



INNOVATION REVIEW
FIE 2022- PARIS
Béatrice de Reynal

Béatrice de Reynal
Secrétaire Générale

Key figures

- December 6 – 8th 2022 Paris Porte de Versailles (halls 4, 6, 7.1 & 7.2)
- 1 000 exhibitors
- 20 000 visitors
- 135 countries

After 2 events impacted by the Covid, the FIE was successful again during this Parisian edition both in terms of offer and visitors.

We found the atmosphere back to the pre-pandemic events, especially in Hall 4 which was packed for 3 days. In the opinion of all the exhibitors we met (even those in the more remote Halls 6 and 7.2): "it's good to be back like before"!

At the FIE, we find the strongest trends of the moment, the "plant bases food", health and wellness, including immunity, stress, overweight and beauty, solutions to improve formulations and everything around the food transition. Of course, taste will never be left out.

Fi Europe Innovation Awards 2022 winners

- **Food Training & Education Award** (new for 2022): **Mane** (France) for its Food Development Training with flavourist students at ISIPCA, Paris, and future chefs at the Culinary Arts Academy in Switzerland.
- **Sustainability Innovation Award:** **Ofi** (Singapore) for Cocoa Compass, a project that provides 100 per cent traceability for cocoa produced across nine countries, and makes sure that farmers earn a living wage, child labour is eliminated, and the natural world is protected.
- **Diversity & Inclusion Innovation Award:** **Ingredient** (USA) for its Women in Ingredient Business Resource Group. Established in December 2020 to empower women for an equal future, the group now has an inclusive network of members across EMEA, Asia-Pacific, North America and South America.
- **Plant-based Innovation Award:** **Bunge** (USA) for its PurePro pea and faba proteins. Delivering 2g protein per serving, PurePro can be used to create superior vegan cheeses with improved sensory and nutritional profiles.
- **Sensory Innovation Award:** **Cargill** (USA) for Gerkens Sweety Cocoa Powders, two natural cocoa powders that enable 30 per cent sugar reduction in chocolate drinks, without the need for sweeteners or artificial ingredients.
- **Health Innovation Award:** **Limagrain** (France) for LifyWheat wheat flour, a multipurpose functional ingredient for bread, pasta and biscuits. High in fibre and resistant starch, LifyWheat helps reduce blood sugar levels after a meal and has a prebiotic effect on gut microbiota.

- **Food Tech Innovation: Sweegen** (USA) for its novel bioconversion process for the production of Bestevia Reb M, the first new stevia ingredient produced via a new production technology to be approved for use in the European market by the European Food Safety Authority (EFSA).

Start-up innovation challenge 2022 winners

Category: Most Innovative Food or Beverage Ingredient

Kern Tec

Kern Tec develops a set of proprietary processes to turn discarded fruit pits into valuable ingredients for the food and beverage industry, such as oils, protein powders, and even dairy alternatives.

Category: Most Innovative Plant- or Alternative Ingredient

Brevel

Brevel develops microalgae protein, which is both color and flavor neutral, available at cost levels comparable to pea and soy, and with a high nutritional profile.

Category: Most Innovative Processing Technology

Vanilla Vida

Vanilla Vida grows and delivers top-quality, tailor-made vanilla beans that perfectly meet the market's demand and business needs, ensuring a stable supply chain and maximum flavor.

Category: Most Innovative Service, Technology or Digital Solution Supporting the F&B Industry

Bio2Coat

Bio2Coat creates a 100% natural, edible coating that extends the shelf-life of food products, keeping them fresh for longer without impacting their organoleptic characteristics.

Category: Most Innovative Sustainable Solution

Bio2Coat

Bio2Coat creates a 100% natural, edible coating that extends the shelf-life of food products, keeping them fresh for longer without impacting their organoleptic characteristics.

Innovation TOURS FIE 2022

NutriMarketing has organized Innovation expert visits on specific trend themes. Each trend is presented in the introduction of each visit with market figures, then the visit continues through the show to meet about ten stands selected for their innovations. Five big trends are driving the food industry: Convenience, pleasure, Health, naturalness and sustainability.

We have been proposed this year 5 tours:

- Plant trend
- Health and Well-being
- Reformulation
- Sustainable development
- Made in France

Here are some pictures of the atmosphere of the tours which include between 15 and 55 participants. The innovations are presented by the exhibitor, a tasting proposed to the visitors.



Plant-based

Even if the main drivers of the plant-based trend are health and sustainability, consumers are now expecting plant-based products to be good, natural and of course convenient as well.

For maybe the first time, there is a consensus on the interest to reduce the consumption of animal products:

- Interest on Health as the consumption of deli meat and red meat increase the risk of cancers and CVD.
- Interest on environment: livestock breeding represents 14.5% of greenhouse gas emission
- Interest in animal welfare: 60 bn of animals were killed for their meat in 2016, 110 bn expected in 2050.

According to Fortune Business Insights, the meat substitute market size was valued at USD 5.41 billion in 2021 (0.6% of the meat market). The market is projected to grow to USD 12.30 billion by 2029 (0.9 % of the meat market), exhibiting a CAGR of 11.11% during the forecast period 2022-2029.

According to Precedence research, the global dairy alternatives market size is projected to hit around USD 68.79 billion by 2030 (6.2 % of the dairy market) from valued at USD 25.2 billion in 2021 (3 % of the global dairy market) and growing at a CAGR of 11.8% from 2022 to 2030.

Weakness

Meat alternatives are facing clean label challenge: Plant-based substitutes are ultra-processed and full of additives.

- 32% of non-consumers of plant-based alternatives prefer to eat plant-based products rather than meat substitutes.
- 46% of consumers say they find plant-based alternatives less good than their meat-based counterparts.
- 42% of consumers find plant-based alternatives bland and uninteresting.
- 51% of consumers say they would find it difficult to do without meat.

In the US and in France the meat-substitute market stagnates

US plant-protein business [Beyond Meat](#) has reduced its revenue forecast for the year expecting 2022 sales to be in the US\$470m to \$520m range, compared to its prior steer of \$560m to \$620m.

New generations of meat substitutes have entered the market: less processed, with a reduced ingredient list, they meet consumer's expectations in terms of naturalness.

Prospective

Meat lab

- According to Maastricht University, the cells of one cow could produce 175 million burgers, the equivalent of 440,000 cows using traditional methods.
- According to UBS, the market for plant proteins and in vitro meat is expected to reach \$77 billion by 2030.
- Singapore has already authorized the commercialization of in vitro chicken nuggets.

