

## Astonishing Report HIE Francfort 2018 November 27-29th

### Review



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## HIE Figures & show events

Over the past 20 years, the ingredients industry has evolved significantly with customers actively seeking functional foods to meet their nutritional challenges, from antioxidants to anti-allergens, and fat reduction to sports nutrition and healthy aging.

HIE Show, it is:



**10,000+ expected attendees onsite**



**79% of visitors have purchasing power**



**500+ expected exhibiting companies**

## New Product Zone

The New Product Zone showcases product innovations from leading industry players and provides the perfect opportunity to give new ingredients the introduction they deserve to the market.

### **Agrana** - Agenanova

A NEW Complex Soluble Carbohydrates that will boost your sports-nutrition range! AGRANA's on-trend AND clean label innovations deliver long consistent energy supply coupled with extraordinary low sugar content, low osmotic pressure and minimum impact on viscosity. Starch-up your Energy Gels, Powders, Bars, Mass Gainers & Pre-Workouts.

**ARMOR PROTEINES'** TAILOR MADE INFANT BASES is a complete offer for the different stages of Infant Milk Formulas. Three formulas available: Infant, Follow on and Growing-up. Packaging in gaz flushed big bag and 25 kg to protect nutritional qualities and sensorial properties of the product. Possible formulations according to your specifications.

### **Cooperatie Avebe** - Perfectasol™

Avebe innovates, together with farmers and customers, healthy, nutritious and eco-friendly food ingredients, based on potato, to contribute to a sustainable food system. Examples of such food ingredients are Perfectasol™D, for plant-based dairy-free 'cheese' and 'yoghurt', or Perfectasol™C, for plant-based foamed candy like aerated jellies and deposited marshmallows.

<https://www.avebe.com/producten/perfectasol/>

**Dr. Paul Lohmann** - Palm Oil free microencapsulated Iron Salts

This product group is characterized by high performance, stability and excellent taste masking properties. Due to the sunflower or rapeseed oil coating, interactions with other ingredients are prevented. Especially for microencapsulated iron salts like Ferrous Sulfate, less irritation of the digestive system is observed.

[https://www.lohmann4minerals.com/index.php/start\\_english.html](https://www.lohmann4minerals.com/index.php/start_english.html)

**Evolva** - Veri-te™ resveratrol CWD 90

It is a NEW, unique and innovative cold-water dispersible resveratrol powder:

90% high quality, contaminant-free Veri-te™ resveratrol

Award winning LipiSpurse® Dispersion Technology

Proven to enhance bioavailability

Neutral taste

Formulates in aqueous environments with ease

Innovative delivery opportunities: fast melt sticks, effervescent tablets, functional beverages.

**Fonterra Co-operative** - NZMP SureStart™ MFGM Lipids for Cognition

MFGM provides bioactive components such as complex milk lipids that support brain development and cognition. Our innovative SureStart™ MFGM Lipid ingredients can help to bring the composition of infant formula closer to that of breast milk and are supported by strong scientific data and clinical studies.

[https://www.nzmp.com/content/dam/nzmp/images/documents-pdfs/surestart/NZMP\\_SureStart\\_Product\\_Summary\\_MFGMLipid100.pdf](https://www.nzmp.com/content/dam/nzmp/images/documents-pdfs/surestart/NZMP_SureStart_Product_Summary_MFGMLipid100.pdf)

**FrieslandCampina Ingredients** - Vivinal® GOS Omni

Vivinal GOS Omni Syrup is a newly developed ingredient rich in nondigestible galacto-oligosaccharides (GOS) that promotes a healthy digestive system. Vivinal GOS Omni Syrup has been developed for use in a wide range of applications and specialty products. This new product excels in solubility, heat and acid stability and sensorial properties. <https://www.vivinalgos.com/ingredients/vivinal-gos-omni-syrup/>

**Golden Omega** - Gogummy

Micro-encapsulated omega-3 powder for Children gummies produced by NuMega Australia using its patented technology and the highest purity + quality Omega-3 concentrates from Golden Omega on it. The powder contains over 360 mg/g of EPA+DHA and it allows to add up to 100 mg EPA+DHA in a 5 gr. gummy product. This is a great solution to give your children a significant, healthy and entertaining

daily dose of EPA+DHA. <http://www.goldenomega.cl/service/delivery-solutions-2/gogummy/>

### **Golden Omega** - Gotab

Omega-3 in a compressible powder for tableting, produced by Omegatri Norway using its proprietary technology and the highest purity + quality Omega-3 concentrates from Golden Omega on it. The powder has extraordinary compressible properties, can be easily convert into a tablet product, potentially in combination with other active ingredients like multi-vitamins and minerals. No reflux guaranteed and high bioavailability. <http://www.goldenomega.cl/service/delivery-solutions-2/gotab/>

### **Inbiose** - Human Milk Oligosaccharides

Our HMO are identical to the natural complex sugars found in human breast milk. They modulate infant and adult microbiota, and can provide benefits to gut health, immune health, cognitive health and neurological development. Uses include general food, early life nutrition, dietary supplements and therapeutic nutrition. <https://www.inbiose.com/early-life-nutrition/>

### **Jennewein Biotechnologie** - HMO-Mix

The new HMO-Mix developed by Jennewein Biotechnologie is a mix of five human milk oligosaccharides: 2'-fucosyllactose, 3'-fucosyllactose, lacto-n-tetraose, 6-sialyllactose, and 3-sialyllactose. It has some health benefits: It protects for example against norovirus infections, is prebiotic and stimulate the brain development of babies. This mix is closer to the breast milk. <http://jennewein-biotech.de/en/>

**Jennewein Biotechnologie** - 2'-fucosyllactose and lacto-N-neotetraose The composition of 2'-fucosyllactose and lacto-N-neotetraose has all the health benefits from the human milk oligosaccharid 2'-fucosyllactose. It has for example a prebiotic effect, can stimulate the immune defense, can protect against a Norovirus infection and promote the brain development of babies. This combination is now closer to the breast milk. <http://jennewein-biotech.de/en/>

### **Rousselot - Darling Ingredients** - Peptan IIm - Hydrolyzed Collagen Type II Matrix

Peptan IIm is a hydrolyzed collagen type II matrix, next generation joint health ingredient. Peptan IIm comes from natural source and contains hydrolyzed collagen type II in the form of bioactive peptides and other matrix components. Its unique matrix composition mimics that of human cartilage providing multiple joint health benefits. [https://www.youtube.com/watch?time\\_continue=2&v=EjPUp1eDAWY](https://www.youtube.com/watch?time_continue=2&v=EjPUp1eDAWY)

**Lonza** - UC-II® undenatured type II collagen

Just 40 mg of UC-II® undenatured type II collagen helps support joint health, flexibility and mobility. Consumers will love that just 40 mg once-a-day offers the convenience and efficacy they demand from dietary supplements. Research suggests that UC-II® undenatured type II collagen is significantly better than glucosamine + chondroitin. <http://www.capsugelsolutions.be/videos/UC-II.html>

**Fonterra Co-operative** - SureProtein™ Fast Milk Protein

It is an optimal source of rapidly digestible milk proteins, providing muscles with higher levels of amino acids within the first two hours after consumption compared to standard milk protein offerings, supporting muscle recovery. Talk to us today about the many SureProtein™ Fast MPC application possibilities.

<https://www.nzmp.com/global/en/ingredients/proteins/milk-protein-concentrates/nzmp-sureprotein-fast-milk-protein-4868.html>

**Lonza** - Vcaps® Plus Purple Carrot Capsule Food colored, plant-based capsule for vegetarian, vegan, Clean Label applications. Color does not require an E-number on the product label. <https://www.capsugel.com/product-suites/vegetarian-products>

**LEHVOSS - Gee Lawson** - Bacognize®

From Verdure Sciences, the makers of Longvida®, Bacognize® extract is a natural standardized formula derived from Bacopa monnieri. Clinical research indicates that Bacognize® may offer benefits for cognitive health linked to three major neuroprotective mechanisms, supporting cognitive enhancement, memory, focus, attention, mood and stress. <https://www.geelawsonnutritional.com/products/trademarked-ingredients/344-bacognize.html>

**LEHVOSS - Gee Lawson** - EpiCor®

A recent randomized, placebo-controlled human clinical trial conducted in Europe investigated the gut health effects of EpiCor®. Statistically significant results on this study demonstrated EpiCor's gastrointestinal and prebiotic benefits at only 500 mg daily dose and confirmed the link between the immune and digestive systems. <https://www.geelawsonnutritional.com/products/others/337-epicor-proven-immune-health.html>

**LEHVOSS - Gee Lawson** - OptiMSM®

A new study demonstrates OptiMSM® provides the body with a rapidly absorbed, available, and constant supply of sulphur. The study highlights the OptiMSM® contribution to relieving the bioburden of essential amino acids cysteine and methionine and ensuring sufficient quantities available for critical metabolic processes including synthesis of proteins. <https://www.optism.com>

**LEHVOSS - Gee Lawson** - XanMax® A randomized, double blind, placebo controlled, parallel study has been recently conducted for a duration of 180 days in elderly volunteers. Statistically significant results demonstrated that XanMax® (lutein and zeaxanthin combination) supports healthy macula through deposition of optimal levels of carotenoid pigments.

**LIPOID** - PHOSAL Curcumin®

Lipoid is the pioneering company in purified lecithins and phospholipids, offering natural ingredients with unique properties and health beneficial effects. Lipoid's new product PHOSAL® Curcumin is a novel phosphatidylcholine / curcuminoid formulation with enhanced bioavailability. PHOSAL® Curcumin represents a superior formulation of active ingredients with mutually supporting health benefits.

<http://www.lipoid.com/en/phosal>

**L.E.V/ Extracts plant** - MAXFlower Willow-herb Tea Extract

Natural flavoring for teas, soft and functional drinks. The product is produced from Willow-herb, which has a successful history of application in ethnoscience. Original healthy solution for beverages with clean labeling. Its application advantages:

Organic quality, Clean label, Plant origin, Free from preservatives, Free from caffeine.

<https://www.ingredientsnetwork.com/47/product/105/66/30/organic%20max%20flower%20.jpeg>

**Vidya Herbs** – Sunca

Sunca™ is an innovative extract from Sunflower (*Helianthus annuus*) standardized in chlorogenic acids and clinically proven in Europe for its weight loss properties. In the way of Full-iD quality label by Vidya, Sunca™ was developed from residues of defatted sunflower seeds in accordance with the sustainable program.

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

**Vidya Herbs** - Vi-Active Vi-Active™ is a bioavailable turmeric extract with 95% Curcuminoids clinically proven for its bioavailability. The study shown a curcumin plasmatic concentration 2.24 times higher than standard turmeric and revealed a relative bioavailability 222% higher for the Vi-Active. Vi-Active™ is also available in organic form certified by Ecocert and microbeadlets form that is non dusting for production. [www.vidyaherbs.com/](http://www.vidyaherbs.com/)

**Meurens Natural** - NATUDRY-OAT 19

Natudry-Oat 19 is a savoury oat powder. It provides texture, viscosity, structure, crispness and prevents crystallisation. Its short DP1 & DP2 level (below 10%) enables

to limit the sugar content in your preparations. The natural production process guarantees a cleaner labelling "oat extract" or "dehydrated oat syrup" instead of "maltodextrin". <https://www.meurensnatural.com/fr/news/nouvel-extrait-davoine-alternative-clean-label-aux-maltodextrines/>

**Zukán** - Fosvitae® - Natural & Healthy Fiber

Fosvitae® is a product exclusive to Zukán made from the soluble fiber of cane sugar. It is intended to act as a substitute for sugar, polyols and fats, while allowing clean labelling. It is a multifunctional ingredient that provides nutritional value to a large variety of applications. <https://zukan.es/fr/produits/reduits-en-calories/fosvitae/>

**Zukán** - Fondant 0% Sugar

Fondant 0% Sugar is a product exclusive to Zukán which can be used in a similar way to the traditional fondants while providing 53% less calories. Due to the absence of sugar in its composition it is considered to be SUGAR-FREE.

<https://zukan.es/fr/produits/fondant/>



## Startup Innovation Challenge

The most exciting innovations are coming from small startups who are largely unknown to the wider industry.

Now in its third year, the Fi Global Startup Innovation Challenge 2018 gives startups the opportunity to pitch their idea to the whole host of F&B industry players that make up the show's 500+ exhibitors and 10,000+ attendees.

This year's categories are:

- Most Innovative Healthy Food or Beverage Ingredient
- Most Innovative Plant-Based Finished Product
- Most Innovative Technology or Service Supporting F&B

## 2018 Startup Innovation Challenge - Finalists

Category: Most Innovative Healthy Food or Beverage Ingredient

### Gnubiotics Sciences, Winner

Gnubiotics Sciences, a Swiss biotech founded in 2016, develops the next generation of HMOs containing +130 diverse MAC structures beneficial in establishing healthy microbiome via selective modulation to prevent inflammation. Our Microbiota Accessible Carbohydrates are disruptive new prebiotic ingredient that successfully mimics the diversity and health benefits of breast milk, enabling growth of key bacteria and inhibition of pathogen in the gut.



