

MAY 2023

Interpack 2023

Date: 04 May - 10 May

Web: interpack.com

Location: Messe Düsseldorf

Free From Functional & Health Ingredients

Date: 30-31 May 2023

Web: <https://barcelona.freefromfoodexpo.com/>

Location: FIRA, Barcelona

OCTOBER 2023

iba Munich

Date: 22-26 October 2023

Web: <https://www.iba.de/en/>

Location: Fairground Munich



Eating to save the planet

Climatarians are shaping the food and beverage industry giving rise to new products. But for a fundamental adjustment to the food and drinks we produce, companies need to explore the role that intellectual property rights could play in driving the pace of change. Gareth Probert, partner UK and European patent attorney at legal firm, EIP, looks at examples of developments relating to meat substitutes

Redefine Meat Bratwurst
Image credit: Redefine Meat

This year's freak weather, with record temperatures, fires and droughts, has brought climate change to everyone's attention. Many people are keen to reduce their own impact on the environment through changes in their lifestyle, particularly in choosing food and drinks having a lower carbon footprint. This climatarian diet is increasing in popularity over the past decade and seems set to become more common.

As consumers become more aware of the overall carbon cost of food and drink production, they can choose to spend their money on products which have a lower impact on the environment. Several different factors can be perceived as important, such as the amount of greenhouse gases involved in production (mainly carbon dioxide and methane), reduced transport, water use, recycling or reuse of packaging, and minimising the use of certain ingredients.

The climatarian diet

Many companies are actively developing and selling products to appeal to this growing climatarian

consumer base. Some are specialised startups focussing on key products or technology, while others are established food and drink companies that are expanding their existing product range. Several studies have shown that many consumers are willing to pay a higher price for food and drink products which have a lower environmental impact, making this an attractive market.

There can be significant technological barriers to overcome in order to satisfy these consumers, necessitating costly research and development to be able to produce alternative or even completely new food and drink products. The investment should be protected in order to recoup costs, gain market share and prevent unfair competition. This is reflected in the use of patents to protect and support the development of these products.

The growing interest in aspects of climatarianism is reflected in patent applications being filed to protect the new technologies being created. This is useful in highlighting trends in technologies that are of interest, both in terms of being able to avoid potentially costly infringement of another company's rights, but also as a valuable ➤

and searchable knowledge base.

The intense research and development by companies aiming to attract climatarian consumers is driving patent filings in areas including apps, 3D printing, enzymes and bio-reactor technology. Human consumption of plant-based foods generally produces less of the greenhouse gases methane and carbon dioxide than consumption of traditionally-farmed meat products. This has driven a reduction in the consumption of meat (especially beef and lamb), and an increase in the consumption of plant-based foods. While lots of people are happy to eat food that does not resemble meat, there is a significant market for plant-based meat alternatives. This is a complex area with a wide spectrum of different approaches used, from the use of pea, wheat and soy to create burgers and the like, to more exotic methods such as 3D printing and vat-grown animal cells.

The patent system

Companies can use the patent system to protect new methods of food manufacture in addition to protecting the ingredients and final products themselves. This can be important for innovative processing techniques aimed at achieving

desired physical characteristics of alternative meat products. Plant based food generally have mouthfeel properties which are far removed from meat products. Processing techniques can help to recreate some of the desired properties such as texture.

Thermoextrusion has been used for many years to impart a firmer and more fibrous structure to plant protein foods, but improvements to known methods can be protected by the patent system. For example, the Spanish company Novameat is protecting new processes of manufacturing edible microextruded products that contain protein. Their patent documents explain how to form stacks of layers of microextruded compositions to simulate the desirable shape, texture and elasticity of traditional meat products, aiming at producing a realistic steak product.

Other companies are exploring additive manufacturing techniques to give a more accurate three-dimensional recreation of meat food products. InnovoPro is protecting their range of products which includes a textured protein derived from chickpeas which aims to enable other food manufacturers to create firmer and juicier meat alternatives.

Redefine Meat Inc. has a growing portfolio of patent cases aimed at protecting different aspects of their 3D printed meat substitute business. This includes patent applications aimed at the meat analogue products themselves as well as the 3D printing machines and the 3D printing process itself. Their published applications include details of a wide range of innovative technology they are developing.

Developing techniques

Apart from any ethical issues, there are several technical hurdles to overcome in recreating the look, feel and taste of conventional meat products. One challenge has been to recreate the pleasant savoury umami flavour of meat in plant-based meat analogues.

An obvious characteristic of red meat is the colour, mainly a result of a high concentration of the protein myoglobin which binds oxygen in muscle tissue. Myoglobin contains molecules called heme which are red-coloured and also are a major factor in the meaty flavour of these animal food products. Recreating these familiar colours and flavours can help consumers accept meat substitute products.

One familiar case is the US-based Impossible Foods who have protected their methods for manufacturing heme using genetically-modified yeast cultures. The heme helps give their burgers a red meat-like colour and flavour. Other

Cultivation room

Image credit: Upside Foods



companies use less complex solutions such as beetroot and iron oxide to give an acceptable colour, but without adding the desirable savoury umami flavour.

Animal fats are another important part of the taste experience, and plant-derived fats and oils tend to be quite different from animal fats. Palm oil and coconut oil are more similar to animal fats compared to vegetable oils, but both have a perception of not being environmentally friendly and can sometimes change the flavour profile of the end product. There are ongoing attempts to produce fats which can recreate the desirable aspects of animal-derived fats, but which are more acceptable to the climatarian diet.

Cell based

Hoxton Farms is one UK based company protecting intellectual property in their own cell culture techniques used to generate animal fats starting from plant-based materials. They are researching ways to grow animal fats in bioreactors to help create meat alternatives that look, cook and taste like conventional meat. A more recent player in the same field is the B2B company Peace of Meat, who also aim to grow animal fats from cell cultures for meat substitute manufacturers to incorporate into their foods for increased “meatiness”.

While plant-based meat substitutes have been available for some time (and their range is increasing), a significant amount of research and investment is betting on various cultured meat products that contain animal cell material which did not entail traditional livestock farming and slaughter.

Some consumers may choose not to buy cultured meat products for ethical reasons, but many meat-eaters may see them as preferable to conventional animal-derived meat products. Although the area of such vat-grown meats has been the subject of research for over a decade, commercial products are not yet generally available to the public.

Rather than try to recreate every aspect of conventional meat products from non-animal ingredients, another option is to create meat products from actual animal cells that are grown in a less environmentally impactful way than traditional livestock farming. From the number of patent applications being filed relating to these “slaughter-free” meat products it is clear that research in this area is leading to some very interesting technologies.

Upside Foods were an early entrant in the cell-cultured meat sector, and are now developing chicken, fish and beef products. Their growing



Cell-cultured chicken


Image credit: Upside Foods

portfolio of patent applications contain a wealth of information about their efforts to develop and optimise the whole process of taking animal cells and growing them in vitro, using proprietary nutrient media, in specialised bioreactors. Their products are not on the market yet, but their technology seems to be maturing rapidly.

Although it may be possible to grow cultured animal cells in this way, it is not trivial to turn that mass of cultured material into an appealing food product. A distinctive feature of traditional meat is the heterogenous structure and presence of different tissues. An unstructured and homogenous meat analog may not be as appetising as a more realistic marbled fake steak for example.

The Cambridge-based company Higher Steaks is tackling this issue by developing state-of-the-art cell culture techniques. Their approach involves taking a small sample of cells from an animal and growing them in a bioreactors by feeding them a rich and animal-free growth media. When the cells have grown, they are guided to become muscle, fat and other types of tissue in order to form the desired meat product. Again, their growing portfolio of publicly available patent documents explain their proprietary processes involving mRNA techniques to facilitate the differentiation of the cultured material into different types of cells. Their research seems to be paying off as they have already demonstrated lab-grown pork belly, pork chops and bacon.

Return on investment

These are just a few examples of the innovations that are being developed which are enabling people to lower their carbon footprint while still enjoying the familiar taste of meat products. Without IP protection, it will not be possible for many of these companies to make a return on the years of research and investment needed to get their food in front of the discerning climatarian. 

Optimising the impact of Drinktec: right equipment for the right products

In 2020, due to the Covid-19 pandemic, the volume of trade in food processing and packaging machines fell around five per cent, to \$47 billion. In contrast, in 2021 the industry expected significant growth again, and the volume of global trade climbed eight per cent to \$51 billion. As a consequence, global demand for packaging machines in the beverage and liquid food industry is once again increasing. Despite difficult conditions, there are good global prospects for machines and facilities that manufacture, bottle, and package beverages and liquid foods, according to analysis by the German Mechanical Engineering Industry Association (VDMA) on Drinktec, the world's biggest fair for beverages and liquid food. Dominique Huret from Cape Decision reports for *Food & Drink Technology*.