Insects

- EU has authorized the use of worm and cricket in food. So, it seems that the world is not turning totally vegan but there is a new balance between animal and plant-based products.

- **Royal Avebe**

The plant-based market is growing as consumers seek for healthy and sustainable alternatives. Therefore Royal Avebe offers you Perfectasol™ D540; A clean label texture solution, a product made of plant-based ingredients: potato protein and potato starch. The unique clean label texturizing and gelling solution for a plant-based alternative to Parmesan type hard cheese containing protein, grated or block.

AVEBE SOLANIC protein is a Plant-based potato starch and protein. Avebe introduced its egg-free macaroons made with its Solanic potato protein solution, with Smaakaron. Excellent foaming properties with optimal flowability. Clean taste and odour, good shelf life if frozen or refrigerated and stable for baking. Contact : jeanette.bos@avebe.com



- **Roquette**

Consumers are increasingly looking for sustainable and succulent plant-based alternatives to the meat while keeping a simple and short list of ingredients.

Roquette, a global leader in plant-based ingredients and a pioneer of plant proteins, is offering new NUTRALYS® **organic textured proteins from pea and fava** for the European market.

These new eleven grades of textured proteins propose a wide panel of shapes and textures with a neutral taste, allowing a variety of meals.

Perfectly adapted to local cuisines, this wide range broadens possibilities for daily diets by unlocking creativity. Contact: EXT.JENNIFER.SAVINA@roquette.com



- **Aviko**

Cheese made from potatoes: amazing, surprising, tasty and healthy!

Potato Cheezz looks like cheese, tastes like cheese and has a similar texture to cheese. What makes this plant-based cheese so unique and innovative? Potato Cheezz is salt-free, fat-free and lactose-free! This makes Potato Cheezz many times healthier than cheese and all other plant-based cheeses. Potato Cheezz perfectly matches the growing consumer need to eat vegan and eco-friendly.

Potato Cheezz is the ideal replacement for cheese in finger foods, snacks or fillings in meat substitutes. In addition, a special Potato Cheezz variant is available for applications on pizza or gratin. This Potato Cheezz is available in 10-kilogram blocks. Contact: b.hammes@rixona.nl

- **ChickP Protein** - Highly Functional Chickpea Protein Isolate

Thanks to our unique IP-protected process, we are the first and only company in the world to offer Next-Gen chickpea protein isolate with 90% purity.

Our unique process removes bitterness and many non-nutritional factors, maximizing the benefits for both consumers and the food industry.

Our products are unique in their neutral taste, high functionality, and superb nutritional composition high PDCAAS value with a natural occurrence of BCAA and contain all essential amino acids (complete protein.)

Our proteins are Non-GMO, Non-allergenic, and are easy to incorporate into a variety of applications from non-dairy to sports nutrition, egg replacer, meat alternative, and much more. Contact: Nevo Mazor nevo@chickp-protein.com

- **Sprau**

Sprau® germinated faba beans have a mild flavor that makes them suitable for a variety of applications. Germination releases sugars needed for fermentation, making Sprau® an ideal ingredient for fermented products such as plant-based yogurt or tempeh. Other possible applications for Sprau® split beans and bean flour include meat analogues, bakery products and snacks.

We awaken the bean through germination, making the nutrients available and the bean easier for digestion, and easy to enjoy in the everyday diet. On top of being an excellent source of plant-based protein, legumes store dietary fibre, minerals and vitamins. One of the factors limiting their use in the diet is the digestive discomfort pulses may cause, but with Sprau® that is no longer the case. Germination is an ancient and natural process that significantly reduces FODMAPs, making the bean easier for digestion.

We reimagined germination for food, thus contributing to a shift towards sustainable and healthy eating habits. Adopting a wholesome, plant-based diet isn't just good for your health: it's also one of the best things you can do for the environment. Faba beans are an outstanding species that reduce greenhouse gas emissions, revitalize the soil, improve biodiversity and help reduce animal-based consumption. They demonstrate huge potential to help both agriculture and the food industry become more sustainable.

Contact: vilma.karttunen@vikingmalt.com

- **DMK**

brand-new vegan cheese alternative specifically designed for hot applications which melts and browns (and tastes!) exactly like cheese. Contact: Annika Schrader and Sierk Weisser - Nele.Naedler@dmk.de

- **Bunge**

At Bunge we're helping accelerate the plant-based revolution. We do this by enabling customers to create authentic meat & dairy experiences from plants. It starts with knowing customer needs, and having our teams solve tough application challenges by innovating with Bunge's broad portfolio of proteins, oils, fats, and lecithin. Whether customer needs are juicier burgers, succulent pepperoni, melty cheese, or decadent ice cream, our food scientists and sensory experts can help. What's more, we deliver at scale while meeting your nutrition and sustainability goals. Contact : didi.loor@bunge.com

- **Beneo**

BENE0's new acquisition 'Meatless' developed a tuna fibre useable to make canned tuna. This product is based on fava beans and rice and mimics the dryness, colour and texture of bits & pieces canned tuna. The tuna fibre can also be used for plant-based pizza. (To complete the pizza Meatless has also developed a recipe for plant-based cheese with a great taste and meltability).

Let us taste "chicken" chunks made from mycoprotein and pea protein, plant-based fish concept cooked up by Belgian vegan chef Pieter-Jan Lint. Muffin fortified with fava bean protein. Contact : laura.baro@beneo.com



- **Azelis**

Azelis will introduce a pea protein-based chili sin carne and a vegan cream dessert with a creamy texture thanks to the use of a specialty pectin derived from citrus fruits, stable at neutral pH and a list of ingredients without artificial additives.

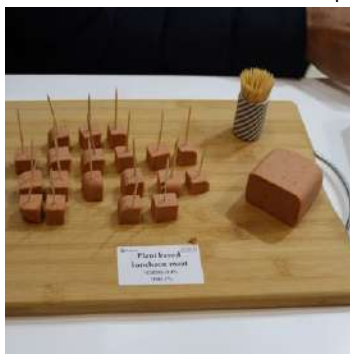
Contact : Vanessa.Gougeon@azelis.fr

- **Biospringer**

Their yeast ingredients improve animal-free products' taste, with umami notes, but also functionality and nutrition benefits. We tasted two plant-based cheese sauces, one using yeast ingredients and a control. The sauce with yeast achieved a one-letter difference in Nutri-Score due to a 25% salt reduction and the replacement of coconut (saturated) fat for vegetable oil. The yeast-fortified cheese sauce also had a richer, more in-depth flavor profile.