### FunGeneX B.V.

FunGeneX B.V. was founded in Breda, The Netherlands in 2016 as a spin out of Bioscienz for the commercialisation of fungal protein expression technologies. This company licenses fungal protein production technology for application in Food, Feed, Pharmaceutical, Industrial as well as Agro applications. Next to this the company develops for it's own commercialization strategy animal free egg white protein for Food application by means of fungal fermentation which will be commercialized in the coming 3-5 years. The company uses R&D facilities and staff from Bioscienz's Laboratories 350 m2 and 12 FTE, currently mainly active in R&D/ Legal/Finance and QA/Regulatory.



## **NATUREX SPECIAL PRIZE WINNER**

### **Magellan Life Sciences**

Magellan Life Sciences is a synthetic biology company that discovers and develops plant inspired proteins for commercial applications in Food and Beverage industries. Magellan's proprietary protein production platform XSeed® bridges the gap from R&D to consumer markets by allowing for economically viable industrial scale production of unique natural proteins.



Magellan's flagship Brazzein protein sweetener is the lead product from XSeed®. We are the first company worldwide to successfully produce economically viable yields of this disruptive next-gen protein sweetener: Tastes like sugar, no bitter or metallic aftertaste, 1,200 times sweeter than sugar, non-caloric, pH and heat stable. Unlike all its competitors, Brazzein requires NO masking agents thereby reducing formulation and product costs; a high value proposition for today's F&B industry.

### **PLANETARIANS**

PLANETARIANS makes high protein ingredients from upcycled by-products. PLANETARIANS' ingredients are available in the form of crisps and flour and contain 35% protein, 18% fiber and 1% fat. Upcycling by-products PLANETARIANS makes protein affordable, feeds growing population and reduces impact on the planet.



### **Renewal Mill**

Renewal Mill is a next generation ingredient company that harvests byproducts from food manufacturing and upcycles them into high-quality ingredients and products. In doing so, it's building a more sustainable food system that reduces waste and improves nutrition. Winner of the Institute of Food Technologists' Food Disruption Challenge, Renewal Mill is currently using its proprietary technology to upcycle the byproduct of soymilk manufacturing, called okara, into a high protein, high fiber, gluten free flour. But, okara is just the start, and Renewal Mill is already working on additional byproduct sources from other nuts and legumes. The company is 100% female run and believes that a core part of its mission is to bring its high quality nutrition and chef-developed products to food deserts first.



## Category : Most Innovative Plant-Based Finished Product

### Jet-Eat, WINNER!

Jet-Eat is developing a new generation of plant-based meat, using 3D printing instead of animals. Founded in 2018 Jet-Eat is the world's first company to develop a new additive manufacturing technology specifically for plant-based meat. The Jet-Eat multi-dimensional printing technology combines the latest innovations in digital and 3D printing with advanced food science – to produce steaks with the same appearance, texture, flavor and cooking properties of animal meat, from natural, sustainable and healthy ingredients.



### Green Banana Food B.V.

Green Banana Food B.V (GBF) is a Netherlands food-tech company developing products and ingredient solutions from the native cooking green banana. Our goal is to deliver high nutrient, low carb, gluten free products with a great taste. With our propriety process, we utilise the green bananas (Highland bananas from Uganda) is our main ingredient in all our products. Our core value is to pioneer a shared value food system where the food company, end consumers and the farmers have shared benefits.



### Shileo

Shileo is an online food startup founded in Sept. 2017 selling delicious konjac rice and pasta meals which are: the perfect low-cal alternative to normal pasta and rice (5x less calories than in traditional noodles), low-carb, vegan, filling, aiding weight loss (cf. Commission Regulation (EU) No 432/2012), health promoting due to its high content of glucomannan-a soluble fibre, without flavour enhancers and artificial colourings and ready to eat within minutes.



## Category: Most Innovative Technology or Service Supporting F&B

### Ambrosus

Ambrosus is a blockchain-powered IoT network for food and pharmaceutical enterprises, enabling secure, and frictionless dialogue between sensors, distributed ledgers and databases to optimize supply-chain visibility and quality assurance. Through its blockchain AMB-NET, Ambrosus focuses on Supply Chain Optimisation, Logistics Tracking, Quality Assurance and Anti-Counterfeiting. Ambrosus is likewise fostering innovation in Blockchain and IoT space by building APIs, SDKs and Developer Tools.



### Aryballe Technologies

Aryballe Technologies, the pioneer in digital olfaction, develops and manufactures bio-inspired odor sensors for ground-breaking applications in the food, home appliances, and flavors & fragrances industries. Its solution for digital olfaction is based on a unique combination of technologies: optics, biochemistry, microfluidics, electronics and IT. Over 1,000 odors have been detected, digitized, and stored in odor databases.



### Better Juice, WINNER!

Better Juice developed a B2B product with a patent-pending technology for reducing natural sugars from fruit juices. We harness the activity of non-GMO microorganisms to bio-convert the sugars to dietary fibers and non-digestible natural molecules. Our continuous flow system is capable of treating large volumes of juices with a little added cost to the final product.



### Embion

Embion produces new prebiotic solutions for human, animal and soil microbiome nutrition from agricultural and food processing side-streams. Embion's advantage lies in a novel processing technology that is a result of more than 10 years of research at the Swiss Federal Institute of Technology in Lausanne (EPFL), Switzerland. The technology allows to target and extract natural prebiotic ingredients from biomass such as oligosaccharides and polyphenols as well as customize the degree of polymerization for personalized solutions. The process is a breakthrough in the production costs of prebiotic ingredients stemming from superior process



parameters than competing technologies e.g. yield (2x-10x), processing speed (15x-42x) and very high product purity while reducing pre- and post-processing steps. All the above enable the commercialization of novel but also affordable prebiotics for offering customization for microbiome nutrition.

## **Nucaps**

Nucaps offers technological services for Encapsulation of bioactives and probiotics with Food Proteins for a safe and efficient oral delivery. A new nanocapsulation technology, with nutraceutical, cosmetic and pharmaceutical purposes. This encapsulation process, adapted for industrial scale and designed for oral delivery and controlled release of bioactives and microorganisms, is based on the use of Food proteins (GRAS), as casein, zein or soya. Nanocapsules and Biocapsules protect the actives, improving effectiveness, stability, safety and profitability.



## Famous and unmissable POT PAI!

The famous and unmissable Pot PAI took place on the 28th of November on the Clup PAI stand. Thanks to all the participants (EPI ingredients, LIS, Novastell, Lecico, Fruitofoods, Louis François, Triballat, Unipex, Fruitofood, ...) for this convivial and friendly moment.



## Innovation Tours

On professional shows, NutriMarketing's experts are guiding Innovation Tours on specific topics. After a condensed presentation of the topic, visitors were guided to meet leading companies innovative solutions.

At the HIE 2018, we were focusing on 3 different topics :

Clean label, Personalised nutrition and Healthy mind & body.



### 1- Clean label 2.0: trust & traceability

The concept of clean label food and beverages--products containing clean and simple ingredients that consumers recognize—is nothing new, but it has been thrust into the spotlight over the past few years as health-conscious consumers want to know what they are putting into their bodies.

The clean label challenge is going far beyond only taking artificial additives off of the product. It is about authenticity, traceability, organic or sustainable farming. Products made with simple ingredients consumers are familiar with, traditionally and sustainably processed by real people with total transparency about animal wellbeing and the origins of the ingredients.

The boom in the organic market (\$124.76 bn in 2017 and expected to reach \$323 bn by 202') is one of the consequences of the consumer's quest for naturalness.

Manufacturers of food ingredients have anticipated this Clean-Label Tsunami, giving food & drink manufacturers new opportunities to develop natural products.

Thus the market for natural colourings has exceeded that of artificial colouring since 2011, reaching \$1.3 bn in 2016<sup>1</sup> and expected to reach \$2.1 bn by 2023. Now colouring foodstuffs are replacing even natural colouring in order to avoid E numbers in the ingredient list and the flavouring market is getting the same way.

New natural preservatives such as acerola or rosemary extract, that could substitute ascorbic acid, are already available, ferments, spices and herbs could also protect food in a natural way.

New technology and smart packaging also help in developing products without adding additives.

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<sup>1</sup> <https://www.researchnester.com/reports/natural-food-colors-market-global-demand-growth-analysis-opportunity-outlook-2023/232>

The Swedish food tech company Micvac has revolutionised the ready-meal market with its patented in-pack cooking and pasteurisation technology, which make it possible to extend the shelf life of chilled ready-meal up to 60 days without any additives.

The French company Genialis has patented an ultrasound technology to emulsify water-soluble and lipo-soluble solution without any emulsifier, make it possible to make a clean label drink with essential oil for example.

The role of food packaging is changing from passive – being a mere container protecting its contents from contaminants, and mechanical damage, to active – capable of extending shelf life by interacting with the product, for example by releasing antioxidants, antimicrobials or oxygen scavengers to prevent food spoilage.

NanoPack is an EU-funded project developing an active packaging film with antimicrobial properties. The novel packaging films slowly release tiny amounts of antimicrobial essential oils as a vapour into the so-called “headspace” of the packaging, thereby sanitizing both the food product and the headspace, and extending the shelf life of the product. Preliminary results have shown that NanoPack films are able to increase the shelf-life of additive free bread by 3 weeks<sup>2</sup>,

With 73 % of consumers willing to pay more for a food or drink product made with ingredients they recognize and trust, no wonder why the food & beverage industry global sales of clean-label products are projected to reach \$180 billion by 2020<sup>3</sup> and the Global clean label ingredient market to value \$47.50 billion by 2023<sup>4</sup>

## Visited stands

- **CBI** - Quinoa line, organic and gluten free, produced with a new traceability app that connect hundreds of small farmers. Furthermore we present a line of maltodextrin free micro-encapsulated fruit ingredients from Colombia.  
[rdekker@nutridiant.com](mailto:rdekker@nutridiant.com)
- **Triballat** -  
Our company mission is to deliver healthy diet from the field to the table. We control the whole chain, animal and vegetal. We have our own local farmers. We manufacture mostly our ingredients and finish product in our with perfect traceability. MPC and SOJYFIB exist in organic version. There are totally made in France. [david.trumier@triballat.com](mailto:david.trumier@triballat.com)
- **Berrico** - Dried, sweetened vegetables

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<sup>2</sup> Source : EUFIC <https://www.eufic.org/en/food-production/article/fighting-food-waste-by-innovative-food-packaging>

<sup>3</sup> Euromonitor 2016

<sup>4</sup> Mordor Intelligence 2018



These veggies give flavour, colour and cheer to muesli, granola, nut mixes, cereal bars and other products. Also, these veggies can be used as a sweet... that is a completely new concept! [foekje@berricofood.com](mailto:foekje@berricofood.com)

- **Rousselot** - Bioactive or functional collagen solutions can fully support formulators who want to shorten the ingredient list in their end products, boost the nutritional value of their products while achieving the ideal texture, the perfect taste and the best look. [caroline.brochard-garnier@rousselot.com](mailto:caroline.brochard-garnier@rousselot.com)
- **NSF Health Science** - NSF DNA Authenticated™ mark to verify the identity and purity of raw ingredients. Through the new NSF DNA Authenticated™ verification program NSF provides in depth testing, painting a highly accurate picture of a product and its overall quality. In addition to DNA authentication of the target species, the NSF DNA Authenticated™ verification program also screens for contamination, including common adulterants, toxic adulterants, allergens and fillers. [nderegt@nsf.org](mailto:nderegt@nsf.org)
- **Matrix Fine Science** - Natural Vitamin E from Sunflower  
An inherently non- GMO and non- allergen crop that offers you a replacement to Soy derived tocopherols thereby helping you to achieve a "clean label" goal and increase consumer appeal.  
[anuj@matrixfinesciences.com](mailto:anuj@matrixfinesciences.com)
- **International Taste Solution** - Cleannovation Platform to offer high quality, clean label and traceable solutions to the food and beverages industry, which sits very well with ITS's purpose of making healthier foods taste better. The Cleannovation Platform is composed by: -A broad range catalogue of clean label taste and texture solutions with both ready-to-use and custom made options (see below). -A highly experienced team of experts - ready to assist food manufacturers who want to develop clean label, healthy products. - World-class Innovation facilities, which include an onsite flavour creation lab, applications suite, state of the art test bakery facilities and a pilot plant, ready to use for any project. [marta@itstaste.com](mailto:marta@itstaste.com)
- **Cambridge Commodities** - High quality CBD oil with a safe and legal supply chain. • Fully traceable and trusted CBD oil from a European source of hemp, Less than 0.03% THC. [Abigail.Heaton@c-c-l.com](mailto:Abigail.Heaton@c-c-l.com)
- **Lonza** - Vcaps® Plus  
Food colored capsules suitable for vegetarian and vegan diets and can support customers in formulating true clean label solutions.  
[stephane.vouche@lonza.com](mailto:stephane.vouche@lonza.com)

- **Naturex - SWEOAT®**

New oat betaglucan solutions with benefits on cardiovascular health (3 health claims authorized by EFSA). SWEOAT® range can also be used as a natural thickener and stabilizer. [a.dauby@naturex.com](mailto:a.dauby@naturex.com)

- **Frieslandcampina - Nutri Whey Isolate Clear (WPI with clear drinks functionality) and Nutri Whey Native.**

Nutri Whey Isolate is a pure whey protein product concentrated to a protein content of 90%. Nutri Whey Isolate is derived from cheese whey, resulting in a high quality protein. The product has exceptional clarity, a very clean taste and odour profile with good powder properties.