This expected growth is the result of suppliers consistently confronting the challenges of our time: the ecological footprint through water and energy management, the overall sustainable production and the anticipation of consumers' demands.

Alcohol free and No Low drinks here to stay

The wording "No Low drinks" refers to non-alcoholic aperitifs, often called "alcohol-free alternatives" on drink menus. By definition, No Low drinks refer to all alternatives to alcoholic beverages with "no" and "low" alcohol. This recent category of drinks is

conquering the market and challenging alcoholic beverage choices. The first example comes from GEA. Its AromaPlus Pro is dedicated to alcohol-free beer and virtually eliminates freshwater from the dealcoholisation process by using membrane-based filtration. In addition, beverage producers can use the byproduct, the alcoholic base, to produce alcoholic beverages such as hard seltzers.

The new generation of No Low beverages not only includes alcohol-free beer. Wine and an ever-growing number of spirit alternatives are reaching the supermarket shelves. No Low producers have discovered innovative techniques for production, bottling, and sealing processes. Experts from Rotkaeppchen, for instance, have been producing alcohol-free sparkling and still wine, for years. The "spinning cone technology" evaporates alcohol at 35°C. Kolonne null also offers alcohol-free and low-calorie varieties of wine. Laori focuses on gin and rum alternatives, with high-quality aesthetics and natural flavours.

Sugar-free drinks and sugar reduced juice

Thanks to a patented enzymatic process, GEA's Better Juice Sugar Converter Skid is the world's first solution that naturally reduces the sugar content of fruit drinks by up to 80 per cent. This is done without affecting its nutritional value or authentic taste. The juice flows continuously through a bioreactor containing GMO-free, immobilised microorganisms which convert simple sugars into prebiotic, non-digestible molecules that benefit the intestinal flora. As a result, the GEA Better Juice Sugar Converter Skid succeeds in removing up to 80 per cent of the sugar in natural fruit juices, concentrates as well as fruit-based mixtures, such as purees. Nutritional value and authentic taste are not impacted. By the end of 2021, the partners won their first commercial order from a company in the US where the system creates juices with much less sugar.

Oats drinks production – similar to brewing

Krones' main focus in plant-based drinks is on the production of oat-based beverages. Just ten years ago, plant-based drinks were still a niche product. Today they're filling the shelves with a colourful array of products. This sheer diversity is also

From left: Oat drinks, GEA dealcoholisation unit, low-no samples, and Austria Juice
Image credit: Krones/D. Huret



reflected in the processing methods for the various raw materials used because each one possesses certain properties that must be taken into account.

“Krones offer three different process variants, with a ready-made oat base, using oatmeal and whole oats kernels or flakes. The beer brewing has many similarities to plant-based drinks, both processes have a lot in common. Like barley or wheat, oats are grains that are milled and then vigorously blended with water and, later, with enzymes and other ingredients, in a special enzyme tank to create a homogeneous liquid. The choice of the adequate equipment depends among other things of the existing ones and of course of the scale and type of production planned,” says Roland Feiner head of processing units Krones.

Customers' needs always evolving

On the Sidel booth, Guillaume Rolland, VP PET & Sensitive Portfolio explains: “Customers were very interested in solutions for sensitive products (liquid dairy products, juices, nectars, teas etc...) with many of them interested in investing in aseptic technology. Our new Aseptic Predis X4 solution, is an integrated blow-fill-cap solution that incorporates consolidated Predis dry preform sterilisation. As always, these customers are focused on food safety and quality, alongside easy-to-use solutions that allow them to be extremely flexible, giving them the ability to produce many different types of bottled products on their line.”

Cold brew and responsible sourcing on the coffee side

One of the largest instant coffee manufacturers in the world is Deutsche EXT Kaffee (DEK), a core Cafea Group company. Based in Hamburg, it manages the production and distribution of instant coffees and coffee drinks with milk, grain coffees, drinking chocolates and capsules.

“Cold brew is our main focus and in terms of sales, Europe is lagging behind the US and Asia,” explains Cremer from DEK sales director B2B. “This summer's hot weather in Europe was favourable to coffee cold brews, especially with younger generations. Cold brew has a market potential for them, because it goes very well with vegan milk. But older consumers are reluctant to change their beloved coffee. This remains a conservative drink for many Germans, Italians, and French. The millennial audience and today's Gen Z are highly savvy and technically engaged. To meet their desires and aspirations remains a challenge”.

Drinks with botanicals reflects search for holistic well-being

German Bavarian company MartinBauer specialises




in Botanical products.

“Our core market is tea leaf (70 per cent) where we are sourcing major beverages companies in B2B. But 30 per cent of our business is tea extracts with added flavours. We noticed recently a higher demand for botanicals for energy drinks. One of our last products is a botanical energy drink with only botanical extracts and no taurine, theine or caffeine,” says Sarah Wolf-Juergens, marketing manager at MartinBauer. In the last two years, MartinBauer invested in Power Brands, a Californian beverage developer, strong in formulation and Core Botanica, a leading manufacturer of customised mint leaf products in North America.

And green tea extracts key for functional and active nutrition

High quality Japanese Green tea extract is German SME Taiyo's core business. The company offers clinically proven nutritional benefits of green tea antioxidants and natural-based functional ingredients for the food and beverage industries but also the medical and pharmaceutical industries.

“We are catering for today's beverage trends such as prebiotic and functional drinks. One of our last innovative beverage concepts is a so-called Sleepwater, which is specially designed for consumers who have difficulty falling asleep or sleeping through the night: L-theanine promotes relaxation and helps reduce stress. This supports the body's regeneration, the immune system and energy levels. With Sunphenon® TH30, Taiyo offers a high-quality green tea extract that contains 30 per cent pure L-theanine, the amino acid found in the leaves of the green tea plant *Camellia Sinensis*,” explains Taiyo's product manager, Kai Schmidt. 

Top: Krones, Better Juice team, GEA Dealcoholisation unit
Image credit: D. Huret



Print greener with LX610e Pro

Labels are a crucial part of any packaging. They have a strong impact on the purchasing process of consumers by drawing attention to a product, either because of a special shape, structure or material, a certain colouring, photo-realistic printing or special metallic highlights. In addition, labels contain information that can influence consumers to buy a product or look for an alternative.

There are so many different label materials and label printers available that manufacturers and producers can choose the right solution that fits their requirements and needs, especially when they want to move the label printing in-house. More companies take that step and decide to print their own labels. Reasons for that vary: not wanting to rely on external suppliers, avoiding high volume orders to get a good price, or wanting to be sustainable and environmentally-friendly and ordering more than you actually need, would contradict that. Producing labels in-house allows businesses to take advantage of printing on-demand with the right solution.

DTM Print offers a range of label printers. One of them is the LX610e Pro Color Label Printer with the feature to print and cut any label shape with one device in seconds. It combines colour inkjet label printing with a built-in digital die-cutting

mechanism. The LX610e Pro prints in high resolution. The ink cartridge is swapped-out super quickly to print either with dye-based ink for brilliant, eye-popping colour or with pigment ink for durability against water and UV light. In addition, the LX610e Pro supports an eco-friendly and sustainable business approach with a very low energy consumption, ultra-low weight by using less material, non-toxic ink supplies as well as 100 per cent recyclable components.

DTM Print offers great additional benefits with its products such as free label design software, three years warranty, support and service through local partners, and a large variety of approved label substrates under the brand "Genuine DTM Label Stock". To produce exceptional product labels for all kinds of applications, you not only need advanced print technology as integrated in colour label printers offered by DTM Print but also high-quality material. One material, which has been designed specifically for products where an authentic, natural and ecological look is desired, is the "DTM Grass Paper Eco". The natural grass fibres of the label give the paper material its unique, natural look. It is suitable for high-resolution and high-speed dye based and pigmented inkjet printing. The adhesive is an acrylic dispersion, permanent, solvent free and can be in direct food contact according to EU regulation No 10/2011.

Visit <https://dtm-print.eu/>.

“

DTM Print offers great additional benefits with its products such as free label design software, three years warranty, support and service through local partners and a large variety of approved label substrates

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Image credit: Fotogrin



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In blazing colour

Naturally derived colours are on tap to deliver performance in popular pre-mixed cocktails, flavoured seltzers and mocktails, writes Caroline Schroeder, marketing communications manager, Lycored



Vibrant fruit shades
Image credit: Lycored

Whatever direction consumers take the market next, the use of effective colour ingredients remains central to developing appealing and innovative drinks that stand out.

Currently, the non-alcoholic and alcoholic beverage industry's product development is driven by key demographic and consumer choice trends. The non-alcoholic beverage category is expanding daily as consumers choose to drink fewer alcoholic beverages and select alternatives.

The beverage industry is responding by introducing a new range of fun mocktail drinks across several key categories. However, that doesn't mean consumers' interest in alcohol is waning, it's shifting with consumer tastes and interest in healthier choices.