- **Angel Yeast**

Angel Yeast developed different yeast-based ingredients, AngeoPro, from yeast extract to yeast protein taste. Umami taste for yeast, either than clean labels and reduced content of salts, sugars and fats. We tasted vegan fish, vegan burgers, vegan cheese analog and vegan chicken cutlets. And luncheon meat.... but not for French palate.



- **Vegurts from CP Kelco and Chr. Hansen**

This plant-based yogurt alternatives **vegurts** is shelf-stable, and answer to Consumer's demand for healthy and more sustainable food choices. Ambient-stable offers convenience. Spoonable vegurts with either oat, soy, pea, coconut or almond bases.



- **Royal DSM**

This is canola-based protein for plant-based meat alternatives which is launched: Panamore **Xtense**, a label-friendly phospholipase is an alternative to emulsifier DATEM for use in bakery. The **oat-based alt-dairy** ingredient allows reducing hydrolysis time. We tasted a plant-based fish alternatives: alt-tuna, salmon cake and "chicken" satay.



- **Kerry**

In the main trends, Kerry proposes Strawberry and cream gummies with **Wellmune**, Cheddar cheese crisps created with upcycled cheese powder, and chickenless Taiwanese popcorn bites. Reformulation, Nutritional optimization, and plant-based meat.



- **Cargill**

Plant protein TEX PW80 M, a textured plant protein made from a blend of pea protein and wheat proteins, alongside **CremoFLEX A**, a customizable premium plant-based filling fats for bakery and confectionery.

- **Planteneers**, ([Stern-Wywiol](#)) presented plant-based alternatives to smoked salmon, beef tartar, kebab, cheese alternatives and cheesecake,

- **FrieslandCampina**

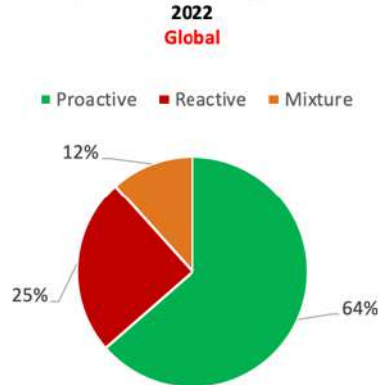
A high-protein plant-based beverage from its Plantaris range of fava and pea isolates.



Health & Well-being

Health goals will continue to be holistic, proactive, and focused on long-term wellness.

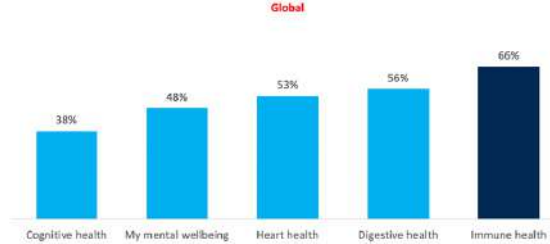
How would you describe your approach to health?



Source: FMCG Gurus Top Trends 2023

Immune and digestive health will continue to be the wellness priorities for consumers over the next twelve months, especially as many recognize the two to be interlinked. Functional products with multi-ingredient and benefit claims will be of high appeal.

Top five areas of health that consumers plan to address over the next twelve months. 2022



67% of global consumers are choosing healthier product (Kantar insights Food 360 2022)

- **FrieslandCampina Ingredients**

Biotis™ GOS-OP High Purity, a high-quality prebiotic for gut health. With a galacto-oligosaccharide (GOS) content of over 90%, Biotis™ GOS-OP High Purity is the purest prebiotic ingredient on the market, with a higher concentration of GOS available, ensuring a typical galacto-oligosaccharide content of 94% - significantly higher than other prebiotics currently available. It is heat and acid stable, has a low lactose content and offers a neutral sensory profile, and addresses specific digestive health needs.

Contact: Natalie.Meijers@FrieslandCampina.com



- **Ingood by Olga**

Sulfodyne®, a patented broccoli seed extract that provides the natural, active, and stable form of sulforaphane, for the nutraceutical market. Sulforaphane has antioxidant, anti-inflammatory, activity and cell protection. It can be used in the formulation of detox or immunity products, as well as for the regulation of immunity or the protection of joints.

Contact: christophe.deroy@avec-olga.com & justine.blondel@avec-olga.com



- **Lantmännen Biorefineries** - Gluten-free wheat starch

Grown in western Sweden from selected autumn wheat, gluten-free wheat starch is an excellent ingredient for many types of applications, as it provides good baking properties, despite the absence of gluten.

The product is a fine white powder with a neutral taste and excellent baking properties for all types of gluten-free baking. It is gluten-free according to European directives and will be launched initially in the Nordics and in northern Europe, where demand is currently very high.

Contact : elin.malmberg@lantmannen.com

- **Dr Paul Lohmann**

According to the Commission Regulation (EU) 2021/418 amending Directive 2002/46/EC for food supplements our new Magnesium Salt is permitted for the fortification of food supplements. Magnesium Citrate Malate by Dr. Paul Lohmann® is a fully reacted Mineral and a new and innovative ingredient for food supplements. The combination of Magnesium with two organic acids, citric acid and malic acid, leads to a Mineral Salt with excellent solubility. Citric acid and malic acid are part of the human metabolism and therefore easy to metabolize.

The free-flowing and non-hygroscopic powder is clear soluble and stable in solution. The Magnesium content is similar to other organic Magnesium Salts, but the performance in liquid application forms is much better. Comparable products are not stable in solution over storage time or even insoluble. The original taste is more pleasant compared to other Magnesium sources and can be easily masked. Magnesium Citrate Malate is especially designed by Dr. Paul Lohmann® for the use in high concentrated liquid ready-to-drink food supplements. Contact: a.loth@lohmann4minerals.com

- **Limagrain**

Limagrain Ingredients is proud to introduce: a nutritional wheat rich in resistant starch called Lifywheat, which is ten times richer in fibres and 80% of these fibres are resistant starch.

First, Lifywheat will enrich food products with fibre. Then its starch, which is resistant to digestion, will help to reduce the rise in blood sugar levels after a meal. Then, when it reaches the colon, it will have a prebiotic effect on microbiota which actively participates in intestinal

health. LifyWheat is a multipurpose ingredient. The flour can be used in all daily's life products: bread, pasta, biscuits... Contact: anne.lionnet@limagrain.com

- **Epi ingredients**

Epi ingredients has launched an extruded calcium caseinate powder, the perfect casein source for the development of high-protein bars. In fact, the use of calcium caseinate from EPI INGREDIENTS promotes the production of softer, less crumbly protein bars with a longer shelf life by preventing the hardening process.