[natalie.meijers@frieslandcampina.com](mailto:natalie.meijers@frieslandcampina.com)



## 2. Healthy mind & body: cognitive & immune health

Hectic lifestyles combined with the rise in the number of health conscious consumers are driven the growth of both cognitive and immune health markets.

### **Mens sana**

Although longer life expectancy across the globe is creating a desire among older people to achieve improved cognitive health through diet, it is the universal appeal of cognitive health that is driving the market : students want to keep their minds sharp during exams, working professionals in stressful jobs are looking for support to maintain concentration, alertness and mental performance, senior citizens want to keep their memory and avoid cognitive decline.

Thus, hectic lifestyles combined with feelings of pressure on a daily basis are beginning to take their toll on consumers. Indeed, the number of consumers who

claim they feel tired, fatigued, stressed, and are suffering from sleep-related problems is rising. According to a GlobalData survey, 47% of consumers are concerned about tiredness/fatigue, 45 % about stress, 28% about being overworked, 26% about finding hard to concentrate or focus.

This is driving demand for products that offer an energy boost to help people through the day, and also moments of relaxation and escapism – either brief or sustained - depending on the time of day.

According to Euromonitor, the global market for food and beverage products with a cognitive health positioning was worth \$478 M in 2015!

The market for brain health supplements was valued at USD 2.3 Bn in 2015, and is expected to reach USD 11.6 Bn by 2024, expanding at a CAGR of 19.6% from 2016 to 2024<sup>5</sup>.

In Europe, the formulation of food, beverages or supplements focusing on brain health is quite easy as many health claims have been authorized by the EFSA, either on brain or psychological functions (DHA, Iodine, Iron, Water, Zinc, Carbs, B-vitamins, vitamin C, magnesium), fatigue reduction (Magnesium, iron, B-vitamins, vitamin C) or sleep enhancer (Melatonine).

### **In Corpore Sano**

According to Persistence Market Research, the global market for immune health supplements is likely to exceed a valuation of US\$ 25 Bn (from \$ 14 bn in 2017) by the end of 2025.

The market growth is driving by consumers moving from a reactive to a preventative approach of their health. Thus consumer's awareness of the link between immunity and health is growing as people consider their gut as the core of their natural defences.

Thus, according to a study conducted by Canadean, 87% of consumers are interested in purchasing foods and beverages with immune health benefits.

Among the most popular ingredients involved in immune health, probiotics are first in line, but vitamins (C, D, A, B6, B9, B12) and minerals (copper, iron, selenium, zinc) benefit from authorized health claims in Europe.

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<sup>5</sup> <https://www.prnewswire.com/news-releases/global-116-billion-brain-health-supplements-market-to-2024-300517802.html>

## Visited booths

- **Leiber** - Yestimun®, Beta-Glucan is a natural and effective high quality immune supporting ingredient made from brewers' yeast. The high quality raw material brewers' yeast is the source for our natural ingredient without additives. Due to the high purity of the beta-glucan structure, it has an excellent recognition by immune cells. This is proven by the results of several clinical studies showing a significant reduction in common cold infections during winter. Further it is proved, that Beta-Glucan has a positive effect on the mental health – especially in stress situations. [K.Niehoff@leibergmbh.de](mailto:K.Niehoff@leibergmbh.de)
- **Fonterra** - SureStart™  
It is NZMP's paediatric ingredients brand, responsible for providing dairy solutions to business customers within the pediatric space. Milk from mammals contains globules of fat. The outer layer of these globules are called milk fat globule membrane (MFGM). SureStart™ MFGM Lipids are inspired by the milkfat profile of human breast milk for use in Paediatric application. Evidence suggests that MFGM and its bio-active components such as certain proteins and complex milk lipids, including phospholipids and gangliosides may play an important role in brain development, cognition, protection and digestive health. [alice.visser@fonterra.com](mailto:alice.visser@fonterra.com)
- **Gee Lawson** - Interesting concept combination with 4 different ingredients: An interesting brand for Mental Focus (Bacognize) with the additional health benefits of Phosphatidyl serine (well-known ingredient for mood and mental focus) and the advantages of iodine and Vitamin C from a health claim point of view. In our case, the iodine we promote comes from our branded ingredient PureSea, a natural, organic seaweed, sourced and manufactured to sustainable and high quality standards in pristine Scottish waters. The Vitamin C comes from the well-known brand Ester-C, unique and patented form of Calcium Ascorbate-Threonate that offers quick absorption, 24-hour retention in the immune system, and neutral pH which makes the product gentle to the stomach. [Teresita.Ruda@lehvoss.co.uk](mailto:Teresita.Ruda@lehvoss.co.uk)
- **Excelvite** - EVNol SupraBio™  
ExcelVite is the first company in the world to extract tocotrienol from Non-GM Malaysian Palm Oil via a proprietary molecular distillation technology. The innovation we wish to highlight is the EVNol SupraBio™ which contains a novel self-emulsifying delivery system (SEDS) that guarantees tocotrienol absorption is increased by up to three times, overcoming the common low and erratic absorption issues of oil-soluble vitamins. This specially formulated EVNol SupraBio™ bioenhanced tocotrienol complex allows tocotrienols to be

absorbed and delivered to major human organs including the brain, as shown in the first tocotrienol tissue distribution study published in The Journal Of Nutrition. EVNol SupraBio™ has been and is currently used in several human clinical trials in Malaysia and the USA. Most notably, neuroprotection studies conducted in the USA are funded by the US National Institutes of Health and have been ongoing for almost 2 decades – progressing from in vitro, small and large animals and currently, on human clinical trial. [cmlai@excelvite.com](mailto:cmlai@excelvite.com)

- **Van Eeghen - VitaCholine**

It is brand of Choline salts which differentiates on quality, science and market research. It has been approved in the EU with 3 health claims. Choline complements DHA as a building block for brain cells, and support the increased utilisation of the PUFA (polyunsaturated fatty acids). Spectra™ is a new dawn in our understanding of how fruits, vegetables and herbs positively interact and influence the immune system in the human body. A mix of 29 fruit, vegetable and herbal extracts have shown to reduce free radicals in the body, boost Nitric Oxide levels and spike cellular oxygen consumption. [SnezhanaKirina@vaneeghen.com](mailto:SnezhanaKirina@vaneeghen.com)

- **Evolva - Veri-te™ resveratrol**

A powerful healthy aging ingredient Veri-te™ resveratrol. As we age, decreased blood flow to the brain, increased inflammation and other normal neurobiological changes, together with diet and lifestyle play a role in the cognitive aging process. Evolva is committed to expanding cutting-edge research to better understand the role resveratrol plays in cognitive health. [Donnaw@evolva.com](mailto:Donnaw@evolva.com)

- **Bionap - COGNIGRAPE™**

A powder extract of red grape juice from Sicilian varieties, clinically proven to support cognitive functions involved in age-related cognitive decline. COGNIGRAPE™ is a Standardized solid extract obtained from an extremely rich grape varieties in anthocyanins and proanthocyanidins. COGNIGRAPE™ supplementation has been clinically proven to:

- Support brain functions and activities after 12 weeks of supplementation;
- Improve in healthy older subjects, several cognitive skills such as attention, language, visuo-spatial/constructional abilities and immediate and delayed memory;
- Leading to an interesting benefits in the general mood status, specifically related to depression and anxiety.

[info@bionap.com](mailto:info@bionap.com)

- **CBI** - Purple corn, with a high content of anthocyanin and phenolic compounds. Furthermore we will present a rich lucuma shake with crunchy maca and cacao nibs that helps re-energise and sharpen the mind. Lucuma is filled with vitamins and minerals, including vitamin C, calcium and potassium. It serves as a natural sweetener and energizer. Cacao nibs are . Cacao nibs contain Antioxidants. Lots of Magnesium. Potassium. Maca is chock-full of vitamins, including B1, B2, C, and E. It also contains calcium, zinc, iron, and essential amino acids. [r.dekker@nutridiant.com](mailto:r.dekker@nutridiant.com)
- **Triballat** - The first Brocoli seed ingredient with Sulforaphane  
The first Brocoli seed ingredient with Sulforaphane stabilized and with clinical studies. There is immunity interest but also detox and glucose control for health nutrition. [david.trumier@triballat.com](mailto:david.trumier@triballat.com)
- **Beneo** - "Healthy breakfast options for kids to support cognitive performance and natural immune defense". [Christina.Belt@beneo.com](mailto:Christina.Belt@beneo.com)
- **Omya**  
Omya has developed holistic product concepts for an effective energy management, based on vitamins, energy boosting ingredients and multifunctional mineral carriers, supporting mental health and physical activity. Omyasprint is a fast disintegrating Orally Dispersible Tablet (ODT) based on Omyapharm and Vitamin B12. Omyapharm, a multifunctional mineral excipient, provides excellent carrier properties while ensuring high mechanical stability and fast disintegration at the same time. Vitamin B12 helps to reduce tiredness and fatigue. Omyafit is a delicious energy boost full of calcium, vitamins and energy. [katja.reichenbach@omya.com](mailto:katja.reichenbach@omya.com)
- **Glanbia** – CuroWhite™  
The CuroWhite™, an encapsulated colourless, non-staining curcuma-powder for hassle-free supplement manufacturing, that combines antioxidant benefits with greater bioavailability. [dortlepp@glanbia.com](mailto:dortlepp@glanbia.com)

### 3. Personalised nutrition

For decades, nutrition recommendations have followed a one-size-fits-all template. Same recommendations (5-a-day, whole grains, less fat, sugar and salt, ...), whatever your age, gender or physical activity.

With the decoding of the human genome we have confirmation of what we already knew, we are all unique, with specific nutritional needs.

According to EUFIC definition « Personalised nutrition is looking at the complex interaction between nutrients and genes to create tailored diets which complement a person's unique genetic profile. Not only will personalised nutrition optimise the health of the individual, but it may also work on a larger scale to help prevent society-wide diseases such as obesity, Type 2 diabetes, cardiovascular disease, cancer, and malnutrition ». Targeting specific individual needs regarding, not only its age & gender, but also its microbiota and DNA specificity is a new challenge for manufacturers.

In a study<sup>6</sup> conducted on 800 people, researchers build an algorithm based on the blood sugar, diets, microbiome devised a machine-learning algorithm that integrates blood parameters, dietary habits, anthropometrics, physical activity, and gut microbiota measured in this cohort and showed that it accurately predicts personalized postprandial glycaemic response to real-life meals. Based on this algorithm, they made a blinded randomized controlled dietary intervention, which showed significantly lower postprandial responses suggesting that personalized diets may successfully modify elevated postprandial blood glucose and its metabolic consequences.

A lot of companies such as Nutrigenomix or Qua Nutrition already offer genetic test and customized diets, others like Neurobiologix, Vitagene or Gx Sciences have launched genetic supplements to « provide the right supplement in the right amount for the right indication for the right patient at the right time »!

Recently DSM acquired 50 % of Mixfit, a start-up, which have launched an intelligent nutrition assistant which analyses individuals diet, lifestyle and health goals to create drinks containing a customized mix of DSM vitamin and mineral blend.

On the food market, the giant company Campbell Soup bet on Habit, a start-up that has developed nutritional recommendations and specific ready meals based on the results from test kit measuring more than 60 biomarkers.

Personalized nutrition is still in its infancy, as consumers are looking more and more for ageing (and even dying!) in good health, let's bet that the future looks bright for personalized nutrition.