Many popular beverages like flavoured seltzers are now alcoholic, opening them up to whole new markets. These drinks are especially appealing to younger consumers who eschew beer or wine. Regardless of alcohol content, there are more choices, not less, for consumers to make.

Colour brings lifestyle drinks to life

For consumers in the Instagram and TikTok generation, visual appeal is everything and a key driver of consumer choice. Adding vibrant colour to a beverage is a great way to increase the sensory appeal of the product, and ensure it looks true to its expected flavour.

This is particularly true for fruit-based and flavoured drink recipes. To appeal to people's better selves, premixed non-alcoholic mocktails and alcoholic cocktails must be clean label, have naturally derived ingredients and yet have the visual and taste perception appeal of their counterparts.

From tequila sunrises to holiday rum punches, to berry and tangerine flavoured seltzers, many of these drinks with or without alcohol rely on hues and tones in the red, pink, yellow and orange spectrum to appeal to consumers eyes and affirm the expectations of taste.

This is challenging beverage design experts to find naturally derived, clean-label colour ingredients that fulfil the healthy lifestyle reasoning and popularity behind alternatives to beer and wine.

Putting colours to the test

Maintaining colour stability in any beverage is challenging as pH, light and processing are major disruptors, but it is challenging when working within the parameters of naturally derived ingredients that are then mixed with alcohol, as opposed to artificial colours developed in a lab.

To demonstrate the capabilities of lycopene and beta-carotene ingredients, Lycored conducted colour stability studies of two popular hues used in alcoholic and mocktail beverages.

Evaluating the stability of defined dosages in alcoholic beverages at various alcohol levels over shelf-life, Lycored's scientists put their lycopene-based ResilientRed A, and beta-carotene-based GoldHold A Dry colours to the test. ResilientRed A was also tested against a common colourant in alcoholic beverages, red cabbage.

The result: Beautiful colour and stability

Across the spectrum, the natural colourants are synergistic with Vitamin C, and being pH-independent, can withstand challenging beverage and juice applications. The studies found that at alcohol levels of 1.2%, 5%, 15%, and 37.5%, the lycopene and beta-carotene ingredients offered robust colour stability over time, compared to synthetic ingredients and hues derived from other natural sources. All Lycored's hues have passed stability tests, and many demonstrate stability for as long as 12 months. This included evaluation for sedimentation, fading and ringing.

Used synergistically with Vitamin C, ResilientRed A and GoldHold A Dry provided stellar performances over the 12-month study. GoldHold A Dry demonstrated stability across


a wide range of alcohol levels (0-37%) at various dosages while ResilientRed A shined at low dosages in 5% or less alcohol in coloured bottles, cans, or sleeved bottles.

Both shades are pH independent providing a consistent hue across the scale and giving them a clear formulation advantage over anthocyanins like red cabbage, that vary in hue depending on pH levels. As odourless materials, they also work well in delicate flavour profiles, where other colour options, red cabbage included, may contain a strong odour and require masking agents.

Meeting consumer expectations

An exciting array of alcoholic and non-alcoholic beverages and drinks are making their way to parties and bars. Cocktail, mocktail or flavoured seltzer, all these drinks have one thing in common: they need to look as good as they taste and boast naturally derived ingredients.

Fortunately, alternatives have emerged because of better science. Ones that can meet the necessary processing and storage conditions and provide the consumer-friendly labeling the beverage industry needs to improve and preserve the visual appeal of their alcoholic and non-alcoholic drinks.

Building on decades of research, Lycored scientists have discovered innovative methods to refine colour ingredients from purpose-bred lycopene-rich tomatoes, and hues from beta-carotene derived from a unique strain of *Blakeslea trispora*. For manufacturers attempting to remove synthetic colourants from their beverage products' ingredient lists, Lycored's lycopene and beta-carotene colour ingredients offer highly stable vibrant alternatives to artificial, as well as natural equivalents. 



ResilientRed A red food colourant
Image credit: Lycored

IP protection: a key ingredient for success when developing plant-based foods

Understanding the fine line companies have to tread when developing alternative sources so they don't infringe existing IP as well as how to build-out protection for innovation are two essentials companies have to get to grips with, says Clare Cornell, partner at IP law firm Finnegan

As consumer interest in animal welfare, environmental sustainability and personal health grows, the demand for non-meat alternatives increases. Today there is a greater awareness of choosing a plant-based lifestyle and its benefits, which is driving consumers to seek out meat free products and plant-based products.

Although bigger and smaller manufacturers might have different approaches to entering this market, there are common factors which need to be considered by all those looking to launch a product. One of these considerations is how to navigate the system of intellectual property rights to protect your new product and also to avoid infringing third party rights.

When launching plant-based and meat free products there are many factors to consider from an IP standpoint. It is important that businesses keep these considerations in mind to prevent costly pitfalls down the road, whether that be infringing third party IP, or choosing a brand which cannot be protected.

Scrambled eggs – vegan alternatives to conventionally produced egg products
Image credit: Eat Just Inc.



Patent protection and patent searching

In a relatively new, constantly evolving area of manufacturing, those who have developed new and innovative processes to manufacture products may have secured patent protection to prevent third parties from following the same process steps without consent. Patent searching is valuable when setting up a new manufacturing process. Searches can be carried out on online patent databases, or businesses can seek the assistance of a patent attorney who will be able to assist with searching for relevant patent applications and registrations which might constitute prior art. A patent attorney will also be able to give advice on whether you are free to operate without the risk of infringement. If patented technology is identified which prevents you from operating your manufacturing process, the patent owner may be willing to grant a licence to use theirs.

Trademarking product names and packaging

Trade mark searching is also recommended when launching a product with a new name. Product names must be distinctive in order to be registerable but they should also be sufficiently different from existing brands so that customers are not confused into thinking that they are the same product, originate from the same source or that there is a collaboration or endorsement from an existing brand owner.

As with patents, trade mark searches can be carried out online, or by a trade mark attorney who will carry out searches to identify any identical or confusingly similar trademarks in the food and drinks sector.

Some packaging designs can be protected by registered design rights too, so searches in this area are also recommended.

Businesses should also look at the product names and packaging designs of their competitors as unregistered rights can subsist in product getup and packaging design, so even if it isn't listed on the official register, it may still be protected.

Some product names are protected designations of origin or geographical indications which can only be used on products which have been manufactured in certain areas, or using certain techniques. A review of the UK government list register of protected geographical food and drink names and the European database eAmbrosia will help to identify these, but some examples include Mozzarella, which is protected in the UK for cheese, and Prosciutto di Parma which is protected in the EU for ham. Any plant-based alternative should have a name sufficiently different to any such protected names.




vegan NotMilk Whole.
Image credit: NotCo

you are seeking a collaboration or funding from a third party, then seeking a non-disclosure agreement is worthwhile.

If you prefer not to apply to protect your invention using the patent system, it is possible to retain key information as trade secrets. Trade Secrets are protected by law from unauthorised disclosure; although there are no specific measures required to protect trade secrets, businesses should take reasonable steps to keep the information secret.

If you are seeking to register a design, it must be new and have individual character, but there is a grace period of one year meaning that you can put your product on the market before investing in protection. Trade mark protection, on the other hand, can be filed at any time, but there is risk in waiting to file to protect your trade mark as your competitors could register your mark first and in most jurisdictions, it is first to file that wins the race.

All in all, there is much to think about before entering this increasingly competitive market. It is important to consider exactly what it is you have to offer and how to maximise the protection which can be afforded to this offering with the various intellectual property rights discussed above. After all, the more strings you have to your bow, the better. 

Standing out in a crowded market

While entrants to market need to tread carefully when launching new products, there is good news too. Intellectual property rights also help provide businesses with a firm foundation when launching new products. When your IP is properly registered, product names and manufacturing processes are protected from copying, which helps you to get started and to distinguish yourself in a relatively crowded market.

Seeking advice from a chartered patent/trade mark attorney firm early in the product development phase can help you to establish the foundations of your IP portfolio. For those with more limited budgets, protection can be obtained directly from the UK Intellectual Property Office where guidance is available to help applicants with the filing procedure. There is also information available at the British Library Business and IP Centre.

The IP protection process

When seeking to patent a manufacturing process, it is important that you have not publicly disclosed your new idea. To be registerable in the UK, the invention covered by your patent application must be both novel and inventive at the date of filing. As such, if you have published information about your manufacturing process, this publication could be cited against any future application and result in your process not meeting the novelty requirements. It is therefore important that applications are filed before disclosing any processes publicly. Additionally, if



Image
credit:
eamesBot

Plant-based for posterity

What's next for alternative protein sources? Taking advantage of a growing opportunity will require technical expertise, innovation, and a commitment to understanding the marketplace, Jacquelyn Schuh, global marketing director, protein nutrition solutions, ADM tells *Food & Drink Technology*

Consumers expect an authentic bite and chew in meat alternatives
Image credit: ADM

The challenge of feeding a rapidly growing global population spotlights the heightened need for more plant-based innovation. Fortunately, consumers are open to incorporating alternative protein sources into their daily lifestyles, and they're motivated by health, nutritional and environmental attributes in plant-based products¹. This interest in plant-based innovations also provides brands with opportunities to leverage both familiar and niche protein sources to diversify formats and meet the needs of plant consumers.