The next generation of yogurt in an organic version sourced from EPI Ingredients cooperative's cows in France. The ingredient containing *Lactobacillus bulgaricus* and *Streptococcus thermophilus* strains, proposed either in filling or coating applications. Also, an extruded calcium caseinate for softer high-protein bars.

Contact : Matthieu Lucot - mlucot@laita.fr



- **Rousselot**

The Innovation Tour is invited to explore trends in the food and nutraceutical space, such as functional confectionery, healthy reformulation, mobility and solutions for a healthy lifestyle.

The Rousselot's Innovation Corner, presented new application prototypes featuring Peptan®, Colartix®, SiMoGel™ and ProTake™:



- Peptan collagen peptides provide proven health benefits for people who want to age well and stay mobile as well as for beauty seekers.
- Colartix, collagen hydrolysed cartilage matrix can help (elderly) people with joint related issues. It has been proven to reduce inflammation and support joint health. We tasted a textured soft gummy for a nutraceutical starch-free claim. 1 g of Colartix is the recommended daily allowance.



- ProTake supports food producers who want to reduce fat and sugar in their products, while improving texture and taste.
- SiMoGel gelatin solution enables to produce (nutraceutical) gummies in starch free environment.

Contact : karine.frechet@rousselot.com

- **Pharmactive**

Spanish specialist for saffron extracts and other natural compounds from plant extracts, for food supplements.

Contact: Pierre.Morlet@pharmactive.eu

- **Angel Yeast**

AngeoPro Yeast Protein is natural-origin yeast protein which has above 75% protein content and characteristics of animal-free and allergen-free. The high protein content of AngeoPro Yeast Protein is derived from the eco-friendly fermentation process. It is innovative protein source for plant-based foods and contributes to taste enhancement, nutrition-boosting, and off-notes masking. Contact: yefood@angelyeast.com

- **Ajinomoto foods Europe**

Ajinomoto Foods Europe improves the sweetness with Sweet Answer® MB: it offers the 'KOKUMI' functionality, which activates specific taste receptors that significantly increase the positive signals perceived by consumers. Sweet Answer® MB is an excellent solution in sugar-reduced products such as spreads or chocolate with sweeteners in order to bring them more richness and roundness, more creaminess and sweetness. There are many application opportunities with Sweet Answer® MB in sweet products and beverages.

Contact: alice_rebours@afe.ajinomoto.com



- **Prinova**

Pina Colada Body Boost is a beverage made with clinically researched marine sourced Aquamin calcium and magnesium to support the metabolism.

We tasted a Mochi ice cream made with Trehalose, a natural sugar that enhances freeze-thaw stability.

The Yuzu & Ginger EAA Alpha Boomer Boost, a healthy aging drink designed to prevent the decline of muscle function.

Strawberry & Elderberry Beauty Boost, a drink with marine collagen and eight key vitamins and minerals.

- **BioCell Technology**

This is a Collagen for skin and joints for both joint health and beauty-from-within. The product is composed of naturally hydrolysed collagen type II peptides, hyaluronic acid and chondroitin sulphate. The claims developed by BioCell are that the collagen matrix has undergone numerous safety, efficacy and bioavailability research studies – including seven human clinical trials – that have confirmed that it promotes joint comfort and mobility, healthy connective tissues, cartilage health, synovial fluid health, youthful-looking skin, and reduces facial lines, wrinkles and crow's feet, improves skin elasticity and reduces skin dryness.



- **Seagarden**

Norway marine ingredients are a great source for collagen peptides from salmon skin. The collagen is manufactured by a gentle process in which it is steam cooked, air-dried and micro-milled to preserve the protein, vitamins, minerals, and omega 3 fatty acids. Seagarden has the MSC sustainable seafood certification as well as the responsible farming certification by the ASC.



- **Kappa Bioscience**

Elderly people are in lack of D-vitamin, as they do not get enough light. Kappa Bioscience proposes K2Vital in liquid capsules, drops and shots. The patented ingredient is a 99.7% all-trans K2 MK-7 that the company claims is identical to the natural K2. K2Vital Delta is the same patented vitamin formula double encapsulated for complete stability.

- **Akay**

Specialized in spices and herbs, AKAY research found different active compounds with nutritional assets, such as BlaQmax, which modulates the stress-sleep-immunity axis safely and FenuSmart, nature's choice for women's health, which supports healthy hormonal balance. Capsifen, bioavailable capsaicinoids for healthy weight management and Clovinol, which optimizes blood glucose metabolism naturally and hepatoprotection.

- **Yogumel**

AB Biotics, specialized in yogurt probiotics, presented Yogumel. The solution allows consumers to create their own custom-flavoured yogurt or kefir at home. Either Greek-style yogurt, one for digestive health and one for immunity.



Additionally, the company says that Yogumel could reduce individual plastic consumption by 1.5 kg a year and save money as it only costs about 25 cents per serving of yogurt.

- **Foreo**

Offers fresh and stabilized birch water unheated and non-acidified, harvested in France. Traditionally consumed and renowned for its detox virtues, birch water is also a well-known ingredient, used since the dawn of time for its natural benefits.

With a high “wood water” added value, 100% natural and naturally filtered by the tree, birch water (also called birch sap) is a good alternative to water. It is traditionally used in cosmetics formulas for its hydrating, purifying, soothing and anti-aging effects. Or for its detoxifying and purifying properties in food products or food supplements. Another valuable asset: birch water has very low sugar (glucose 0,12 g/100ml and fructose 0,17 g/100g).

The proposed birch water is pure, stabilized, unheated and non-acidified and its nutritional qualities are preserved. As a grower, Foreo harvest birch water at the end of winter, in French forests. Its purpose: sustain French forests.

Contact : galianedeponcins@eaubouleau.com

- **Lactalis**

For the high-protein trend, Pronativ is a native micellar casein. The high-protein pudding boasted 14% protein content with a smooth texture, compared to other puddings on the market that tend to be sticky.

Pronativ makes a high-protein ice cream, which 17.7% protein through fortification in the ice cream itself and the chocolate coating.



- **GELITA**

For protein bars trend, the search of “protein” is key. OPTIBAR ingredient can be incorporated into various lifestyle protein bar concepts and concept bars, including high protein bars, bars with bioactive collagen peptides or sugar-free cereal.