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<sup>6</sup> <https://www.ncbi.nlm.nih.gov/pubmed/26590418>

## Personalising for the individual



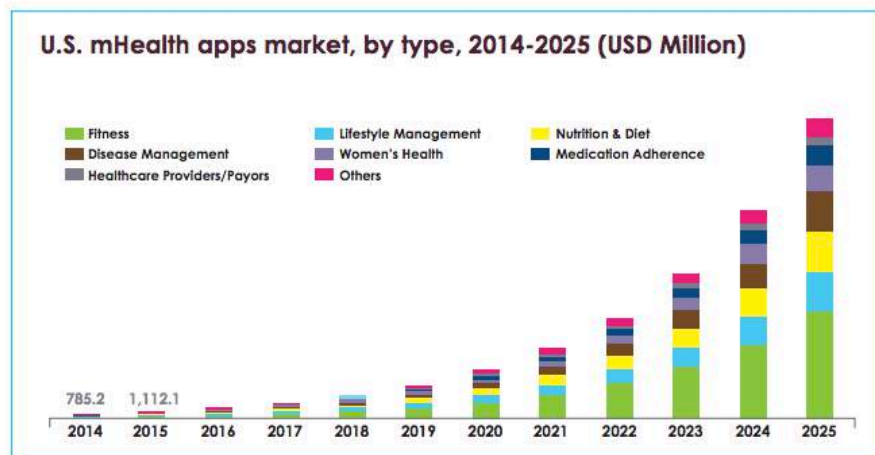
Research into nutrigenomics and the gut microbiome is growing. Studies have shown that people respond to differently to different nutrients depending on their genes and metabolism

This has led to an **increase in startups providing tailored nutrition based on genes, microbiome, blood type** etc.

Device driven	Diagnosis driven	Supplements driven

Source: Mintel Nutrition Insights: Personalized Nutrition, January 2017

There is growing **consumer interest** in using technology to develop **tailored nutrition plans**, and this is set to continue



Source: Grand View Research market report – mHealth App Market By Type And Segment Forecasts, 2018-2025

## Visited booths

- **Fonterra** - SureProtein™ Fast MPC

A new protein that targets active lifestyle and sports customers. SureProtein™ Fast MPC 4868 is NZMP's latest milk protein concentrate innovation. The ingredient "significantly increases the rate of amino acid digestion and absorption after consumption." It is said to be an "optimal source of rapidly digestible milk proteins, providing muscles with a higher level of amino acids within the first two hours of consumption compared to standard milk protein offerings. [alice.visser@fonterra.com](mailto:alice.visser@fonterra.com)



- **Arla** -  
 We will promote a whey protein soda that's 100% whey based and crystal clear. High in protein, sugar free and fat free targeted beverage manufacturers. We will also promote a innovative solution within yogurt: A super skyr solution that goes all time high in protein however with a very smooth texture (27 g protein in a 150 g serving) Finally, a new protein bar ingredient reducing hardness (60%) and improving chewiness (45%).  
[lanib@arlafoods.com](mailto:lanib@arlafoods.com)
- **Hempro** – Hemp protein powder 70  
 Protein powder with a protein content of 70%, a purely vegetable high-quality protein source made from hemp. Organic, free from allergens and gluten it suits the growing number of people who watch out for a healthy and conscious lifestyle and nutrition or who suffer from allergies or food intolerances. The high content of 70% of hemp protein as well as a variety of valuable substances such as Omega 6 and Omega 3 in a perfect ratio of 3:1, all eight essential amino acids, iron and other micronutrients make it a perfect addition to healthy nutrition especially for sportsmen. 100% plant-based it is also suitable for vegans and vegetarians. [k.weigang@hempro.com](mailto:k.weigang@hempro.com)
- **Quantum Hi Tech - HMO**  
 HMO component and content are various and are closely associated with the mother's genes, ethnic, territory, life style and the living environment. As a HMO researcher, QHT realizes that in HMO formula products, the content of each component in HMO should to be adjusted according to the needs of the baby. In another word, HMO formula product should be personalized depends on each infant's need to achieve the most ideal effect. [yptan@qht.cc](mailto:yptan@qht.cc)
- **Fazer Mill** -  
 Fazer has developed a unique enzyme-based solution, that provides a low-FODMAP feature for wheat and rye baking. Fazer Research has discovered fructanase, an enzyme with unique features, and developed it into Fazer LOFO™ improver. This innovation breaks down the fructan into more easily digestible units during the baking process. Fazer LOFO™ has proven to decrease the fructan content of bread by more than 50 % compared to reference products. [lassi.katavisto@fazer.com](mailto:lassi.katavisto@fazer.com)
- **Biofortis Mérieux Nutrisciences** is involved in the 3-years Public-Private 'Phenflex2' Partnership. The aim is to substantiate healthy dieting for improved phenotypic flexibility. The partners in this consortium are TNO, Pfizer Consumer Healthcare, BASF, BY-HEALTH, Biofortis Mérieux NutriSciences, CIRO+ and ILSI Europe. In complement to the products

developments, an increasing number of companies develop connected services to guide the consumer in personalized nutrition. The market is booming with self-monitoring devices, applications (e.g. calorie counter) or specific accompaniments. Some of them propose nutritional and wellness recommendations. It especially suits people with food intolerances or sensitivities who are anxious about the health repercussions. Gluten sensor from 'Nima Company' is an example of digital innovation for food tracking and eating. In addition, several companies offer individual based genomic analysis, trying to match with responders status, for nutritional counseling, such as 'Habit', 'Geneplanet', '23&Me' with DNAfit. 'Nutrigenomics' referred to the study of the effects of nutrients on the expression of an individual's genetic makeup. Actigenomic SA and Metagenics are pioneering companies that commercialize Active Nutrigenomic Ingredients and Functional Food to help patients achieve their health and wellness goals.

Furthermore, companies providing 'personalized nutrition based on microbiome analysis' are also emerging such as 'Day Two' and 'UBiome'. They provide microbiome analysis towards digital personalized nutrition (unauthorized in France).

That is an evidence that personalized nutrition is a growing need from consumers, who are more and more seduced by 'natural' solutions for a better health and wellness. The microbiome is definitively a new health parameter to take into account. Still, a lot of research and clinical studies are needed to elucidate the impact of genetic, genomic, microbiome, environmental factors, life habits on health statements in order to provide 'comprehensive and solid solutions'.

Biofortis use to include these assessments, intra-individual ones, as well as environmental ones within the clinical trials conducted for pharma, biotech, foodtechs, agro-food companies. The microbiome monitoring is actually a part of more than 50% of the launched research projects.

[stephane.deniau@mxns.com](mailto:stephane.deniau@mxns.com)

- **Ingredia** – New concepts

In 2050, 22% of the global population will be over 60. Elderly people want to enjoy a healthy ageing, preserving their health through their diet. Ingredia has developed 3 new concepts dedicated to these health conscious consumers.

- Dairy snack with 13.5% proteins that could be eaten by hand
- High protein yogurt with 6% proteins and calcium
- High protein beverage with 12% protein that avoid hunger during night

- **Good Mills** - 2ab Wheat and Tartary Buckwheat  
Both the selenium-rich 2ab Wheat and the Tartary Buckwheat containing rutin and zinc are ideal for product concepts in the field of intestinal health. Trade visitors can also find out about a prebiotic wholemeal concentrate of finely ground bran in advance of its market launch. [ccc@goodmillsinnovation.com](mailto:ccc@goodmillsinnovation.com)

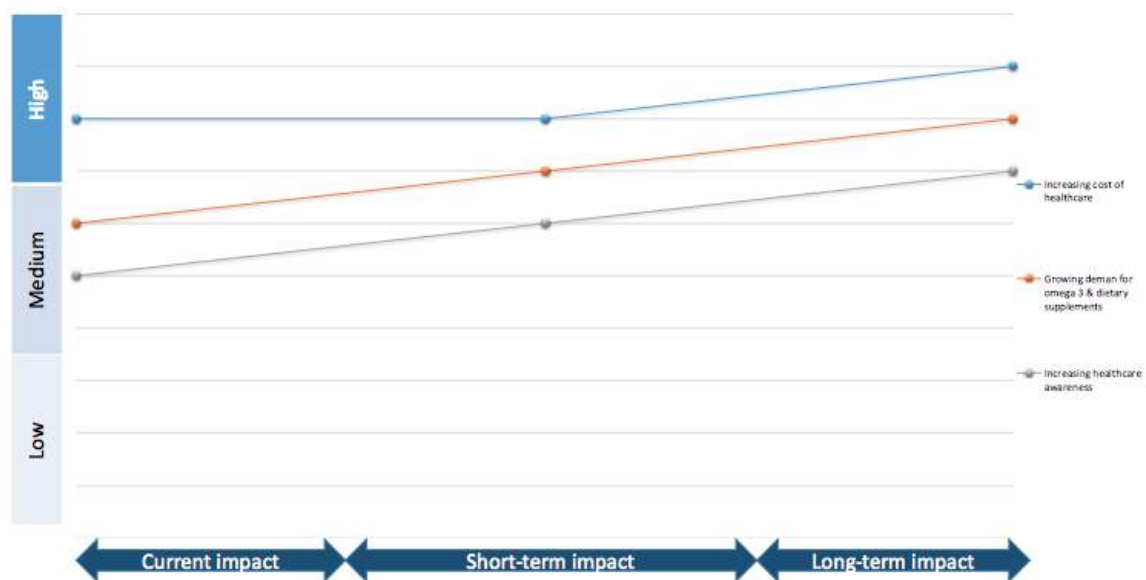


## Nutraceutical market

The Nutraceuticals Market report by Grand View Research covers sector trends, regulations, drivers and estimated growth and challenges of the nutraceuticals market. Establishing a broad market overview over the forecast period of 2017 to 2025, the report delves further into three key products in the nutraceutical market; dietary supplements, functional beverage, and functional food.

### Key Trends

Key trends in the market are largely informed by changing consumer wants and concerns. Increasing concerns of lifestyle related diseases including diabetes and obesity have led consumers to use nutraceuticals as a means of reducing the likelihood of illness. With rises in healthcare costs, nutraceuticals provide a more cost-effective alternative to pharmaceuticals and imbue the consumer with a better sense of self-health with less risk of adverse side-effects.



Market driver relevance analysis (Current & future impact)

Source: Hoovers, Factiva, ICIS, Nutraceuticals World, Food Navigator, Journal of Functional Foods, Company Annual Reports, Company websites, Grand View Research

Changing lifestyle habits including the rise of on-the-move eating and snacking are also relevant factors in the nutraceutical market. Snacking and convenient nutraceutical products align with consumers' changing lifestyles while adding to more personalised nutrition, a global trend in which nutraceuticals are expected to play a pivotal role. Although younger consumers are more likely to try new things and shift lifestyle habits, the increasing aging population is also open to personalised nutrition. The report highlights that education and clear messaging to target populations about various health concerns will have a positive impact on the demand of nutraceuticals.

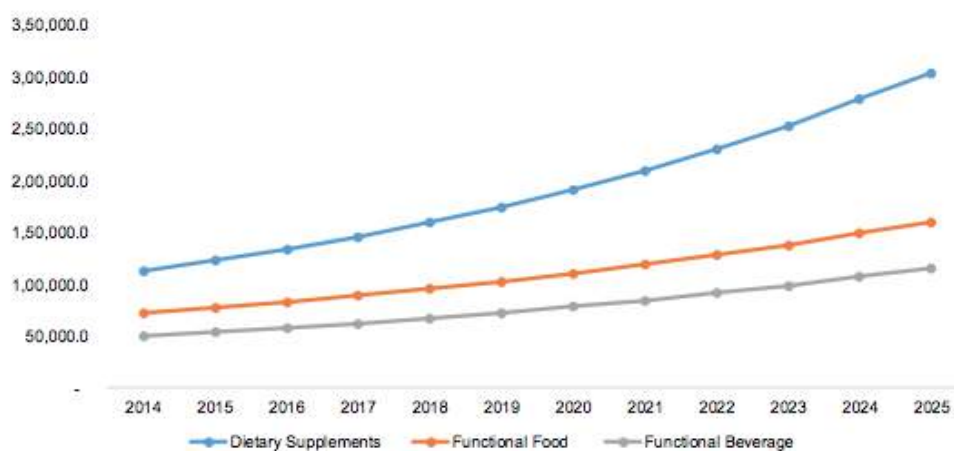
## Challenges

Although the USA, UK and Europe have dominated the healthcare sector over the past decade, there is increasing competition from China, India and Brazil. As these regions are abundant in natural materials used to manufacture nutraceuticals, they have emerged as the key raw material suppliers to the industry. However, bargaining power from suppliers has been forecast as low over the eight year period covered in the report. This availability of raw materials is also an incentive for new entrants to the market. However, the threat that new entrants present is medium as they do not have the capital or resources to invest in technology and research and development, which key established players are investing heavily in.

While supplier bargaining power and new entrants might not present a considerable threat for the forecast period, there are other challenges emerging in the nutraceutical market. Industry rivalry is expected to be high in the next eight years as a high penetration of established market players in the Asia Pacific region is expected. Established nutraceutical manufacturers also have to compete with cheaper herbal alternatives which are proliferating the market due to the introduction of new ingredients.

## European Projections

Looking to Europe specifically, population growth, urbanization and digitalization have all been major factors driving an unhealthy consumer lifestyle and dietary patterns, threatening the European population with uncontrollable obesity levels. These developments are expected to drive the nutraceuticals market in the European region. In 2016 Germany accounted for a share of 23.9% in the European nutraceuticals market and is expected to grow at a CAGR of 7.8%. However, rising manufacturing cost with increasing utility expenditure is expected to remain a concerning factor for dietary supplements market players over the next eight years.