Tried-and-true plant proteins hold attention

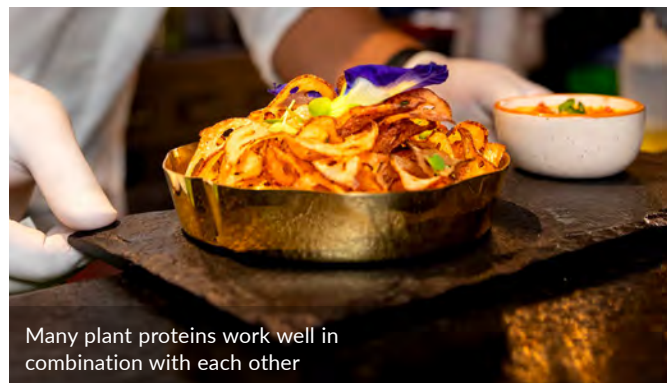
Soy, wheat and pea continue to be tried-and-true protein sources and are crucial for continued advancement in the alternative protein space.

Soy: Soy is the number one most used plant protein in alternative product development across categories². In fact, consumers commonly report high awareness (75 per cent) and consumption (47 per cent) of soy protein¹. They also perceive it to be nutritious, clean, eco-friendly and high-quality¹. Soy provides functionality and

versatility for a variety of plant-based applications and is the only non-animal protein that is a "complete protein," with a protein digestibility-corrected amino acid score (PDCAAS) of 1.

EU consumers are particularly interested in plant proteins they perceive to be locally sourced and non-GMO, like the soy from ADM's SojaProtein. Consumers also expect an authentic bite and chew in meat alternative experiences, which can be achieved with high moisture extrusion (HME). ADM's Arcon HM1 and HM2 functional soy protein concentrates are tailored for HME, solving taste, structure, texture, functionality, clean label and nutrition challenges in finished plant-based whole muscle-like products, such as steaks and chops.

Wheat: Wheat is widely accepted by consumers and manufacturers. As a protein source, wheat is highly functional, has a neutral taste and is cost effective, making it ideal for meat



Many plant proteins work well in combination with each other



and seafood alternatives, baked goods, snacks and cereals. As a non-GMO ingredient, wheat is also a great option for clean label solutions.

Pea: Pea protein is one of the fastest-growing sources of plant protein. In fact, the use of pea protein in meat alternatives has grown by 297 per cent in recent years², with 46 per cent of global consumers showing awareness of and 21 per cent actively consuming pea protein¹. Pea is also an ideal addition to plant-based solutions for elevated ingredient diversity without the need for additional allergen labeling. It has become more prominent in dairy and meat alternatives, as well as bakery items, snacks and ready-to-drink beverages.

Emerging sources diversifying the market


The need to produce more alternative sources of protein is reaching a critical point. As the industry begins to identify new sources and formats, ingredient diversification is key to creating quality, consumer-preferred options. While it will take some time for novel protein types to command similar levels of consumer awareness, acceptance and consumption over more traditional sources, we are seeing more unique sources enter the plant-based protein arena. Mycoprotein, lupine, chickpea and ancient grains like hemp or sorghum are starting to emerge.

For example, in the UK and Germany, 21 per cent and seven per cent of consumers are aware of mycoprotein as an emerging source, respectively¹. Of those consumers aware of mycoprotein, 10 per cent of UK consumers and one per cent of German consumers have consumed mycoprotein as an alternative protein source. Interestingly, consumer awareness of lupine is eight per cent in the UK and 42 per cent in Germany¹. Consumption rates for lupine are two per cent and seven per cent in these countries, respectively. With varying awareness and

consumption of protein sources in different markets, there is opportunity for manufacturers to create innovative tailored options for these consumers.

Formulators have opportunities to introduce more consumers to emerging protein sources by incorporating them into plant-based blends that also contain more popular sources like soy or wheat. Many plant proteins work well in combination with each other, offering formulation advantages as consumers become more familiar with terms such as protein quality, protein diversity and nutrient-density³. Notably, MaxFlex protein blends of pea with rice or pea with wheat proteins deliver higher PDCAAS scores (0.89-0.956) than these protein sources offer individually, while providing on-trend and protein-diverse blends of plant-based products.

Furthermore, ADM's research also indicates that 68 per cent of global plant consumers are showing interest in lab-grown meat adoption¹. This kind of consumer acceptance demonstrates future category potential in novel proteins from unexpected places, from cell-based to air, volcanic ash, fungi, seaweed and insects to fermentation, 3D printing and beyond.

Feeding the population will require alternative protein sources that extend well beyond the conventional sources we use today. A global ingredient supplier that invests in the latest technology and novel protein ingredients can help brands expand ingredient options and manufacturing capabilities to find plant-based solutions that will feed the world for generations to come. 

¹ADM Outside VoiceSM, Global Plant Protein Consumer Discovery Report, August 2020

²Mintel, 2021

³ADM Outside VoiceSM, Plant Protein Blends Study, December 2021

EU consumers are particularly interested in plant proteins they perceive to be locally sourced
Image credit: ADM



The FUTURE of alternative proteins

Growth over the next few years will depend on science, meeting consumer needs as well as exceeding their expectations for plant-based alternatives, Paola Bassi, marketing director Europe, Synergy Flavours tells *Food & Drink Technology*

The plant-powered alternative protein industry

The plant-based market has gone from strength to strength in recent years. The global market is estimated to be valued at \$12.2 billion in 2022, and is projected to reach \$17.4 billion by 2027, with a compound annual growth rate (CAGR) of 7.3 per cent over this period. [1]

Recent consumer research has found that many consumers who purchase plant-based products also purchase meat and dairy products. This is particularly clear in the plant-based beverages segment, where in a panel of 200 consumers of plant-based drinks, 180 respondents confirmed

that they purchase alternative products alongside traditional dairy items. [2]

'Flexitarian' consumers are one key group driving this growth, opting for both traditional meat and dairy options as well as plant-based alternatives. There are a variety of reasons behind this – some consumers may want to reduce their meat or dairy intake without removing these items from their diet completely, whilst other consumers may be purchasing alternative products out of curiosity, to taste the difference themselves.

There is no shortage of alternative protein sources available, with the current offering including soy, oat, and pea, amongst many others. However, these protein sources are not without their challenges, and here we will examine some of the key areas to focus on when working with alternative protein sources.

Figure 1: Sensory map of cooked soy.

In cooked soy, we can see that desirable flavours such as salt, sweet onion, and creamy taste are minimal, whilst unpleasant off-notes such as white fat and cardboard are the most dominant.

Therefore, manufacturers creating a meat alternative with soy need to examine how the undesirable notes can be minimised, and the salt and sweet onion notes can be heightened. This can be achieved through taste modulation, with three distinct approaches:

- Kokumi enhancement, which boosts pleasant umami flavours in savoury applications
- Indulgence and mouthfeel solutions, for dairy applications to reduce fat and improve indulgence
- Protein harmonisation, to mask off-notes in alternative proteins without leaving a discernible flavour.

By addressing these off-notes, manufacturers can utilise soy protein to its full potential as an alternative protein source, to create great tasting plant-based products that meet the standard set by traditional meat.



Meat-ing the benchmark with alternative protein

While plant-based products have enjoyed great success, meat and dairy continues to set the benchmark in terms of taste, texture, and mouthfeel. Combined with the fact that many consumers of plant-based products continue to incorporate traditional dairy and meat in their diets, the most successful products will be those that are comparable in terms of flavour and texture to traditional products.



One key consideration when working with alternative protein sources is the presence of undesirable aromas, or 'off-notes', which are unwanted flavours inherent within the protein base that can present poor taste and textural issues.

Soy is a popular alternative protein source, used widely across the plant-based industry. Through the use of extraction techniques such as liquid extraction, gas chromatography-mass spectrometry (GC-MS) and gas chromatography-olfactometry (GC-O), we can break down the different chemical compounds in this protein source, and analyse which compounds are responsible for each aroma present.