- **Valio**

Elia Pro SMP and Elia Pro WMP can formulate a lactose-free, low-fat, high-protein chocolate coffee-flavored dairy beverage (30 g protein/250 ml serving) and a lactose-free, high-protein chocolate pudding (18 g of protein per 180 g/serving) with a NutriScore A.



- **Fonterra**

One of the leading companies for milk compounds developed high-performing ingredients comprising probiotics, phospholipids and lactoferrin.

The Nutiani concepts is a crispy protein granola bar, and a protein and phospholipid shake – both made with scientifically proven phospholipids designed to address the effects of stress while improving mood and focus.



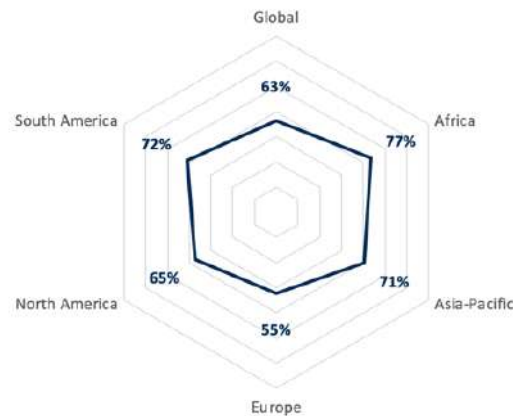
Reformulation 7th of December 11H30

70% of global consumers think that food could represent a risk for their health (Kantar food360 2022)

Processed foods are a convenience that truly facilitates our day-to-day life. Nonetheless, they are usually packed with additives to enhance taste or increase shelf life. As consumers become more aware of harmful ingredients, companies have started reformulating their foods to reduce additives, sugar, fat and sodium or to have a reduced list of familiar ingredients. Although these trends are noted everywhere, Western Europe (31%) and Latin America (18%) are the two regions with the most food and beverage launches with food reformulation.

Consumers want to feel informed about the ingredients in products that they purchase. This is driving demand for products that are deemed green and clean, and that have a streamlined list of real, authentic and familiar ingredients.

The Proportion of consumers who say that they are being more attentive to ingredient listings when seeking out food and drink. 2021



Source: FMCG Gurus Top Trends 2023

72% of global consumers are choosing artificial additive-free product (Kantar insights Food 360 2022)

- **Berrico** - Date powder as an alternative to sugar

Berrico, together with its Tunisian partner Boudjebel, offers a range of products made from the Deglet Nour date. The Deglet Nour variety contains a high level of fructose compared to sucrose, which gives it its caramel flavour and a relatively low glycaemic index. Date powder, with its high sweetness and low GI, is a good substitute for sugar in sugar-reduced preparations.

Contact: guillemette@berricofood.com



- **Beneo Sugar Replacer**

BENEIO's Isomalt is the only nutritive sweetener derived exclusively from beet sugar, with a mild, sugar-like taste. Thanks to its low hygroscopicity, it is the ideal sugar substitute in a multitude of applications, e.g., in confections or dry and soft baked goods. When replacing sugar by Isomalt in biscuits, the dough will not be sticky, and the biscuits will remain very crunchy. Isomalt can also be used in combination with Oraffi® fibres to replace sugar, bringing digestive wellness and on-pack labels as a bonus.

Contact: laura.baro@beneo.com



- **Ingredion**

Ingredion has expanded its offerings with new dietary fruit fibres – branded Fibertex CF 502 and Fibertex CF 102, made from unused citrus processing side-streams and can improve nutritional profiles and label appeal in a wide range of applications. they contain >90% dietary fibre and their inherent functionality can replace ingredients such as fats, hydrocolloids, and modified starches, helping to reduce fat, sugar, and calories in a range of applications. Contact: dalila.ledoux@ingredion.com

- **ADM**

The EU's ban on titanium dioxide (TiO₂) was an especially large shift for the industry, as manufacturers sought out alternative options. Common white color alternatives, such as modified starch, calcium carbonate and calcium phosphate, can each pose a range of labelling and formulation drawbacks, including poor solubility and requiring chemical modification to overcome complications.

PearlEdge™ line can provides white hues, meeting clean label goals while providing exceptional whitening and opacity features. PearlEdge™ is created using raw materials derived from nature, including native corn starch. Plus, PearlEdge™ Silk and Satin patent-pending technology enables a similar intensity of white color as TiO₂ for confections, bakery icings, dairy products, dressings, sugar-free applications and more. This technology is also excellent as a base color, helping overlaid colours to pop. Moreover, PearlEdge™ mitigates the need for overprocessing, producing even coating, texture and smooth, glossy surfaces in tablets and candies. To round out the line, PearlEdge™ Splash and Splash+ use proprietary emulsion technology, turning the solutions into clouding agents that deliver opacity and uniformity, ideal for beverages. Contact: christopher.saynor@adm.com

- **Fiberstar**

Citri-Fi® : functional citrus fibres upcycled using a unique extraction process!

Based on citrus fibres, this range allows to substitute additives such as starches, food gums and emulsifiers. Resistant to temperature, acid pH and mechanical stress, Citri-Fi® can be used in many applications: BVP (bakery viennoiserie pastry), fruit preparations, meats, sauces, dairy products, beverages, but also dairy and meat analogues.

The Citri-Fi® range is produced from co-products of the fruit juice industry. Its unique extraction process mechanically opens the fibrous cell wall, releasing the soluble and insoluble fibres as well as the proteins that contribute to the stabilization of your preparations.



Recently added to the card, Citri-Fi® TX 20 is a textured fibre ideal for the realization of vegetable alternatives. In addition to its high-water retention capacity, it allows to obtain a texture in the mouth and an aspect similar to meat.

Contact: Jennifer Stephens - J.Stephens@fiberstar.net

- **Nigay**

Carapro 09, a caramel filling that displays the claim "rich in fibre", while guaranteeing a high protein level. Ideal for sports nutrition and suitable for dairy-free application this filling is perfect for chocolate bars but also any other product requiring a protein and fibre intake.

Contact: vincent.nigay@nigay.com

- **Dry4Good**

New natural, low-processed ingredients, preserving more than 90% of the nutritional values, taste and texture of fresh products locally and seasonally supplied, using an innovative, patented, eco-designed technologies to preserve all the qualities of nature.

Different categories of ingredients: chunk (fruits, vegetables, mushrooms), gourmet (truffles, asparagus, herbs), substitutes (coloring, texturing, flavouring, functionalities), nutrition (proteins, fibres, vitamins and minerals), to offer the food, cosmetics and nutraceutical industries alternatives for healthier, more respectful and efficient formulations.