Source: Hoovers, Factiva, ICIS, Nutraceuticals World, Food Navigator, Journal of Functional Foods, Company Annual Reports, Company websites, Grand View Research

## Dietary Supplement Market

In 2016 the European nutraceutical market was valued at USD 44,341.7 million and it is estimated to reach a value of USD 83,757.9 million by 2025, growing at a CAGR of 7.3%. Germany and the UK are anticipated to drive the market over the forecast period due to increasing market size for functional foods.

The Nutraceuticals Market report provides an overview on key dietary supplements including vitamins, botanicals, minerals, amino acids, enzymes, as well as other emerging supplements such as omega 3 fatty acids and probiotic ingredients.

### Vitamins to Minerals

Growing health awareness, interest in a more healthy lifestyle, and increased demand for health and wellbeing products are predicted to boost the demand for dietary supplements in the market. Vitamins are the most common supplement consumed by the adults and children globally and account for 46.8% of the total dietary supplements market.

**TABLE 27 Europe dietary supplements market revenue, 2014 – 2025 (USD Million)**

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	CAGR (2017 - 2025)
<b>Botanicals</b>	1,732.5	1,885.1	2,052.4	2,236.0	2,437.6	2,659.1	2,901.3	3,166.1	3,457.6	3,778.4	4,131.8	4,494.6	9.1%
<b>Vitamins</b>	4,744.0	5,083.7	5,452.8	5,854.2	6,290.9	6,766.6	7,281.5	7,839.2	8,447.4	9,111.3	9,836.5	10,566.9	7.7%
<b>Minerals</b>	2,091.4	2,218.9	2,356.3	2,504.4	2,664.2	2,836.7	3,021.7	3,220.1	3,434.5	3,666.4	3,917.5	4,165.7	6.6%
<b>Amino acids</b>	1,835.9	1,923.1	2,015.5	2,113.4	2,217.2	2,327.1	2,442.3	2,563.2	2,691.1	2,826.5	2,969.6	3,103.4	4.9%
<b>Enzymes</b>	519.7	544.9	573.7	604.4	637.2	672.3	709.5	748.8	790.9	835.8	883.8	930.0	5.5%
<b>Others</b>	2,527.1	2,696.0	2,876.9	3,072.8	3,285.1	3,515.2	3,763.7	4,031.9	4,323.4	4,640.2	4,984.9	5,334.2	7.1%
<b>Total</b>	<b>13,450.5</b>	<b>14,351.7</b>	<b>15,327.6</b>	<b>16,385.2</b>	<b>17,532.2</b>	<b>18,777.0</b>	<b>20,119.9</b>	<b>21,569.4</b>	<b>23,144.9</b>	<b>24,858.6</b>	<b>26,724.2</b>	<b>28,594.8</b>	<b>7.2%</b>

Source: Hoovers, Factiva, ICIS, Nutraceuticals World, Food Navigator, Journal of Functional Foods, Company Annual Reports, Company websites, Grand View Research

Although vitamins are the most common supplement on the market, various other products are set to see increased growth and more varied opportunities. Botanicals and herbs appeal to health-conscious consumers as they are considered to be natural and healthier than conventional drugs. Technical advancements and introduction of innovative products in the herbal industry is expected to boost the botanicals market, with an estimated growth at a CAGR 9.8% from 2017 to 2025. As consumer demand for supplements comprised of natural and plant-based materials increases, amino acids are also expected to see a surge, growing at a CAGR 9.4% in terms of revenue from 2017 to 2025. The positive effects of amino acids such as the prevention of adverse effects due to overtraining and the prevention of mental fatigue, are in line with the growing trend of a healthy, active lifestyle. Although growth is forecast, there will also be a reduction in raw material supply among amino acids suppliers over the next eight years.

## Trends and Predictions

The current and projected rise in population and disposable income, alongside expansion in the size of retail markets, have also contributed to the expansion of the dietary supplement market. The minerals market is projected to grow at a CAGR 9.3% from 2017 to 2025, with a concentration of the market expected to be actively engaged in sports and fitness. The enzyme-based supplement market is also set to increase from USD 2,798.7 million in 2016 to approximately USD 5,099.2 million in 2025.

Dietary supplements accounted for the major market share of 30.1% in 2016 and is expected to grow at a CAGR of 6.4% in terms of revenue from 2017 to 2025.

## Focus on Germany

In 2016 Germany accounted for a share of 23.9% in the Europe nutraceuticals market and is expected to grow at a CAGR of 7.8%. However, there are challenges predicted as rising manufacturing cost with increasing utility expenditure will remain a concerning factor for dietary supplement market players over the next eight years.

**TABLE 31 Germany dietary supplements market revenue, 2014 – 2025 (USD Million)**

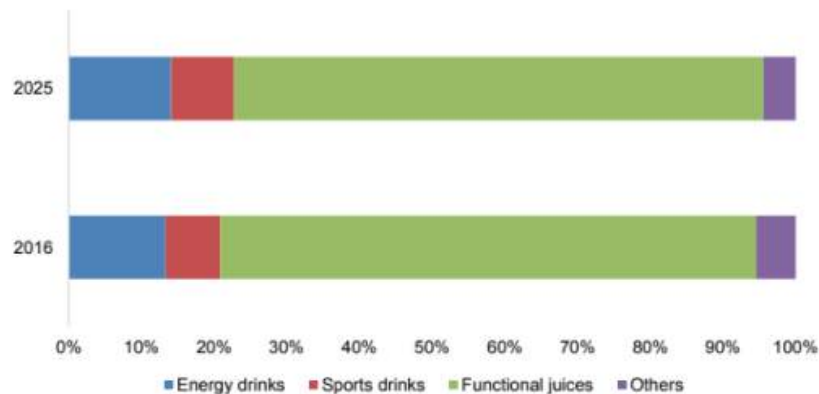
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	CAGR (2017 - 2025)
<b>Botanicals</b>	332.4	353.4	376.1	400.5	426.9	455.5	486.1	519.0	554.6	593.2	634.9	676.7	6.8%
<b>Vitamins</b>	967.8	1,026.3	1,089.2	1,157.1	1,230.2	1,309.0	1,393.5	1,484.1	1,581.8	1,687.5	1,801.8	1,916.2	6.5%
<b>Minerals</b>	410.4	433.1	457.6	483.8	512.0	542.3	574.6	609.0	646.1	686.1	729.1	772.1	6.0%
<b>Amino acids</b>	359.4	379.7	401.5	425.0	450.2	477.4	506.3	537.3	570.6	606.5	645.2	684.0	6.1%
<b>Enzymes</b>	91.0	95.6	100.4	105.5	111.0	116.9	123.1	129.8	136.8	144.4	152.5	160.6	5.4%
<b>Others</b>	508.9	539.2	571.7	606.8	644.6	685.4	729.4	776.9	828.3	884.0	944.3	1,009.6	6.6%
<b>Total</b>	<b>2,669.9</b>	<b>2,827.3</b>	<b>2,996.5</b>	<b>3,178.7</b>	<b>3,374.9</b>	<b>3,586.4</b>	<b>3,813.0</b>	<b>4,056.0</b>	<b>4,318.3</b>	<b>4,601.7</b>	<b>4,907.9</b>	<b>5,219.2</b>	<b>6.4%</b>

Source: Hoovers, Factiva, ICIS, Nutraceuticals World, Food Navigator, Journal of Functional Foods, Company Annual Reports, Company websites, Grand View Research

## Functional Beverage Market

Major functional beverages used in nutraceuticals are energy drinks, sports drinks, functional juices, and others including enhanced water. The major products in the market are energy drinks and functional juices, with the latter accounting for the largest share in the functional beverages in nutraceuticals with a share of 73.7% in 2016.

*Functional Beverage Movement Analysis, 2016 & 2025 (USD Million)*



Source: Hoovers, Factiva, ICIS, Nutraceuticals World, Food Navigator, Journal of Functional Foods, Company Annual Reports, Company websites, Grand View Research

Consumers are increasingly interested in the natural and intrinsic benefits of functional beverages. As consumers become more health-conscious and pursue a healthy and active lifestyle, they are seeking healthier alternatives to carbonated drinks and functional beverages that provide benefits following exercise. These factors are estimated to drive the market over the forecast period.

The millennial generation are particularly engaged in this changing lifestyle. With an interest in sports and a willingness to cut down on ingredients including sugar, this audience provides many opportunities for the functional beverage industry. Across all segments of the functional beverage market, innovative flavours and targeted marketing campaigns with a focus on this audience segment are key.

This growing consumer base coupled with convenience is fueling the demand for functional beverages with growth across Europe expected, with functional juices remaining the key product.



## Europe functional beverage market revenue, 2014 – 2025 (USD Million)

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	CAGR (2017 – 25)
Energy drinks	1,060.8	1,154.8	1,257.0	1,388.0	1,488.6	1,621.1	1,765.2	1,923.7	2,098.0	2,287.9	2,485.0	2,706.9	8.9%
Sports drinks	401.9	446.0	494.4	547.7	606.1	670.9	742.1	820.9	908.4	1,004.6	1,110.3	1,220.4	10.5%
Functional juices	8,394.3	9,037.2	9,728.7	10,472.2	11,272.2	12,144.1	13,082.9	14,106.6	15,224.3	16,429.7	17,731.4	19,040.8	7.8%
Others	496.2	523.4	551.9	581.4	612.3	645.1	679.2	715.5	753.9	793.9	835.6	874.5	5.2%
<b>Total</b>	<b>10,353.2</b>	<b>11,161.3</b>	<b>12,031.9</b>	<b>12,969.3</b>	<b>13,979.2</b>	<b>15,061.2</b>	<b>16,269.4</b>	<b>17,566.8</b>	<b>18,984.6</b>	<b>20,516.1</b>	<b>22,172.3</b>	<b>23,842.7</b>	<b>7.9%</b>

Source: Hoovers, Factiva, ICIS, Nutraceuticals World, Food Navigator, Journal of Functional Foods, Company Annual Reports, Company websites, Grand View Research

### Energy Drinks

Energy drinks are expected to experience growth in the forecast period. In recent years consumers have favoured non-carbonated drinks, and have been switching to energy drinks. With diabetes rising and the encroaching obesity pandemic in Europe, consumers are consciously cutting down on sugar-added drinks which presents a massive opportunity for industry players to pursue sugar-free energy drinks.

In regions such as Asia Pacific, rising disposable income, demand for convenient beverages, and increased sports activity are the major reasons behind the growing consumption of energy drinks. Innovative and creative marketing and branding will be key to engaging with relevant audiences.

### Sports Drinks

The sports drink market is anticipated to expand at a CAGR of 9.7%. The driving factor for this increase is the ability of sports drinks to replenish fluids lost while sweating, and restoring electrolytes that are depleted during vigorous exercise. As consumers are seeking a healthier, more active lifestyle, the sports drinks market is in a unique position to engage with this audience. Factors including sugar reduction and innovative flavours are important to pursue, alongside the clear promotion of the benefits of sports drinks during and after exercise.

### Functional Juices

Functional juices are the largest market for functional beverages in nutraceuticals, accounting for a share of 73.7% in 2016. Functional juices are dominating the market due to their associations with weight loss, stress management, and alleviating fatigue.

This market is expected to surge due to the popularity of consuming functional juices for breakfast and as a convenient meal replacement on the go. As consumers

increasingly value low sugar options and fresh ingredients, organic and 100% functional juices will become more important.

The functional juices market was valued USD 41,969.6 in 2016 and is expected to expand at a significant CAGR of 8.0% to valued USD 83,717.0 in 2025.

### Other Functional Beverages

In the Nutraceutical Report, dairy-based drinks, enhanced water, and ready-to-drink (RTD) tea and coffee are all categorised under 'other' beverages. Improving health awareness coupled with rising disposable income is expected to boost demand for all of these products.

As on-the-go beverages grow in popularity, these beverages are expected to experience a boost in demand. In order to cater for more health-aware consumers, manufacturers have started formulating RTD drinks with nutraceutical ingredients to enhance their nutritive value.

### Focus on Germany

Germany accounted for a share of 23.9% in the European nutraceuticals market in 2016 and is expected to grow at a CAGR of 7.8%. Functional beverages are expected to show a positive growth over the forecast period, with functional juices predicted to still account for the major market share with CAGR of 8.1% in terms of revenue from 2017 to 2025.