Making non-dairy milk alternatives with real appeal

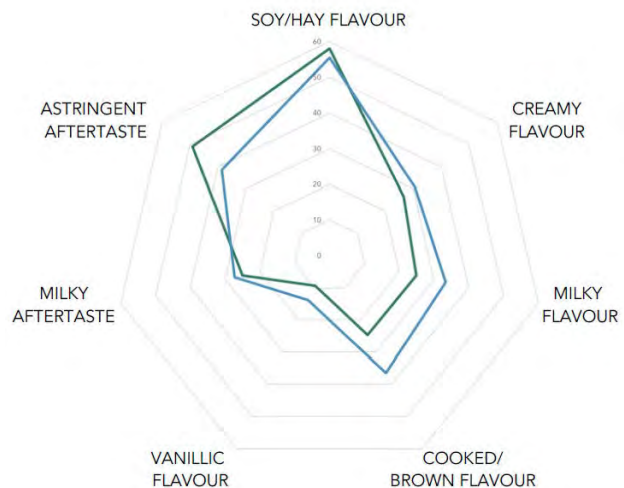
Meat alternatives aren't the only areas for improvement in the alternative proteins field, as the plant-based beverages market is also ripe with opportunity.

Dairy continues to set the standard for consumers who continue to purchase both dairy and plant-based products; recent consumer research has found that a common desire for consumers of plant-based beverages is for products that taste more like cows' milk. In the UK, 32 per cent of consumers mentioned that they would like their plant-based beverages to have a 'fresh dairy taste', whilst 31 per cent of consumers in Germany also expressed an interest in 'fresh milk taste'. This sentiment was also echoed amongst French consumers, with 26 per cent sharing that they wished their plant-based drinks had 'creamier taste'. [3]


While it's an obvious fact that plant-based beverages are made up of different chemical compounds to traditional dairy, the implications on flavour are less clearcut. While dairy milk has lactones, sulphur compounds, acids, and ketones, which are responsible for creamy and milky tastes, plant-based beverages contain aldehydes, pyrazines, pyranones, and fura-nones, which contribute to green/hay and musty notes.

Figure 2: Sensory map showing an unaltered soy-based beverage (green) against a soy-based beverage that has been optimised with a fresh milk flavour solution (blue).

To address these off-notes and their impact on a soy-based end product, flavour specialists can identify the desirable aromas versus the off-notes, and act accordingly. By applying a tailor-made soy-based beverage solution, we can see from figure 2 that undesirable off-notes, such as soy/hay flavour and astringent aftertaste, are noticeably reduced, whilst desirable aromas such as milky flavour and aftertaste, vanillic flavour, creamy flavour, and cooked/brown flavours are maximised.



Achieving success in alternative products

The alternative proteins market is an area of rapid growth, and manufacturers looking to succeed in this space must ensure that their products are meeting the needs outlined by consumers. By taking a science-led approach to flavour creation, which factors in consumer needs and desires when working with alternative proteins, manufacturers can work with flavour specialists to create alternative protein-based products that meet the standard set by traditional meat and dairy, while exceeding consumers' expectations for plant-based alternatives. 

References [1] 'Global Plant-based Protein Market Report 2022' Business Wire [accessed 15th Sept].

[2] Synergy consumers research 2022. Panel of 200 plant-based milk alternative consumers. were asked 'do you also consume real dairy products?'

[3] Synergy consumer research 2022. Panel of 600+ plant-based milk alternative consumers were asked 'what do you wish your non-dairy milk had, that it doesn't currently have?'

Milk flavours
Image credit:
Synergy Flavors





Food of the FUTURE

Is microalgae the sustainable complement to soy and pea the food industry is looking for? Yes is the answer if you ask the Danish food-tech company Aliga Microalgae who has developed a protein-rich white *Chlorella* ingredient with improved organoleptic properties.

With an increasing consumer demand for sustainable plant-based food products there is a feverish swarm of activity among food manufacturers to develop new analogue and hybrid formulations in order to get a slice of this expanding marketplace. As in any market disruptions, small and medium sized scale-ups are more agile to adapt their business models to develop new product formulations than their multinational counterparts. This can right now be seen throughout Europe where a broad variety of innovative plant-based analogue products are being introduced by such companies at a steady flow. Yet, some of the large food producers are not far behind as the fear of losing market shares in an environment of changing consumer preferences drives them to diversify and invest in plant-based product developments even though their core product portfolios are animal based.

Until recently the main focus in analogue product developments was to find the ultimate taste, texture and design. But with consumer behaviours moving up the adoption curve and early majority adopters such as flexitarians getting their appetites whetted, nutritional values are becoming an even more decisive success factor in new product launches. Thus, food manufactures are showing an increasing interest for new plant-based sources with natural nutritious properties and clean-label claims that can complement soy and pea and improve the nutritional profile in their formulations. Examples of such new

ingredients being introduced to the marketplace are the ones based on microalgae.

Food source

Microalgae in general and *Chlorella* microalgae in particular have existed for around two billion years and are described as the origin of plants on earth. Their existence allowed the first microscopic animals to evolve and today they still are one of the cornerstones in the aquatic food chain due to its rich nutritiousness. The dietary supplement industry has for a long time rated microalgae as one of the most potent superfoods, yet its high content of chlorophyll, strong algae flavour and unstable supply chain has prevented a wider acceptance of it as a core food ingredient. The Danish food-tech company Aliga Microalgae believes it is about to change this with its proprietary white *Chlorella* algae ingredient that is produced at its industrial scale heterotrophic production facilities in Denmark and the Netherlands.

Core ingredient

Bringing microalgae from a niche supplement product to a core food ingredient, the company saw early on that algae's colour, flavour and batch variations had to be improved.

Also its supply chain, which for many farmers in the algae industry was a challenge. But with new technology advancements, algae species such as *Chlorella* could successfully be cultivated heterotrophically in closed sterile fermenters at a high quality level. Since this



Right: David Erlandsson, co-founder and sales director



Aliga facility, Netherlands

well proven technology was scalable and provided a stable quality between batches, production capacity could be ramped up to meet the requirements from the food industry both on quality and volumes.

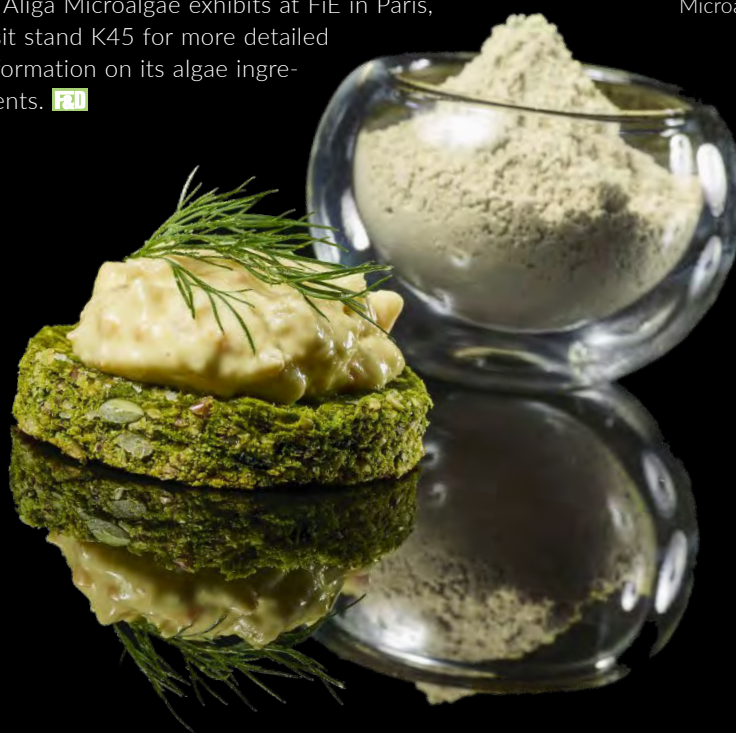
To improve algae's organoleptic properties, making it applicable in various food matrices without leaving an off-flavour or colouring, the company had to re-think biology. Through selective propagation and random mutagenesis the company invested two years in developing a chlorophyll-free, white Chlorella with neutral flavour and colour that could be cultivated en-masse by fermentation. This ingredient was introduced to the market earlier this year as a plant-based superfood that only consists of fermented and dried Chlorella. Its whole-food properties and natural rich content of proteins, vitamins, minerals, fibres and amino-acids makes it a sustainable complement to soy and pea in a broad variety of formulations, from meat, fish- and seafood analogues to hybrids and conventional bakery, savoury- and dairy products needing plant-based enrichments.

At the moment food manufacturers throughout Europe are applying this algae ingredient in various food matrices, where some products already have hit the supermarket shelves with positive consumer response. But to exchange well-established products such as soy and pea

is a daunting task for any new ingredient. Thus the innovative mind-set within the food industry will play an important role in utilising the potential of both new and existing plant-based ingredients to formulate products that deliver taste, texture and design as well as nutritional values that meet the expectations of modern consumers.