Contact: rjanssen@dry4good.fr

- **Azelis**

We have solutions for cost-effective meat formulations or to improve the Nutri-Score in granola. Contact: Vanessa.Gougeon@azelis.fr

- **Rousselot**

ProTake is a versatile hydrolysed collagen ingredient that combines dietary and nutritional benefits with advantageous formulation functionalities stable under a wide variety of processing protocols and different conditions. Thanks to research developments at Rousselot, your product recipes can now be reformulated or redesigned with increased collagen (protein) content, reduced fat and sugar, as well as an improved texture and taste. ProTake hydrolysed collagen can unlock your application potential in bars, powders, snacks, bakery, soups... At FIE 2022, Rousselot will unveil new research on bar texture and how to create bars with a protein count over 30% - while maintaining a long-lasting soft texture and delicious mouthfeel. Contact: karine.frechet@rousselot.com

- **Layn**

The main challenge for the food industry is to substitute the current use of synthetic antimicrobial (alcohol, sorbates, benzoates, propionates) with natural antimicrobial. Layn developed, with an innovate patented process, the NX003 formula that is able to inhibit the growth of the main pathogens using exclusively natural extracts. NX003 can be very useful in those drinks, sauce and dairy products where you want to replace the preservative additives or to use it in combination with milder thermal processes. Advantages: Neutral profile in applications, heat stable, clean label, cost in use, performance.

Contact: laura.canella@layn.eu

- **Mane**

OxiKan2, a range of antioxidants directly extracted from rosemary. OxiKan helps to delay oxidation and extend the shelf life of different food applications, including vegetable oils, bakery applications and processed meat.

Innovations in sugar reduction

Sugar reduction is a major subject in the Health trend. Either for weight management or diabetes prevention, for Nutri-Score value.

Companies know now the possibilities of decreasing sugar content of the recipes but spraying thin layer of sugar in the surface according to have a huge sugar taste in mouth. But there are, now, more other solutions.

- **Sweegen**

Taste Modulation Flavours, Signature Sweetener Systems, Taste Blazer Full Solutions, and new liquid stevia, Bestevia LQ.

Sweegen's sugar reduction technology in collaboration the chef Kaimana Chee demonstrate how to replace hidden sugars found in sauces, syrups, and drinks. Sweegen won during the Food Tech Innovation Awards 2022 for its novel bioconversion process for the production of Bestevia Reb M, the first new stevia ingredient produced via a new production technology approved for use in the European market by the European Food Safety Authority.

- **MCLS Europe**

Offers specialty yeast for Umami taste. It can remove bitterness in reduced-sugar formulation



- **Cargill**

Improving Nutri-Score with Cargill's soluble fibre helps achieve minimum 30% reductions in sugars. The company presented a reduced sugars vanilla flavored ice cream and a reduced sugars gummy.

Gerken's Sweety cocoa powders won the FiE 2022 Sensory Innovation Award, with 30% sugar reduction in a natural way,

Sustainability: 7th of December 15h

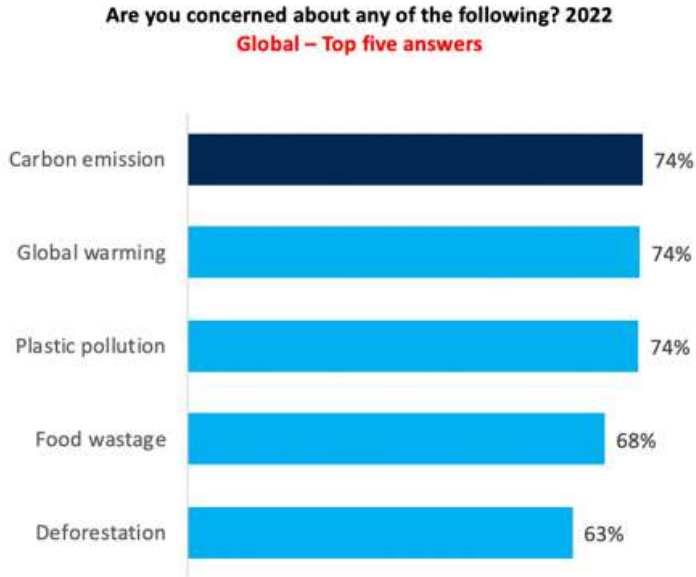
One Health: human health depends on the health of the planet and all what lives on it. 49 % of global consumers have made changes to their diets in the last two years in order to lead a more sustainable lifestyle. (FMCG Gurus 2022)

27% of global consumers have actively boycotted a brand in the last two years due to their environmental/ethical credentials. (2022)

Consumers are making greater efforts to protect the planet and expect the industry to mirror these efforts.

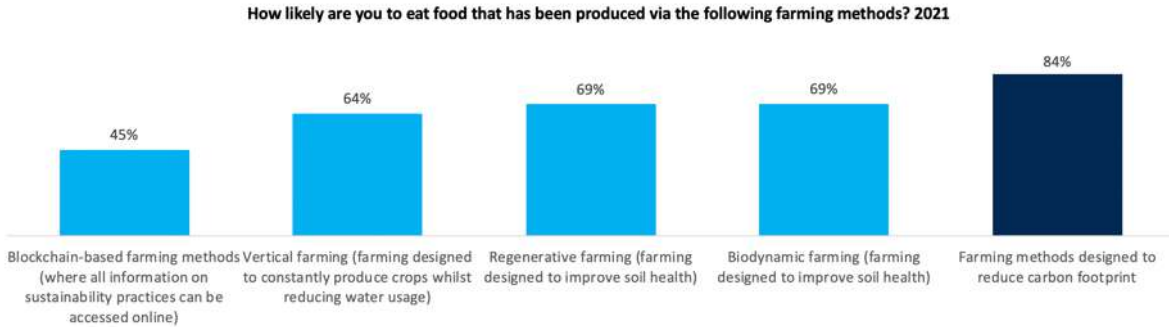
Addressing waste is something that will be of high importance from an ethical, environmental, and financial perspective.

Brands must continue to make efforts to offset their carbon footprint and regenerate any natural resources used in the formulation.



Source: FMCG Gurus Top Trends 2023

Food waste costs € 143bn to the EU economy each year, and it is responsible of 15 % of all the gas emissions linked to the food channel. So, reducing food waste is a main concern not only to feed the 10 bn people who will live on earth in 2050, but also to limit climate change. Consumers are being more attentive to farming methods, wanting reassurance that natural resources – and farmers – are being protected and carbon footprint reduced



Source: FMCG Gurus Top Trends 2023

63% of global consumers consider food as a citizen act. 57 % pay attention to sustainable production and fair trade. 53 % wonder about the impact of meat consumption on environment and animal welfare, 58% choose product with low carbon footprint, 65 % look for recyclable packs. (Kantar insights Food 360 2022)

The changes for a more sustainable consumption vary according to countries: in the US (+ 4 pts) and in China (+ 8 pt), Europe (=).