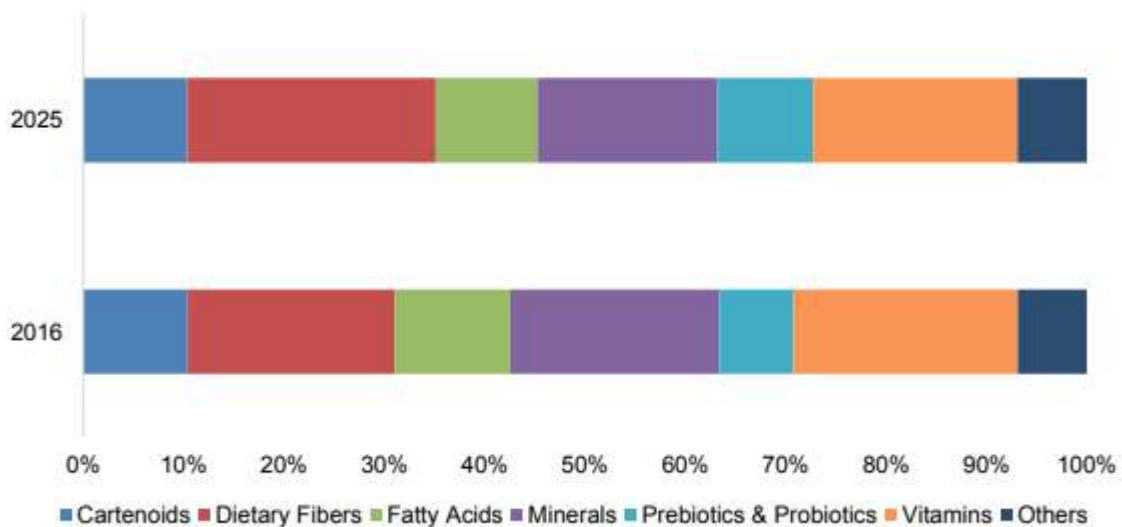
Germany functional beverages market revenue, 2014 – 2025 (USD Million)

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	CAGR (2017 - 2025)
Energy drinks	255.3	278.6	303.9	331.8	362.2	395.7	432.2	472.5	517.0	565.5	618.6	673.3	9.2%
Sports drinks	92.5	102.6	113.7	126.1	139.7	154.9	171.6	190.1	210.7	233.5	258.6	284.8	10.7%
Functional juices	2,029.1	2,189.2	2,361.8	2,550.3	2,753.6	2,975.8	3,215.8	3,478.1	3,765.1	4,075.7	4,412.0	4,782.2	8.1%
Others	64.0	67.5	71.3	75.2	79.4	83.8	88.3	93.1	98.2	103.5	109.0	114.2	5.4%
<b>Total</b>	<b>2,440.9</b>	<b>2,637.9</b>	<b>2,850.7</b>	<b>3,083.4</b>	<b>3,334.9</b>	<b>3,610.1</b>	<b>3,907.8</b>	<b>4,233.8</b>	<b>4,591.1</b>	<b>4,978.2</b>	<b>5,388.2</b>	<b>5,824.4</b>	<b>8.3%</b>

## Functional Food market

Changing lifestyle is the key driving factor in the functional food market. There is an increasing interest in health and fitness among consumers, and there is a greater awareness of prevention of illness. These developments have created a demand for nutritional and healthy food products. Rapid advancements in science and technology have contributed to the continued development of functional foods. Key industry participants have invested further in functional foods so that they can offer a broader range and improved products. The advancement of products in the market and wider choice to consumers are forecast to drive demand for functional food between 2017 and 2025.

Function Food Movement Analysis, 2016 and 2025 (USD Million)



Source: Hoovers, Factiva, ICIS, Nutraceuticals World, Food Navigator, Journal of Functional Foods, Company Annual Reports, Company websites, Grand View Research

While changing lifestyle has created a need for more health-conscious products, it has also altered how people are consuming food. Eating out of the home has increased which has created a demand for packaged food and beverages. This is a consideration for players in the functional food market as it adds further convenience to products.

**TABLE 28 Europe functional foods market revenue, 2014 – 2025 (USD Million)**

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	CAGR (2017 - 2025)
<b>Carotenoids</b>	1,654.4	1,773.6	1,901.3	2,041.3	2,191.5	2,354.9	2,530.2	2,720.9	2,928.6	3,151.9	3,392.4	3,632.9	7.5%
<b>Dietary Fibers</b>	2,401.8	2,602.4	2,819.3	3,058.6	3,317.7	3,601.6	3,910.2	4,247.2	4,615.3	5,015.9	5,452.0	5,915.3	8.6%
<b>Fatty Acids</b>	2,120.6	2,240.2	2,364.2	2,498.5	2,639.8	2,791.2	2,950.6	3,121.3	3,304.2	3,496.9	3,700.4	3,895.3	6.7%
<b>Minerals</b>	3,043.7	3,203.2	3,370.2	3,550.8	3,740.0	3,941.9	4,153.6	4,379.4	4,620.4	4,873.2	5,138.7	5,390.0	5.4%
<b>Prebiotics &amp; Probiotics</b>	1,157.0	1,270.3	1,393.6	1,530.4	1,679.4	1,843.5	2,022.4	2,219.3	2,436.4	2,673.3	2,932.0	3,198.1	9.7%
<b>Vitamins</b>	3,480.3	3,693.7	3,919.9	4,166.2	4,427.7	4,709.6	5,008.9	5,331.8	5,680.3	6,051.0	6,445.9	6,831.9	6.4%
<b>Others</b>	1,041.6	1,123.5	1,213.7	1,313.1	1,420.5	1,537.8	1,664.5	1,803.2	1,954.9	2,119.1	2,297.1	2,477.3	8.3%
<b>Total</b>	<b>14,899.5</b>	<b>15,907.0</b>	<b>16,982.2</b>	<b>18,158.9</b>	<b>19,416.7</b>	<b>20,780.4</b>	<b>22,240.5</b>	<b>23,823.3</b>	<b>25,540.2</b>	<b>27,381.3</b>	<b>29,358.3</b>	<b>31,340.8</b>	<b>7.1%</b>

Source: Hoovers, Factiva, ICIS, Nutraceuticals World, Food Navigator, Journal of Functional Foods, Company Annual Reports, Company websites, Grand View Research

### Carotenoids

Foods rich in carotenoids decrease the possibility of diseases such as cardiovascular diseases, cancer, cataracts, age related macular degeneration, and other degenerative diseases. Advancements in food technology and a growing awareness among consumers of the benefits of carotenoids, particularly among the aging population, have contributed to a significant predicted growth in this market which is estimated to grow at CAGR 7.6% from 2017 to 2025.

### Dietary Fibres

The dietary fibers market is estimated to grow from USD 16,980.2 million in 2016 to USD 39,544.3 million in 2025. Including a wide range of natural minerals, dietary fibres are known for helping to maintain a healthy weight and lowering risk of diabetes and heart disease. There has been an increase in research and development of fibres from major players such as Cargill Incorporated, Archer Daniels Midland Company, Ingredion Incorporated, and DuPont.

### Fatty Acids

Awareness of the benefits of essential fatty acids in the human body, including disease prevention, has increased in recent years. The key fatty acids that are consumed are Omega-3 and Omega-6, the former of which are helpful in lowering various health risks such as strokes, heart disease, diabetes, depression, and rheumatoid arthritis. The fatty acids market is projected to grow at a CAGR 6.1% from 2017 to 2025.

### Minerals

Minerals are inorganic compounds needed in small amounts for the regulation of the body processes, usually found in various dairy products and green vegetables including spinach and broccoli. Divided into two categories, macro and trace, key

minerals required for the human body include sodium, chloride, potassium, calcium, phosphorus, sulfur, and iron. The mineral market is also expected to see growth at an estimated CAGR 5.9% from 2017 to 2025.

### **Prebiotic and Probiotic**

Prebiotics help immune enhancement, and also reduce the risk of cancer, diarrhea, obesity, and osteoporosis. This functional food is widely used to prepare fermented dairy products and is found in fruit and vegetables. The growing consumption of prebiotics in dairy products, owing to high monetary gains, is expected to augment the market over the forecast period. Prebiotics and probiotic based functional food was valued USD 6,102.1 million in 2016 and is expected to reach USD 15,285.9 million in 2025. Although significant growth is forecast, rigid regulations for registration and labeling of ingredients, along with high cost involved in the research and development of this ingredient, is estimated to restrain the market.

### **Vitamins**

The vitamins segment of the functional foods market accounted for the major market share of 23% in 2016 and is projected to grow at a CAGR of 6.4% in terms of revenue over the forecast period. Changes in food laws, aging population, increasing healthcare costs, improving science and technology, and rising interests of people attaining wellness through diet are estimated to propel the market over the forecast period, with projections for this segment to grow from USD 18,381.4 million in 2016 to USD 32,454.9 million in 2025.

### **Focus on Germany**

The report suggests that there are two functional food ingredients in particular that are expected to grow at a rapid rate in Germany; dietary fibers and prebiotics. Awareness regarding fiber intake to combat increasing stroke levels, obesity, diverticulitis, and irritable bowel syndrome has increased. Prebiotics are progressively being included in regular consumer diets to increase immunity and digestion while promoting other bodily benefits.

**TABLE 32 Germany functional foods market revenue, 2014 – 2025 (USD Million)**

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	CAGR (2017 - 2025)
<b>Carotenoids</b>	396.1	425.7	457.4	491.9	529.0	569.3	612.8	660.1	711.7	767.4	827.4	887.7	7.7%
<b>Dietary Fibers</b>	585.3	641.3	702.4	769.6	843.0	923.7	1,011.8	1,108.9	1,215.9	1,332.8	1,460.5	1,591.9	9.5%
<b>Fatty Acids</b>	507.0	536.5	565.6	596.6	629.1	663.7	700.0	738.7	779.9	823.0	868.3	911.0	5.4%
<b>Minerals</b>	721.2	762.7	806.5	853.4	902.8	955.6	1,011.3	1,070.9	1,134.8	1,202.2	1,273.2	1,341.4	5.8%
<b>Prebiotics &amp; Probiotics</b>	268.2	297.1	328.7	363.7	402.1	444.5	491.1	542.5	599.5	661.9	730.5	801.6	10.4%
<b>Vitamins</b>	830.4	882.2	937.2	996.4	1,059.1	1,126.7	1,198.5	1,275.8	1,359.2	1,447.8	1,542.1	1,634.2	6.4%
<b>Others</b>	240.9	261.5	285.9	312.6	341.8	373.9	408.9	447.4	489.8	536.1	586.6	638.5	9.3%
<b>Total</b>	<b>3,549.0</b>	<b>3,807.0</b>	<b>4,083.7</b>	<b>4,384.3</b>	<b>4,706.8</b>	<b>5,057.6</b>	<b>5,434.4</b>	<b>5,844.3</b>	<b>6,290.8</b>	<b>6,771.2</b>	<b>7,288.6</b>	<b>7,806.4</b>	<b>7.5%</b>

Source: Hoovers, Factiva, ICIS, Nutraceuticals World, Food Navigator, Journal of Functional Foods, Company Annual Reports, Company websites, Grand View Research

## Trends

### Gut Health

Gut health is becoming increasingly important to health-conscious consumers. According to Julian Mellentin, Director of New Nutrition Business, 'consumers' quest for digestive wellness remains a big driver of new opportunities for businesses large and small'[i]. The focus on gut health has had a positive impact on the global probiotics market, however due to strict regulations on the communication of health claims in Europe, the probiotics sector still faces an uphill struggle in achieving success in this market. According to Euromonitor data, probiotic yoghurts and fermented milk have lost more than € 1 billion in projected sales during the period 2009-2017.[ii] It is unlikely to change much in 2018, however there are a number of lobby groups working to change the tough approach to probiotic claims.

In the meantime, continued research into the microbiome has highlighted the massive impact a healthy gut can have on contributing to a person's overall health, including cognitive and immune health. As a result, there is the potential for the F&B industry to develop EFSA approved products with proven health claims. The research in this area has resulted in the development of a number of personalized nutrition tools where consumers can analyse their own microbiome and create a personalized diet based on the results.

Fermented foods also remain a popular way for consumers to support digestive health. Kerry Health & Nutrition Institute have identified fermented foods as being 'highly sought by consumers in 2018 because of their powerful health benefits from boosting gut health to blunting inflammation.'[iii]As a result, fermented foods such as kefir, kombucha and sauerkraut and tofu top the list of superfoods of many consumers as well as dietitians[iv].

#### **Lesaffre Human Care** - LifeinU BSCU1

The most stable probiotic for immune support.

#### **Goodmills** – White Gold®

The ultra finely ground whole grain White Gold® is a concentrate consisting of micronised wheat bran. While the microbiome often excretes conventional wholemeal flour undigested due to its coarse particle structure, this ultra-fine pulverisation makes the so-called "High MAC bran" highly bioavailable. In bakery products, White Gold® also adds a light colour and slightly sweet taste. GoodMills Innovation will launch this novel whole grain ingredient in early 2019. White Gold®

is perfect for use in prebiotic baked goods, as well as biscuits, cakes or high MAC shakes.