Aliga Microalgae exhibits at FIE in Paris, visit stand K45 for more detailed information on its algae ingredients. [F21](#)

White powder and canapé.
Image credit: Aliga
Microalgae



Food Ingredients Europe 2022

Food Ingredients Europe 2022 offers the opportunity to see the latest products on the market as well as learn about trends and cutting-edge ingredients and technologies for the food and beverage sectors

This year's Food Ingredients Europe (and HiE) will turn the spotlight on some of the most significant themes in food development, including sustainability, environmental health, plant-based alternatives, natural ingredients, personal health and more. The event – running in-person in Paris from December 6 to 8 – will be a hotbed of trending food and beverage ingredients, new formulations and innovative concepts. The entire food and beverage industry will come together to network, do business, and find new solutions to challenges the industry is facing currently.

Visitors can choose from 1000+ exhibitors at Food Ingredients Europe and also be inspired by brand-new features like the Sustainability Hub, the Innovation Hub, the New Product Zone and insightful company case studies from the likes of Ofi, DSM, Kerry and more in a brand-new venue, across four halls in Paris Expo Porte de Versailles.

Fi & Hi Europe is the culmination of a year of Fi Global engagement with the ingredients industry, including a series of webinars, in-person events around the world, and the marketplace solution Ingredients Network.

"We're looking forward to welcoming thousands of visitors and exhibitors from around the world to an event which all those involved in the ingredients industry simply cannot afford to

miss," Julien Bonvallet, brand director at Informa Markets tells *F&DT*. "After many months of disruption and uncertainty, there's a strong aspiration for meeting in-person again, and so the excitement is already gathering pace. But for those who would prefer to join online, sophisticated technology means our online event will merge seamlessly with the in-person show."

Julien sums up his excitement that Fi & Hi Europe will once again open its doors in Paris – at a new venue – when he says: "Bringing the world of food and beverage ingredients together has always been our main purpose, and our entire team is looking forward to providing the perfect platform for both visitors and exhibitors to source, connect and innovate."

Protein advances

As you would expect, alternative proteins will have a significant presence at the exhibition. In light of this, **InnovoPro**, and its chickpea protein technology, will showcase a range of new foods featuring its textured vegetable protein (TVP). Visitors to the stand (booth #7.2L10) will have the chance to sample the latest creations, including plant-based fish balls with tartar sauce, egg-free blinis and vegan strawberry-cocoa-coconut meringues. These new products are made with the company's portfolio CP-Pro 70, CP-XTURA 65 and CP-Foam 1001 lines, which can create an entire menu of foods, from entrée to dessert, durable, tasty and environmentally friendly.

Taly Nechushtan, CEO of InnovoPro tells *F&DT* that having the opportunity to showcase a variety of popular European products like fishballs and plant-based blinis at Food Ingredients Europe is a testament to the team's commitment to delivering products that meet consumer demands while by using wholesome ingredients and great flavours.

"With the food and beverage industry evolving at a rapid pace, we find ourselves at a monumental turning point, especially in the meat substitutes market," Taly says. "Our chickpea protein is a great example of where the industry is headed, and we're excited to give the world a sneak peek at the new, cutting-edge solutions we're considering."

At the heart of InnovoPro's innovation is its breakthrough technology that enables food companies to formulate environmentally friendly products with few ingredients yet with the taste and texture to meet expectations. CP-XTURA

Mochi ice cream with Treha
Image credit: Prinova



65 is a chickpea textured protein (TVP) based on InnovoPro's flagship product, CP-PRO 70, seen as a game-changing innovation in the growing meat substitute market. CP-Foam-1001 is the company's plant-based egg white replacement system that was introduced earlier this year as an innovative way to create vegan desserts.

Dairy ingredients producers and global supplier **Lactalis ingredients** will participate at Fi Europe 2022 (hall 4.0 stand 4D80) to unveil new product concepts using the ingredients: Laktein whey protein isolate. Laktein is a clean whey protein. Thanks to the process, Laktein has many properties for functional applications.

Pronativ – the Pronativ native protein range is extracted directly from milk through a gentle process using low temperature membrane filtration. This process preserves the quality of each of these proteins, to offer high nutritional and functional ingredients to the nutrition industry.

FrieslandCampina Ingredients returns to Fi Europe 2022 at stand 7.2J20, to showcase two new concepts formulated with Plantaris – a highly bioavailable and easy to formulate plant protein. High in protein and flavour, FrieslandCampina's chocolate RTD and high protein pudding applica-



tions will help brands tap into consumer demand for healthy indulgence. Visitors can also explore how the company's new Biotis GOS-OP High Purity is creating new possibilities for convenient, on-trend gut health supplement formulation.

As dairy alternatives attempt to be used >

InnovoPro is expanding the application of its signature texturised vegetable protein technology into vegan fish alternatives

Image credit: InnovoPro

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Visitors will be able to taste a range of food and drink samples designed to appeal to today's consumers.

in applications such as bakery, chocolates, and ice cream, they will often need other additives in order to get to a targeted functionality.

Nowadays, getting back to the basics with dairy ingredients is the ideal way to achieve the desired stability, texture, or even taste of finished products where dairy was historically already part of the recipe.

Ingredia's ranges of milk powders will bring a milky taste with functionalities without overlooking health. To learn more about dairy powders, Ingredia (hall 4.C101) is offering the chance to try "chocolait square" and the "I see creamilk factory" made with dairy ingredients.

To enable the "next-generation of plant-powered applications", **Royal DSM**, will introduce what it is describing as its latest "consumer-inspired" food and beverage innovations. DSM will showcase its next-generation taste,

texture, health and sustainability solutions in the dairy, bakery, confectionery, beverage and plant-based dairy, meat and fish alternative categories. Plant proteins, concepts with immunity and energy claims, and breakthroughs in process efficiencies will take centre stage among others on DSM's stand – 4.A10. Visitors will be able to taste a range of food and drink samples designed to appeal to today's consumers who want to enjoy it all.

Tastes, textures and trends

Inspired by evolving consumer food and beverage trends around health and wellness, nutrition, plant-based and sustainability, **Ingredion** will showcase a suite of recipe prototypes at FiE. Designed specifically for the event, these recipes are designed to show food and beverage manufacturers how they can convert consumer trends into indulgent eating and drinking experiences that deliver business opportunities.

Ingredion is bringing a team of culinologists to freshly prepare the prototypes, which will form a menu of food and drinks that balance both consumer and manufacturer needs. Formulated with Ingredion's functional innovations, and food systems from KaTech, Ingredion's stand will feature plant-based foods from savoury, bakery, dairy and non-dairy categories.

The stand will also feature a beverage bar, enabling delegates to enjoy a range of tantalisingly tasty drinks, from reduced-sugar options, drinking yogurts and protein shakes to cocktail recipes and plant-based chocolate milk.

Vice president of global marketing, Charlotte Commarmond, who will be on hand to reveal 2023 trends says: "Health and wellness – as well as sustainability – have an enduring appeal among consumers and are now front-of-mind

Making a debut

AB-BIOTICS, Kaneka's probiotics and microbiome science affiliate, will make its debut at Food ingredients Europe (FiE) 2022 as an exhibitor at stand 7.2M102. The company will showcase its portfolio of patented and clinically documented probiotics for use in a range of popular food and beverages. On stand, a range of samples, including some successfully marketed products as well as chocolate prototypes made with AB-BIOTICS' probiotics, will be available for visitors.

The spike in interest for fermented products, predicted to grow at a CAGR of 5.6% between 2022 and 2032, coupled with the growing popularity of functional foods that include probiotics, represents a significant growth opportunity for food and drink manufacturers.

Visitors can also find out more about the clinically tested probiotic solutions including stable lyophilised live bacteria and inactivated bacteria (postbiotics) that can be added to a range of foods without significantly altering the original taste, production process or food matrix. AB-BIOTICS will also discuss its successful collaborations and partnerships.

for today's consumers. That's why our stand is highlighting a wide variety of great-tasting foods and beverages that showcase the diversity of global cuisines and deliver on a variety of consumer needs.

"With a rising number of consumers demanding more 'natural' and clean label products on the supermarket shelves, our on-stand prototypes represent a growing opportunity for manufacturers to meet consumer trends while delivering business benefits. Our technical experts look forward to meeting with delegates to discuss what they can do to build consumer confidence and trust, while adapting their products to reflect today's range of lifestyle choices."

Starting off with the question: how can we rethink food products and adapt them to the world we live in? French dairy ingredients supplier **Epi Ingredients** wants to continue to support food manufacturers in their search for solutions in line with current consumer trends and expectations.

To this end, the company will present two new products that comply with both the naturalness and "on-the-go" nature of the market at Booth A183 in Hall 4.

Epi Ingredients says FIE visitors will be able to get an idea of the "considerable potential" of the portfolio designed to be used as ingredients or toppings in a wide range of applications such as yogurt drinks, filled cookies, ice creams or frozen yogurt, or sports bars and shakers.

You can discover:

- Launch of an organic yogurt powder
- Sports nutrition & innovative processes: launch of an extruded calcium caseinate powder, the ideal casein source for the development of high-protein bars.