1/3 of food is wasted in the World. In France 10 million tons (€16 bn) are wasted every year.

- **Meurens Natural**

SipaPro-Oat, the World first organic oat protein concentrate. It is a sustainable source of protein, derived from a co-product of oat syrup production, which is 100% natural and uses no chemicals. It has a unique nutritional profile: in addition to a minimum protein content of 56%, SipaPro-Oat also contains 26.5% carbohydrates, including an average of 15% fibre, 8.5% lipids, as well as a wide range of essential amino acids, which sets it apart from other cereals. With an excellent digestibility of 90% and a water holding capacity (WHC) of 2.48, SipaPro-Oat is an innovative ingredient for a multitude of applications.

Consisting of a fine, free-flowing, non-sticky, light brown to brown powder, it can be easily incorporated into many food and beverage formulations. Thanks to its neutral taste, SipaPro-Oat is an ingredient for many applications such as bread, high protein pasta, smoothies, protein enriched cereal bars, meat substitutes, ... and can be declared as "oat protein concentrate" (or "organic oat protein concentrate, if you use our organic version).

Contact: sales@meurensnatural.com

- **Prova Sustainable vanilla range**

Drawing on its expertise, its roots in the field and its knowledge of local issues, PROVA relies on PROMABIO, a committed player in the SAVA region, to roll out its new program, which is based on 5 strong objectives, which guarantee quality and traceability:

- Preservation & improvement of savoir-faire
- Respect of a minimum income for the farmer
- Preservation of the environment
- Concrete support for local communities

Contact: kevin.bangratz@prova.fr



- **DSM**

Finding alternative sources of protein is a global imperative. Valorising an existing by product from rapeseed oil extraction – CanolaPRO® is uniquely sustainable. DSM's patented process is incredibly gentle – using a solvent-free, aqueous extraction process to preserve the ingredient's nutritional and functional value and to avoid denaturing the proteins.

CanolaPRO® is highly nutritious, containing all nine essential amino acids. With good sensorial properties and the functionality to improve texture of plant-based products, CanolaPRO® enables the transformation to more sustainable food systems. Because, ultimately, this unique protein has the potential to meet the growing demand for protein by valorising already existing by-products. Contact: Melanie Luangrath- melanie.Luangrath@dsm.com



- **Ynsect Human Nutrition & Health**

AdalbaPro, the world's first food ingredient range derived from insects.

The ingredients are like superfoods; they are truly unique as they combine naturalness and sustainability with a positive effect on health and sport performance. The ingredients are available in textured, powdered and liquid form.

AdalbaPro offers solutions for meat replacement and protein fortifications in all kinds of food and beverage formulations. Creating endless exciting and innovative opportunities for new product development! Contact: Nicole.vince@ynsect.com



- **Circul'Egg - Ingredients based on egg waste**

Circul'Egg is a young and innovative start-up operating in the field of circular economy. Our goal? Recovering egg by-products from breakers, in order to revalue them! We then offer, thanks to our patented process, we produce high value-added ingredients such as calcium carbonate powder and a high-in collagen, chondroitin sulphate and hyaluronic acid ingredient from shell membrane. Contact: samuel.olivier@circulegg.fr



- **Greenspot technology**

We provide ingredients that combine naturality, low environmental footprint and better nutrition for all. We can use food companies' by-products and make their production system more circular. We use a natural process, to turn plant side streams into nutritious & affordable powders through the action of good microorganisms.

Our upcycled and fermented powders are naturally rich in proteins and dietary fibres and contain essential minerals, omega-6 and omega-9 fatty acids, and beta-glucan prebiotics.

Contact: m.ledoux@greenspot-tech.com



- **Angel Yeast**

AngeoPro Yeast Protein is natural-origin yeast protein which has above 75% protein content and characteristics of animal-free and allergen-free. The high protein content of AngeoPro Yeast Protein is derived from the eco-friendly fermentation process. It is innovative protein source for plant-based foods and contributes to taste enhancement, nutrition-boosting, and off-notes masking. Contact: yefood@angelyeast.com

- **Ingredia**

Dairy products have an outstanding benefit for health. They are natural.

Our activity comes from the earth, and it is natural to protect it and to offer high value-added proteins for nutrition and food industries. Ingredia, dairy explorers since 1949 to feed and protect better! Contact: s.lemoine@ingredia.com



- **Fruitofoods**

FRUITOFOOD presents its range of organic vegetables, in addition to the classic offer. Carrot, pumpkin and zucchini are now offered in powder and pieces 2-5 mm, 100% vegetable, which have the same characteristics as fruits, thanks to the vacuum dehydration at low temperature. With no added colouring, flavouring or preservatives, the ingredients are completely natural, functional and healthy, with an authentic flavor preserved.

Contact: manon.hebert@pma28.fr



Made in France – 8th of December – 11H30

Food is France's leading industrial sector with €198 billion in sales, 15,500 companies, 98% of which are SMEs.

70% of French agricultural production is processed by the food industry

More than 80% of the products consumed in France are made in France.

In 2019, with 77.0 billion euros (about 18% of the EU total), France had the highest total agricultural production among the Member States, followed by Germany (58.2 bn, or 14%), Italy (57.8 bn or 14%) and Spain (51.7 bn or 12%), the Netherlands (29.1 bn or 7%), Poland (26.4 bn or 6%) and Romania (19.0 bn or 5%).

52 % of France is dedicated to agriculture

France is:

- First European producer of beef meat, cereals, eggs, oily seeds
- First global exporter of potatoes, malt,
- First European exporter of cereals
- 2nd European producer of beetroot sugar, aquaculture, milk, butter, cheese
- 3rd European producer of poultry
- 4th European producer of fruit & vegetables.

Main trends in the French food market :

- Local ingredients
- Sustainability : reducing carbon footprint/carbon neutral, upcycling, sustainable packaging,
- Pleasure: indulgence and new sensory experience
- Health : more holistic and preventative health, mental wellbeing (stress, sleep disorder, more focus)
- Inflation

- **Aptunion Industrie – Clean label fruit pieces with pectin made in France**

Our Clean Label fruit pieces / fruit pearls are created using a unique procedure from a selection of fruit purees textured with pectin then dried. They are available in Orange, raspberry, apple, strawberry, apricot, lemon.