**Goodmills** - Ancient grain bakery products with metabolic power

With 2ab Wheat, the innovation division of Europe's largest milling group has an ancient grain in its portfolio which is more tolerable than modern wheat for many consumers because it contains less FODMAP<sup>7</sup> and no difficult-to-digest D-gluten. As an extension of the 2ab concept the product developers created a recipe for an ancient grain bread with metabolic power, based on 2ab Wheat flour and crispies from Tartary Buckwheat. It can be used to bake a bread that supports carbohydrate, fat and protein metabolism, and is also suitable for "sensitive eaters".

Under the name Rutin X the Hamburg grain company offers flour and the mentioned crispies from fermented Tartary Buckwheat. Compared to common buckwheat, it contains a hundred times more rutin, an active ingredient of traditional Chinese medicine, and is now recognised in Europe for its antioxidant and anti-inflammatory qualities. It also contains the trace element zinc, which helps regulate carbohydrate metabolism.

Product developers at GoodMills Innovation succeeded in removing the strong bitter taste of rutin in this prehistoric buckwheat variety thanks to a patented fermentation process that does not diminish the ingredient's nutritional benefits. RUTIN X is suitable for bread and roll recipes; other possible applications, such as long-life bakery products, are currently being tested.

**Carbery** – Bifipro™

The new fermented dairy ingredient delivers a unique combination of high quality whey protein with prebiotic promoting properties.

Made with milk from grass fed Irish cows, Bifipro™ taps into consumer's growing interest in high quality protein alongside the health benefits associated with enhancing a more positive gut microbiome.

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<sup>7</sup>FODMAP is the abbreviation for "fermentable oligo-, di- and monosaccharides and polyols", a group of carbohydrates that can cause gastrointestinal problems in sensitive digestive systems.



## Clean, Natural and Transparent

Clean label as a standalone trend was not so visible in many of the trend reports this year, suggesting that Innova Market Insights' claim that it is now a rule rather than a trend is truer than ever. This does not make it any less important for ingredients and finished product manufacturers to consider, as the demand for clean label products continues to grow.

Data from Mintel shows a 4% increase of new product launches which hold a 'clean label' claim (such as 'no additives/ preservatives', 'all natural' or 'GMO Free') in 2017 compared to 2016.

However, according to innovation specialist, Sophia Nadur, there is a disconnect between what consumers are looking for and what is actually available when it comes to clean label. This is one of the biggest challenges for the industry: understanding exactly how consumers define 'clean label' and developing products accordingly. Another challenge from a technical perspective, is reformulating products to meet this trend whilst still maintaining good taste and long shelf life.

More specific claims for natural products Whilst there is still no official definition for 'natural', consumer demand for natural products is still high. According to Mintel research, in a 2016 study 50% of US consumers say that natural is the most important claim for them when shopping for food. In a 2017 study, 72% of Spanish consumers prefer the health-promoting benefits of natural foods (e.g. fruit and vegetables) over the added benefits of functional foods. After expiration dates, natural or organic designations are one of the most important front-of-pack claims for US shoppers. This is particularly true among Millennials. That being said, 'all natural' claims are declining, showing that consumers are looking for more specific claims such as 'no additives/ preservatives'<sup>8</sup>. These claims will continue shaping new product development.

Trust and transparency is now the focus Linked to the increased demand for clean label, is the need for transparency from the F&B industry. This is required across the whole value chain. According to Mintel, widespread distrust has increased the need for food and drink manufacturers to be forthcoming about their ingredients, production processes, and supply chains. For F&B companies now, simply listing 'clean' ingredients is no longer enough to convince consumers of clean label credentials. Ingredients lists need to be clearly visible, along with information about the origins of the content.

The reasons for greater transparency are twofold. Following numerous food safety scandals in recent years (most recently, the egg scandal that hit the Netherlands last summer) consumers are becoming warier of the quality of the food they are consuming. Transparency from farm to fork is the clearest way of regaining consumer trust, and the implementation of technologies such as blockchain are

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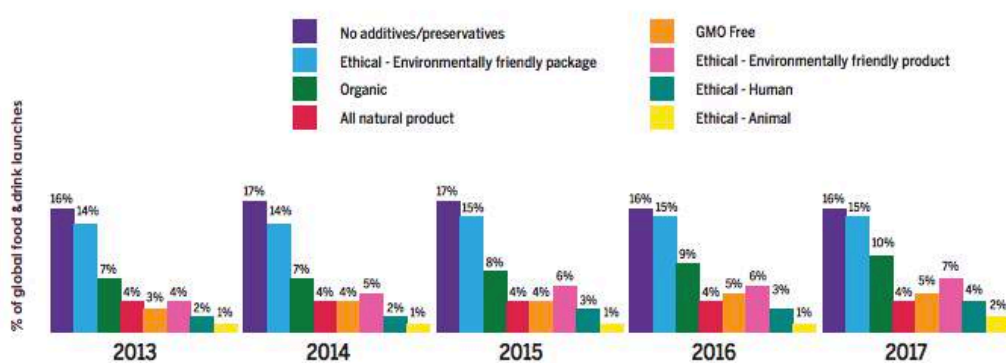
<sup>8</sup> Mintel

supporting the food industry in fighting food fraud. Companies such as Nestle, Unilever and Walmart are already looking to incorporate blockchain technology to ensure transparency across their supply chains.

In addition to this, there is a growing awareness among consumers of their environmental impact. They are increasingly looking to make more sustainable food choices which has led to an increase in demand for ethical claims such as 'Eco Friendly'. In 2017 there were around 63,000 products launched globally with some sort of ethical claim. F&B companies who are clear about their ethical credentials are likely to win out, particularly among Millennials.

It seems the demand for clean label products and transparency will not be waning any time soon, and this is likely to drive innovation within the food industry. As technology develops there are likely to be more solutions, such as blockchain in the short term and DNA barcoding in the future, available to support the F&B industry in tackling the issue of consumer trust.

### Global: Percentage of food and drink product launched with select claims, 2013 -2017



Source: Mintel GNPD

### Reasons for greater transparency:

**Numerous food safety scandals in recent years** mean consumers are more wary of the quality of the food they are consuming

Nestle, Unilever and Walmart are already looking to incorporate blockchain technology to ensure transparency across their supply chains



**Growing awareness of environmental impact** cause consumers, especially Millennials, to make more sustainable food choices

In 2017 around **63,000 products** with an ethical claim were launched globally

# Natural claims in decline, but still important for consumers

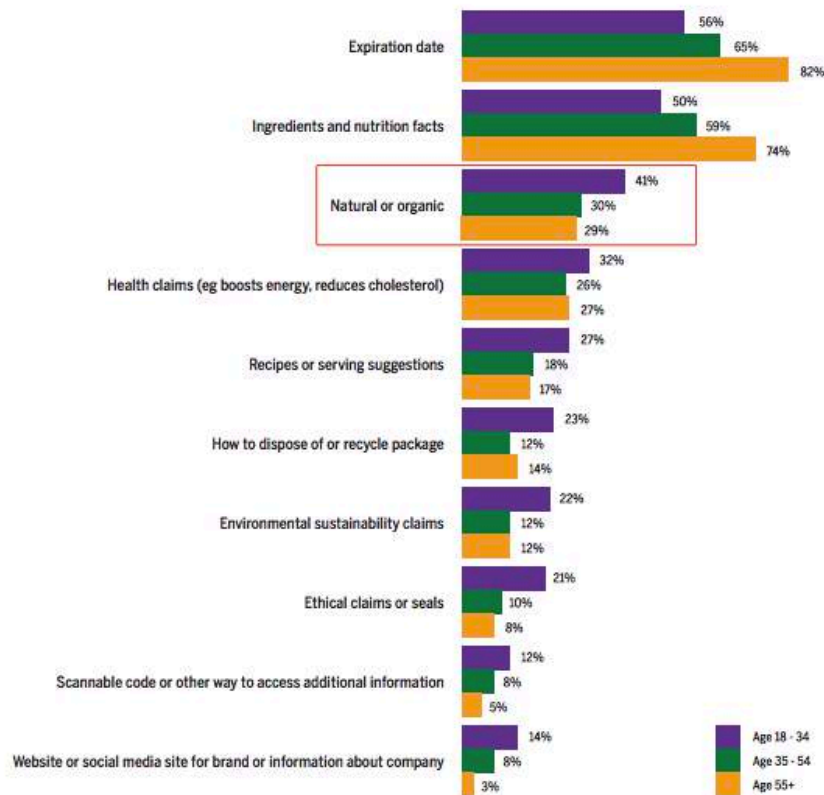


**50% of US consumers** said that natural was the most important claim for them when shopping for food\*

**72% of Spanish consumers** said they preferred the health-promoting benefits of natural foods over the added benefits of functional foods\*\*



## Millennials are more likely to look for products with natural or organic descriptions



Source: Lightspeed/Mintel: Food Packaging Trends, US, June 2016 Base: 1,992 internet users aged 18+ who are primary or shared grocery shoppers

### Gold Coast Ingredients - GCI Smoke Type Flavors

A new variety of customized, environmentally-friendly smoke type flavors that are free from by-products of combustion. They can be made organic certified, natural, non-GMO, water-soluble, oil-soluble, and are available in powder and liquid forms. New flavor profiles include Hickory Smoke, Mesquite Smoke, Applewood Smoke, Oakwood Smoke, Cherrywood Smoke and Cedarwood. GCI Smoke Type Flavors can be used in food and beverage applications such as sauces, marinades,

seasonings, meat, poultry, seafood, vegetarian proteins, snack foods, cocktail beverages, coffee, confectionery products and more.

### **Kreglinger** – Fonio Flour

New flour available, gluten free, extracted from Fonion an african cereal.

### **Nexira** – Baobab, Organic Superfruit Powder

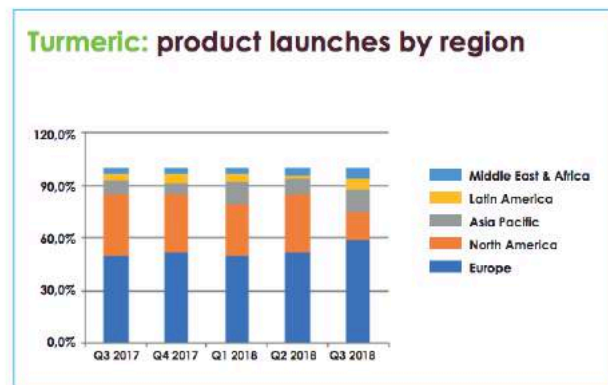
Baobab is referred to as the new valuable “Superfruit” for uses in Foods, Beverages and Dietary Supplements based on its unique nutritional profile.

Indeed, Baobab Fruit Pulp Powder is known to have antioxidant properties and high nutrient content (fibers\*, minerals such as potassium, calcium, magnesium and zinc). Beyond its nutritional interest, our Organic Baobab Powder has a slightly tangy taste and can be easily incorporated in a large array of applications (functional foods & beverages, supplements, cereals, ice-creams, yoghurt...).

It is the perfect source of inspiration for your new product developments!

Nexira’s Organic Baobab Powder is sustainably sourced in Africa with a strong supplier partnerships. Our ingredient is 100% all-natural, minimally processed and perfectly suitable with clean labeling.

**Turmeric:**  
anti-inflammatory  
and antioxidant  
Europe has seen more  
product launches  
containing turmeric than  
any other region



Source: Mintel GNPD

### **Arjuna** – Curcugreen

Turmeric extract with a high bioavailability, backed with an eco-friendly approach through the use of solar energy. Curcugreen is backed up by more than 45 scientific studies and 29 international patents and promises a unique formulation of natural curcumin and ar-turmerone.

### **Cargill** – Waxy Corn Promise™

A farm based program raising food starch sustainability across Europe. To ensure a long-term sustainable crop supply for food starch, Cargill has committed to source waxy corn 100 percent sustainably from European farmers. In support of this

initiative Cargill has developed the Waxy Corn Promise program, leveraging the strong partnerships between Cargill, farmers and co-op suppliers to address key sustainability challenges in the waxy corn growing regions. Benchmarked at Silver level by the Sustainable Agriculture Initiative Platform (SAI Platform), the Waxy Corn Promise delivers on consumers' expectations for more sustainable food ingredients.