Nexira (Booth #4.C80) will launch its new range of natural and efficient texturisers under the brand **naltive**. One year ago, Nexira acquired Unipektin, a Swiss-based company leading in the production of locust bean gum, guar specialties and tara gum. **Naltive** has been specially designed to match the market needs of formulators and consumers in the dairy sector. Consumers are seeking a better eating experience with products that offer the best combination of taste, texture, and nutrition. In addition, with plant-based alternatives still rising, consumers have high expectations for their food and drinks in terms of taste, texture, and the overall sensory experience.

To meet formulation needs for appealing dairy and plant-based products that have good taste, an indulgent texture, and a stable shelf-life, **naltive** offers three types of hydrocolloids with locust bean gum being its flagship ingredient, tara gum and guar specialties.

Nexira's tasting bar provides the chance to taste our own recipe of frozen yogurt formulated with locust bean gum.


Naturalness

Prinova Europe (Stand 4.B80) is providing a comprehensive product solution lineup via an interactive touchscreen and expert-led information station. Using the touchscreen, visitors will be able to access details of ingredients from the 2,000 products Prinova offers, download them via QR code directly to their smartphones, and discuss solutions with product, technical and marketing experts at the information station.

James Street, director of marketing EMEA & APAC at Prinova Europe, says providing an interactive touchscreen and information station is a great way to showcase how Prinova wants to support customers from concept to completion and value creation.

"They demonstrate the wealth of product expertise, market knowledge and infrastructure available in our one-stop-shop solution, ensuring the security, stability and confidence of supply that customers need in a volatile and unpredictable world," he adds.

Prinova will also highlight a range of innovative food and beverage concepts that demonstrate its commitment to helping manufacturers meet their consumers' needs for clean-label products with additional functionality and optimal taste.

These include Mochi ice cream made with Trehalose, a natural sugar which enhances freeze-thaw stability and inhibits starch retrogradation in the rice dough, preventing it from drying out and ensuring these on-trend desserts remain soft and chewy. Also available is Yuzu & Ginger EEA α Boomer Boost, a healthy ageing drink designed to prevent the decline of muscle function with age. In clinical trials, EEA α accelerated recovery from knee and hip injuries compared to standard care. 



Naltive applications
Image credit: Nexira

A food waste state of mind

Across the world food waste is a problem, but small steps can make a difference to tackle a systemic problem. Global director – food protection & preservation, Emma Cahill, Kerry explains to *Food & Drink Technology* how its Food Waste Estimator can work to reduce the problem, boost social, environmental and financial bottom lines, and enable a circular economy

Food waste is one of the biggest problems facing mankind today. With 30 per cent of all food produced globally going to waste, this is a number the UN FAO says has not come down over the last few years. Furthermore, this number is even more striking, given the large number of hungry people in the world.

In 2021, global hunger numbers rose to as many as 828 million people (WHO 2022) which shows why industry and society cannot afford to allow the current scale of food waste to get out of hand.

Global food waste has an enormous environmental impact, too. Food waste is a huge source of greenhouse gas (GHG) emissions and wasted natural resources, and therefore reducing food waste could help to reduce global GHG emissions, establish food security, and encourage healthy food systems.

Inefficiency and social justice

If industry could eliminate sources of food loss and waste, there would be more than enough

food to feed twice the number of undernourished people in the world today.

This is not to say the world is ignoring the problem. Many large businesses, startups, and nonprofits see the issue of food waste as an opportunity. One large business, Kerry, is calling for collective action in tackling food security.

The taste and nutrition company's global director – food protection & preservation, Emma Cahill – firmly believes that for industry to cut food loss sustainably and deliver food chain transparency, it must conduct recognisable acts familiar to those that individuals conduct in their homes.

When discussing food waste, Emma tells *Food & Drink Technology* she makes the topic sound “less intimidating” by talking about the scaled equivalent in a home and identifying actions that could be taken there eg, auditing cupboards, making a shopping list, meal prep, freezing or using vinegar/lemon juice to extend shelf life, aligning dinner menus in advance to avoid waste, etc.

Emma notes that the sources and scale of loss and waste vary by region and product type, so knowing where to start can be about “prioritising either where there is the most waste today, or where we can have the most impact today as these may be different.”

Targeting areas for improvement that the industry can take action on is an important first step, argues Emma.

“In the absence of granular measurement, market data, case studies and tools like our Food Waste Estimator can start conversations and give strong estimations of where is a good starting point,” Emma notes.

Launched on the UN International Day of Awareness of Food Loss and Waste, Kerry's Food Waste Estimator is a “first-of-its-kind interactive tool” that links shelf life extension to food waste reduction potential, which has launched a Food Waste Estimator to raise awareness and tackle global food security.

Food Waste Estimator
Image credit: Kerry

In measuring, once areas that can be improved are targeted, the next step is measuring the waste level to further aid prioritisation and also enable progress tracking.

"From this the industry is in a better position to gain buy-in for actioning change," Emma adds.

Some examples Emma Cahill points out are:

- **Processing** – a bakery that knows some dough sticks to scrapers and/or machines and that it takes labour for that dough to be cleaned, or that a certain number of baked goods are rejected due to lack of uniformity/warping. "If you measure the scale of the problem, you can prioritise action and capture the value lost to unlock value through eliminating this source of waste," Emma adds. "In this instance, solutions such as enzymes can be used to improve uniformity and prevent dough stickiness."
 - **Retail distribution** – Retailers who have a large number of products being removed from shelves because they are past their "best before" date could see great value in creating a "best before but still good after" section for markdowns. "This is being championed by Too Good To Go in many regions today. Additionally, where a product line is creating a lot of retail waste, (whether the cost is borne by the retailer or the manufacturer), can be a great place for a retail-led conversation about the value shelf-life extension to reduce labour rotating shelves, deliveries and overall waste in the supply chain," Emma explains.
 - **Consumer loss** – the reasons for loss at a consumer level are twofold, with studies showing that up to one half of consumer waste could be prevented by shelf-life extension (Martindale et al, WRAP UK). Microbial shelf life extension can be achieved either through adding more days through preservation or through education on the suitability of a product for freezing. Texture, taste and appeal can be the factors limiting shelf life before spoilage microbes take hold or a product goes past the date on the label.
- Emma adds: "The other reason for food waste is consumer behaviour, this is where the industry can play a role in ensuring it takes a holistic approach to formulation prioritising customer needs across health, taste, cost, convenience, portion size and other factors linked to product appeal and enjoyment to prevent a product being left on shelf, forgotten in the

Kerry's Food Waste Estimator – what are its aims?

The tool is a digitisation of market or custom data (depending on inputs) allowing a user to gain actionable insights about the potential for waste reduction via shelf-life extension for meat, food and bread-focused product lines.

The aim of the Kerry Food Waste Estimator is to "spark informed conversations and inspire change".

"We hope it will be the first of many tools designed to help, educate and empower," says Emma Cahill, global director – food protection & preservation. "It does a nice job of joining the dots between academia and industry, meaning that we are translating what's being learned in labs and measured in studies into actionable information for the industry to drive change."

In terms of actionable change, Emma set out some actions inspired by the manufacturer tool in the first few weeks of launch:

A deli counter in the US had their processors make the move from HPP to a clean label ingredient-based preservation solution for sliced deli meat. Their primary motivation at the time was cost savings and supply chain sustainability (only certain plants had HPP lines creating bottlenecks and additional transport requirements). The switch was successful in matching and meeting needs for sensory, cost savings to offset investment in reformulation and a consumer-friendly label declaration. After implementation, the deli counter was able to report the additional savings from reduced waste back of house. HPP packages had no protection once opened and had to be thrown out when they weren't used quickly enough.


Emma qualifies: "The waste hadn't been measured before the changeover but the significance of the back of counter waste reduction further improved the profitability for them. We used the Food Waste Estimator retroactively and the indicative waste reduction was 25% through the extension in open shelf life. This number, on top of the 75% cost savings on preservation was used to champion expansion of this reformulation."

pantry or ending up in the dustbin."

Ultimately, education, awareness and accountability at all levels can foster changes in behaviour, which will empower a reduction in food waste across all areas of the supply chain

"My approach is that information is power, the more we can tell consumers to help them know a food is safe to eat on-pack or through additional resources can empower them to eliminate preventable food waste in their homes," says Emma.

She concludes that the Food Waste Estimator's consumer calculator helps to show the "wonderful impact of small changes" in your home when it comes to food waste reduction.

"We've translated these into equivalent gestures that are relatable such as minutes in the shower, smartphone charges and people fed for one day." 