Contact: julie.weltz@aptunion.com

- **Sairem - Microwave and radio frequency Solutions for food industry**

Microwave and radio frequency energies have been used by the food processing industry since the 1970s for cooking or tempering deep frozen products. Recent advances have opened up new applications for pasteurizing, disinfestation, drying and boost heating certain ingredients. Adapted solutions exist for dry goods, liquid and pastes, processed food or ready-to-eat meals.

Contact: ACOMTE@sairem.com

- **Nuwen**

Algalithe P, a new patented excipient specially designed to improve the effectiveness of probiotic formulations by minimizing strain(s) overdose. Indeed, its conception is based on the 2 pillars of an efficient probiotic formulation:

- Gastroresistant properties allowing to maintain the cellular integrity and the viability of the strains until their site of action,
- A low Aw to maximize the survival of strains throughout the life of the finished product.
Algalithe P is a dried mixture of lithothamnium, a calcified red algae with anti-acid properties, and pregelatinized starch. The combination of these 2 ingredients creates an additional structure inside the capsule when it reaches the stomach (acidic environment), which then protects the probiotics from the deleterious effects of the upper digestive tract. This additional structure then dissolves in the lower part of the tract as the pH increases, releasing the strains in good form to exert their health benefits at their site of action.

Contact: tiphaine.devismes@nuwen.fr

- **Bioprox**

Vegi-Prox Friend, A range of 100% vegan lactic ferments isolated on plant matrices of French origin with technological properties for the lacto-fermentation of plants and the improvement of the organoleptic and nutritional qualities of finished products. These cultures can also be used in food supplements as probiotics.

Chondrus150 S, a mixture of native starch and wild algae (*Chondrus crispus*) with nutritional properties (contribution of fibre, iodine and trace elements) and functional properties (texturizing power). It is particularly recommended for salted or sweetened vegetable preparations. Contact: j.brunet@bioprox.com

- **Lis by Lesaffre**

First Polar dry® equipment in Europe

This technology patented by FluidAir allows excellent micro-encapsulation and particularly gentle drying conditions. Indeed, the process takes place under nitrogen after applying an electrostatic charge to the product to be dried: thus, compounds to be encapsulated remain protected in the centre of the droplets while the liquid to be evaporated migrates outside. Your ingredients can be protected from oxidation and stabilized over time within well-structured particles.

Rapid and accompanied development is also possible thanks to the Powder Studio™, the co-development laboratory of LIS by Lesaffre which has a PolarDry™ laboratory equipment since 2018. Manufacturers wishing to quickly develop a product made with this breakthrough technology can benefit from the laboratory's experience.

Nutraceutical active ingredients (vitamins, fatty acids, plant lipophilic extracts, oleoresins, etc.), flavours and probiotics are markets for which PolarDry™ was developed.

Contact: v.lechevallier@lis.lesaffre.com

- **Fermentalg**

Extraction of microalgae benefits. Kalvea: new super-nutritious algae protein concentrate. DHA-Origins, an all-natural plant-based range of DHA oils. Blue Origins: Innovative natural stable blue.

Contact: mjfallourd@fermentalg.com

- **Biovitec**

MF 100-F is a starter culture for dry sausages containing different strains of lactic bacteria. It enables to reduce the maturation time by around 20% compared with existing starter cultures. It is particularly suitable for the production of pepperoni, for which it improves the texture, hence allowing a better slicing, as well as for snacks to which it provides enhanced

protection against contaminants such as Salmonella and Listeria. It is also recommended for the production of poultry sausages that are particularly sensitive to these same contaminants. Contact: gregoire@biovitec.fr

- **Flanquart**

Oilseed purees produced by Flanquart are clean label ingredients providing healthy lipid profiles, plant-based proteins (from 18 and 35% protein), fibres (between 4.5% and 24.5%) and minerals (Phosphorus, Potassium, Magnesium, Calcium, Iron and Zinc). Production is realised by low temperature attrition with temperature monitored to optimize nutrient preservation. It opens up a wide scale of applications for the agri-food industry in the dynamics of developing products with minimally processed ingredients, natural and virtuous ingredients for the consumers. Field of application is multiple in the complex food matrices of bakery goods such as sandwich bread, pastries and buns, granolas and mueslis, ice cream desserts, spreadables, chocolate filling, vegetable pancakes, vegetable dairy alternative, sauces and culinary helps. Purées are stored at room temperature with shelf life of one year. It brings a large flavor panel, with flavours notes of peanut, praline, pistachio, vegetal and marine. Except sesame, oilseed purees are allergen free. The entire range is available in conventional and organic.

Contact: olivierd@flanquart.fr

- **Tipiak**

Tapiocaline FAS 17SG: Clean label gluten free non-GMO tapioca texturizer, for low fat and gelatin-free Panna Cotta. Contact: elodie.lepironnec@tipiak.fr

- **Bellevue Ingredients et solutions**

Our Durum Gel range is made up of pregelatinized durum wheat flours and semolina of different granulometries. They have undergone a pregelatinizing stage which gives them special properties. Find below the exceptional properties of our Durum Gel products: - Taste enhancer - Cold soluble - Very high-water absorption - Rolls without clumping and prevents pasta from sticking - Heat treatment meeting the highest requirements in terms of microbiological load - Increases the viscosity of the gels - Clean Label - Possible origin France Our Durum Gel range is composed of 3 products: 1) Durum Gel 160 Its granulometry is flour type. Here is a non-exhaustive list of the applications concerned: - Sauces : Thickening and gelling agent, universal use, taste enhancer, and partial substitution of fat. - Vegetable beverages: Base for durum wheat vegetable beverages. - Breeding: Improvement of the product quality. - Breeding: Partial or total replacement of fibres or gums. 2) Durum Gel 400 & Durum Gel 630 Their granulometries are semolina types and are useful in various applications: - Stuffing: Filling agent, partial or total replacement of breadcrumbs and potato flakes. - Frangipane: Filling agent and flavor enhancer, partial replacement of almond powder. - Breeding: Improvement of the product quality. - Breeding: Flowering. For these 3 products, it is possible to declare on the list of ingredients "wheat flour or "durum wheat flour". Contact: kerr@panzani.fr

CONCLUSIONS

The show was particularly innovative, and professionally very busy. The level of technicality of the innovations and the relevance of the trends enabled the many visitors to apprehend the future with strong assets.

See you at FI Asia in September 23 and at FIE 2023.