## Sugar reduction

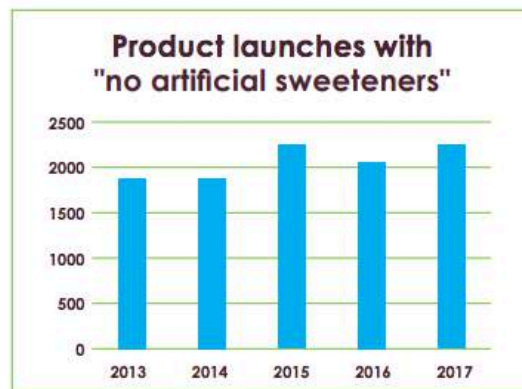
### According to a DSM survey\*:

**55%** of global consumers said they always checked product labels for sugar content



**50%** of the 8000 surveyed would pay more for products using 'only natural sweeteners'

New food and drink launches carrying the claim 'no artificial sweeteners': 1,901 in 2013 vs 2,297 in 2017 (an increase of **17%**)



Source: Mintel GNPD 2018

■ Date published

### What are the alternatives?

'Natural' sugars			
<p><b>Honey</b></p>	<p><b>Agave syrup</b></p>	<p><b>Fruit juice concentrates</b></p>	<p><b>Coconut sugar</b></p>
<p><b>Benefits:</b></p> <ul style="list-style-type: none"> <li>Retain much of the functionality of sugar, making reformulation easier</li> <li>Perceived by consumers as healthier than refined sugar</li> </ul>		<p><b>Challenges:</b></p> <ul style="list-style-type: none"> <li>Can contribute to health problems such as tooth decay and diabetes</li> <li>Count as added sugars from a nutritional and labelling perspective</li> </ul>	

## Bulk sweeteners

Bulk sweeteners are used in similar quantities to sugar and tend to be slightly less sweet. Natural options include:

### Xylitol

has health claims associated with prevention of dental caries.

Application: chewing gum



### Maltitol

is more hydrophobic.

Application: boiled sweets and hard coatings



### Isomalt

is more hydrophobic.

Application: boiled sweets and hard coatings



### Erythritol

gives a strong cooling sensation.

Application: anything with mint and menthol flavours



## Allulose

- A rare sugar that exists in very small quantities in nature, including in fruits like figs and raisins
- Not approved for use in the European Union but granted GRAS (generally recognized as safe) status by the U.S. Food and Drug Administration in 2014
- Uptake is still low: 9 new products launched in 2017, and 11 in the first half of 2018 contained allulose



## High intensity sweeteners

Stevia and monk fruit have emerged as frontrunners in this space but other alternatives, extracted from several West African plants and fruits, include:

### Miraculin

binds to sweet taste receptors making sour-tasting food seem sweet

### Monellin

works well with bulk sweeteners to reduce persistent sweetness

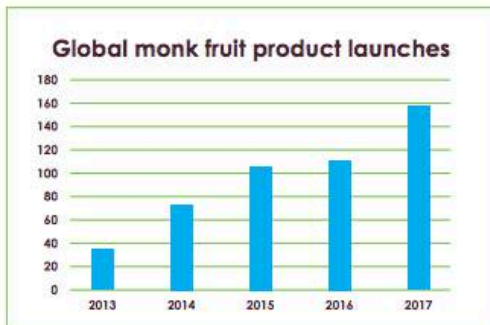
### Thaumatococin

is used for flavour modification due to a slow-building and lingering sweetness

### Brazzein

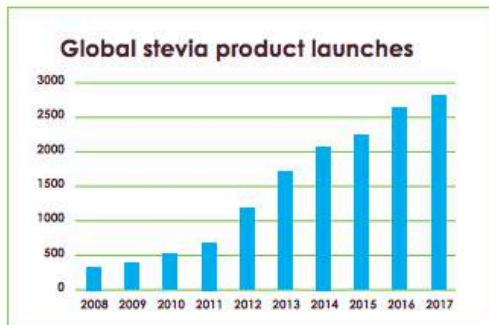
has a more sugar-like sweetness than thaumatococin and can offset stevia's aftertaste

## Monk fruit v Stevia



Source: Mintel GNPD 2018

■ Date published



Source: Mintel GNPD 2018

■ Date published

New product launches containing monk fruit have risen **77%** over the last 5 years

### Monk fruit:



#### Benefits:

- Has a more sugar-like taste profile than stevia
- Its fruit source appeals to premium brands

#### Challenges:

- Still not approved in some major markets, including Europe and Japan
- Costs three times more than stevia

### Stevia:



#### Benefits:

- Has wide regulatory approval
- Is easy to cultivate with multiple harvests per year
- Heat & pH stable
- Lower price point than other natural zero-calorie sweeteners

#### Challenges:

- Has a bitter aftertaste that needs to be masked

## Clean label options



### **International Taste Solutions (ITS) - SweetLITE Super**

A natural solution for sugar reduction. These solutions can be used by sports nutrition, snacks, bakery, dairy and beverage manufacturers, to facilitate successful product development. ITS has developed solutions for sugar reduction, masking protein off-notes, as well as natural flavorings and seasonings and texture solutions to improve crunch, crispness or softness.

### **Tosla - Sladcore**

Clean sugar reduction solutions in liquid, paste, and soon crystal forms, without compromise on taste. The company already commercialized Sladcore liquid (ideal for beverages) and now brings to the market Sladcore Paste, which is ideal for all semi-solids products (ganache, sauces, ice cream, etc.).

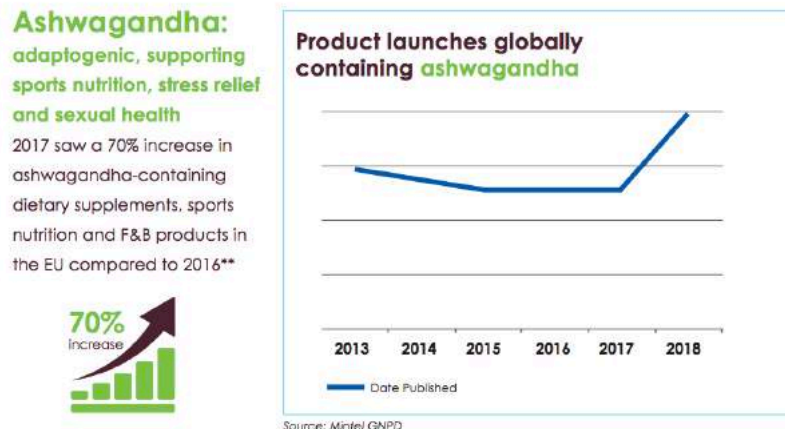
## **Ashwagandha takes center stage**

Mood boosting and stress alleviating solutions have been hotly tipped to see growth in food and beverages in the coming year. One ingredient touted as being able to provide adaptogenic properties to alleviate some of the stresses of modern life is ashwagandha (*withania somnifera*).

Innova Market Insights data has reported a 48 percent increase in the number of food and beverage launches in 2018 globally compared to 2015, with the US taking the lead.

Ashwagandha's growth is especially strong in the sports industry. According to the market researcher's data, one in three product launches of the ingredient

have been under the nutritional sports category globally between 2015 and 2018. A further two in five launches featured an energy or alertness claim.



### **Arjuna Natural** - Shoden®

Extract of ashwagandha (*Withania somnifera*) which contains Ashwagandha extract standardised with 35% withanolide glycosides, a highly active component of ashwagandha with bioactivity confirmed. Shoden is manufactured from carefully selected ashwagandha roots and leaves. Toxins are removed from the roots and leaves using a proprietary detoxification process that also removes other undesirable components and maintains withanolide glycosides at optimum levels.

### **Sabinsa** – Shaganda

Ashwagandha with 2.5% ethanolates. Many clinical studies have shown stress, relaxation and even endurance benefits from Ashwagandha.

### **KSM 66** Ashwagandha

For 4,000 years people have been using Ashwagandha for better sleep and here we have the double-blind placebo, controlled journal published study showing that. With KSM 66's good extraction technology, and the clinical science supporting the traditional uses, ashwagandha has taken a leap forward. A few years ago it was not in the top botanicals list and last year in the US, it was number six in the natural category and all that is due to the clinical science behind it



## Proteins are still on the game

The demand for protein continues to grow among consumers. Mintel have identified that in 2018 already there have been 583 new product launches within Europe with a 'high/ added protein' claim, compared with 409 new product launches with this claim during the same period in 2017.

Outside of the sports nutrition market, this trend is being driven by a better understanding of the health benefits of a high protein diet among women, millennials and the older population. Within this trend, demand for alternative and plant-based proteins is growing in particular. Much of this demand is coming from a greater awareness among consumers of the environmental impact of a largely meat-based diet, with a growing number of consumers following a more flexitarian diet.

### **Epi Ingredient** - EpiProt 60 UL

A native milk protein concentrate produced directly from fresh milk through an exclusive ultra-low heat process. This allows for minimal denaturation and optimal functional and nutritional properties.

### **Pevesa Biotech** - VitalPep L

A complete range of soluble proteins showing multiples applications such as: RTD beverages, smoothies and purees. Pevesa is exploring new vegetable protein sources and new protein modification processes that will inspire product development. Innovative healthy ingredients from babies to seniors.

### **Lesaffre Human Care** - Lynside ProterYn

Alternative complete protein from yeast and the innovative concept "Lynside Forte Complex," several blends of fortified yeasts, adapted to specific health benefits.

## Others innovative food ingredients at HIE

### **Progress Biotech** – High DHA Algal oil

A non-colored, zero flavor; zero taste high DHA algal oil on the global market. They have successfully combined a pure and stable algal oil product with the best refining and processing techniques. Their own quality-assurance methods guarantee superior standards and specifications, also enabling them to support full traceability of its products which is endorsed by the ISO-22000 certification. Their algal oils, including concentrations of 40-70 percent DHA in triglyceride or ethyl ester, are non-GMO and EU Novel Food licensed. Their encapsulates contain 10 percent DHA.

## **Prova**

Prova has presented new concepts according to health and nutrition trends.

Vegan honey lollipops or vegan nougat (egg-free and vegan honey)

New sensory experience with rum flavored candies with ants or insects based financiers.

Tapping into trends for different types of vegetable proteins, flavor and extracts company Prova is expanding its clean label portfolio with solutions that mask the off-notes often associated with alternatives such as pea protein.

## **Sachsenmilch Milk & Whey Ingredients – Infantose®**

The highest quality lactose, and under the brand name Infantose®, the entire process, starting with the raw material, high care zoning and hygienic production, as well as excellent state-of-the-art laboratory services results in a dry blend infant lactose that is setting the benchmark and standard for the years to come and the industry as a whole.

## **Fytexia – Oxyynea®**

A selection of 22 natural and non-gmo extracts & concentrates, bringing an authentic spectrum of polyphenols. These antioxidants scavenge free radical species to offer health benefits traditionally found in a Mediterranean diet.

Oxyynea® delivers a similar amount of polyphenols as the level measured within 5 servings of the most consumed fruit & vegetables, assessed with Folin Ciocalteu analysis. Oxyynea® also demonstrates a significantly higher antioxidant capacity (82% increase as assessed with ORAC 5.0™ assay). This has been confirmed with the KRL test, which shows that Oxyynea® increases the whole blood resistance to oxidative stress by 214% when compared to the result obtained from an example of 5 servings among the most consumed fruit & vegetables\*. [Inogier@fytextia.com](mailto:Inogier@fytextia.com)

## **Frutarom Health - Activeberry™**

An all-natural, black currant-derived performance ingredient for athletes and consumers with active lifestyles. Activeberry is produced from blackcurrant, a known source of anthocyanins and antioxidants, as well as other potent bioactive molecules. Using a unique technology that maintains the properties of the natural berry, while at the same time assuring the quality and safety of the product, the ingredient is produced without solvents or other chemicals.

One recent study specifically tested the vasodilation efficacy of blackcurrant produced by this unique technology compared to the more common ethanol extraction method. In that study, the effect of Activeberry was far superior to that of the ethanol-extracted product, proving the superiority of this proprietary technology.

## **BGG – Astazine®**

BGG and its affiliates Solix Algreredients (Solix) and Algae Health Sciences (AlgaeHealth) have announced that their flagship product, AstaZine® Natural Astaxanthin, has been released in a perfectly water dispersible emulsion form for use in drink applications. This product features a new technological platform trademarked as Dispersa® that will be used for other BGG products in the future. This innovative technology resolves two key complications common in competitive “water dispersible” Astaxanthin products: Ineffective dispersion in water applications and residual staining of consumers’ mouths and packaging containers. “We’ve seen competitive products claiming to be water dispersible which have sedimentation and suspended particles after mixing,” said Lixin Ding, PhD, General Manager of BGG North America. “Astaxanthin using Dispersa® technology is completely transparent and stable over time with no aggregation, sedimentation or suspension of Astaxanthin.”

## Conclusion

Before the show, we were wondering what could be the future for HIE as Informa (Vitafoods) acquired UBM (FIE, HIE, ...), pronosticating the disparition of HIE and annualisation of FIE.

But according to many exhibitors, the 2018 edition of HIE was unexpectedly great with not that much, but high-in quality visitors.

Visitors found this « human-size » show very cosy and efficient.

At the end, the show seemed to get smaller but in comparison to bigger events (e.g. Vitafoods, FIE), visitors found it convenient to have the time to cover the show while having the time to stop by and chat with exhibitors. No rush, no fear to miss something.

Exhibitors were also happy to have the time to welcome every visitor, answering questions, giving samples or brochures. No fear to be so busy to miss clients. Finally, on the third day, always the quietest, exhibitors took the time to visit other exhibitors, creating new business, sharing insights, attending conferences, ...

Just after the show, UBM/Informa have announced a new Food Ingredient USA in association with the supplyside west... so will HIE be associated with Vitafoods? Very promising!

To be continued!