Weighing, packing and inspection star at Ishida Open Day

Feeding the growing global population is big business, as savvy end-users look to get the most out of their machines in terms of versatility and utilisation. With this in mind Ishida put on a fine display of machinery at its open day event which also celebrated the 50-year anniversary of its multihead weigher. Kathryn Brand reports

Multihead weigher

Image credit: Ishida Europe

Global food industry manufacturing solutions provider, Ishida, has announced the introduction of three new machines to its portfolio at its press Open Day in Ishida's European head office in Birmingham, UK, to which *Food & Drink Technology* attended. Its three focuses of weighing, packing and inspection have each benefitted from a new release and top of the range is a turnkey solution, that Ishida has designed, manufactured and installed.

The launches were accompanied by Ishida's celebrations of the 50-year anniversary of its multihead weigher. It was a world first when it launched in 1972, at a time when the world's population was only at 3.8 billion, and with it now just passing the 8 billion mark, the needs of the food industry have vastly changed, which is why Ishida wants to continue evolving accordingly. The company is doing this to maintain its leadership in the market by investing in new services, staying relevant and keeping environmental issues at the forefront of its consciousness and ongoing development.

Computer Combination Multihead Weigher Advantage Series (CCW-AS)

Aptly marking 50 years of its multihead weigher and best-known product, Ishida has unveiled its CCW-AS range, a next generation weighing solution with advanced productivity, operation useability and eco-impact. Its improved features, explained Neil Wightley,

EMEA business manager for the multihead weigher (CCW), include better control and speed of the product, demonstrated at the event, which allows for more accurate weighing, so less give-away and rejects, as well as increased productivity and output, particularly for more challenging food such as sticky or high volume items. This has been done by adjusting the pattern and speed of which the radial feeders vibrate and dispense product into the weighing hoppers, with camera and sensor systems to monitor the machine and the feeder levels in real time from a 16-inch col-



Inspira Boxmotion

Image credit: Ishida Europe



The Inspira Boxmotion can serve rapidly growing markets, such as snacks
Image credit: Ishida Europe

our HMI operator touch screen. This latest generation also ensures reduced downtime with easily removable and reattachable parts to streamline cleaning and maintenance. The final most marked update was a 16db noise reduction combined with 20 per cent energy savings, compared to previous models, cementing its environmental and economic benefits. The CCW-AS range will offer a range from 10 to 36 heads and hopper sizes from 0.05 to 7 litres, to accommodate the broadest range of customer needs and products.

Inspira Boxmotion bagmaker

The CCW was followed up by Ishida's new Inspira Boxmotion bagmaker, that is available individually as well as combined with the multihead weigher as a single, optimally efficient unit. The boxmotion bag sealer offers longer and more uniform contact between the packaging and the heat sealer jaws, while maintaining speed efficiency, to ensure both fast operating speeds (30 per cent higher than previous models) as well as reliably sealed products, compared to rotary or intermittent mechanisms. This latest generation, similar to the CCW-AS, also has a lower energy consumption and noise output (17 per cent less energy when in operation and 25 per cent less when on standby), as well as downtime reduction due to an open structure and easier manoeuvrability of components.


Combined with Ishida's Auto Splice, which automatically changes the film roll, downtime can be reduced by 92 per cent. Crucially, the Inspira Boxmotion looks ahead to the direction of the food industry and specifically of food packaging since it is compatible with paper and recyclable film bags to ready itself for sustainable developments. It includes sophisticated automated features, such as bag inflation and print position adjustments and checks as well as improved connectivity and data integrity.

The bagmaker serves a rapidly growing snack market, which, according to Euromonitor International, is expected to show higher growth

rates during 2022 to 2026 than in 2020 and 2021, and healthy snacks are projected to see the highest CAGR. Emerging trends such as sustainability, functional and on-the-go snacking, and increasingly diverse world food flavours are driving this increase in the market, therefore adaptability and future-proofing are essential considerations for Ishida.

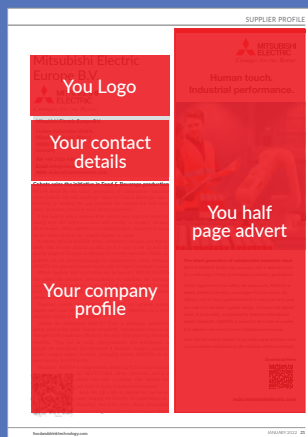
IX-PD x-ray inspection system

The final product that Ishida unveiled at its press Open Day was a new x-ray inspection machine, the IX-PD. This solution offers a huge leap compared to its previous models, as it utilises a new type of sensor and image processing technology called direct conversion. The x-rays are directly converted to electrons to form an image, rather than through a photodiode, allowing for a much clearer and more precise image for significantly improved foreign body detection. Not only can far smaller and lower density contaminants be detected, but products such as dried pasta, that has overlapping and inconsistent distribution, can have contaminants detected at a much higher level than previously possible, as was impressively demonstrated during the Open Day. It has achieved an increase from the 40 per cent detection rate of bone in chicken breast of previous models, to 100 per cent with the IX-PD, minimising the need for manual intervention and detection errors across all kinds of product. Companies can therefore maintain more stringent quality control without compromising on productivity. The IX-PD is available in both 360mm and 450mm width, with compact dimensions to ensure integration into packaging lines.

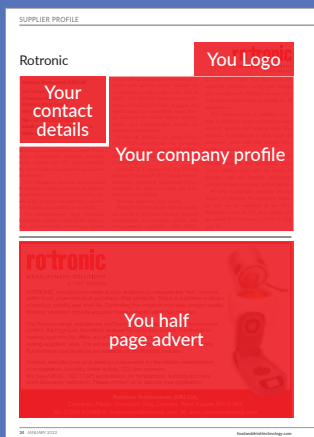
Whilst Ishida's press Open Day and its European HQ was the first reveal of the company's latest innovations, the multihead weigher has since been debuted at Gulfoods, Dubai, with the company now looking ahead to Interpack, 2023 in Dusseldorf to get its new products in front of the eyes of the industry. 



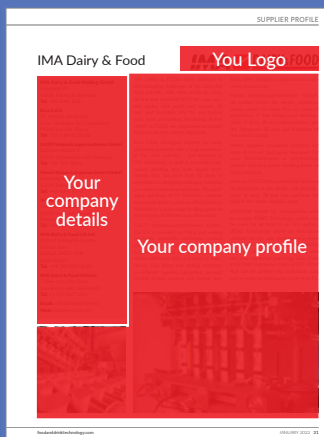
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Describe yourself in three words.

Fun, passionate and mischievous

What was your earliest ambition?

To be an astronaut and I still dream about it.

Who has inspired you in your career?

My science teachers – Mr Fenn and Mr Thomas – they got me hooked on science at school. Duncan Ballantyne's book 'Anyone Can Do It', convinced me to quit my job and go for it on my own 13 years ago.

What's your biggest professional achievement?

Building a fantastic team at I.T.S., my flavour company and now launching Citizen Spritz. We have come so far in such a short space of time with amazing products.

What drives you on?

Innovation. Creating new products that make people happy and having fun doing it.

What does a typical day look like?

5am start – read my journal, hit the



gym, feed and play with our pet rabbits
7am – breakfast and a salsa dance with my wife
8am – start work, tackle my most important task and get it sorted
9am onwards – work with my team and various customer calls or visits
Walk at lunch time usually round the shops or river nearby
Spend the afternoon working on customer projects and calls
Plan my next day
Leave the office around 6.30pm and head to a ukulele lesson, salsa lessons or rugby coaching or dinner with my wife and children.

Fast forward to today and Mike is the proud owner of I.T.S. (International Taste Solutions), one of Europe's fastest growing flavour companies.

Since starting the business from his dining room table in 2009, I.T.S. is now active in 24 countries and employs 24 staff at its headquarters in Newbury. Mike is also a major investor in SouqBox, a B2B digital marketplace which is working to help businesses trade online.

Mike is also the excited co-founder of Citizen Spritz with his great friend Mark and their partners Lyn and Lou.



What is your pet hate?

Washing up in the sink.

Do you cook, if so, what's your signature dish?

I cook all time and it's my favourite way to chill out. I do a mean roast and a lot of curries from scratch, but I have to say Tapas is one of my specials.

How do you believe the pressures businesses are facing will impact the industry?

I think we have seen a lot of challenges on energy, raw materials and staff shortages. Things will be hard for probably another 12-18 months.

Give us a positive prediction for the food industry category you cover over the next 12 months.

People have got to eat and drink, so I

think the food industry is always very resilient compared to other industries. Also, it's great to see so many new startups challenging the market and getting consumers excited. I think the food industry is one of the most exciting places to work.


If you weren't in your current position, what else might you be doing?

Owning a brewery as I am a passionate craft brewer and probably surfing or at least trying to.

Have you got any hidden talents?

Good question! I am a passionate salsa/latin dancer. Also from my years boxing as an amateur, I am very good at skipping, which surprises people.

How do you relax?

I love reading, brewing beer, attempting to learn the ukulele, dancing and I love watching rugby and boxing with family and friends. I also enjoy having the fire on and falling sleep in front of it – this happens most evenings. 



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