eit Food

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SEEDBED INCUBATOR

2021 COHORT

#EITFoodSeedbed

eitfood.eu

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THE KEY FOCUS AREAS

- Sustainable Agriculture
- Sustainable Aquaculture
- Alternative Proteins
- Digital Traceability
- Circular Food Systems
- Targeted Nutrition

WORKING TO MAKE THE FOOD SYSTEM MORE SUSTAINABLE, HEALTHY & TRUSTED

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AARHUS HUB

GROWCAB

High-tech plant growth chambers are usually expensive to rent and access is limited.
Growcab is an open-source plant growth chamber that features speed breeding capabilities for researchers and plant breeders to discover optimum crop parameters more quickly, and more cost-efficiently. With this technology, crop improvements can be achieved much faster than ever.
The company also offers consultancy and knowledge sharing to help others develop and optimise appropriate speed breeding protocols.

An affordable, flat-packed plant growth chamber to improve crop quality

Marcela Mendoza Suárez

Ricardo Ramírez-González

Sustainable Agriculture

grow.cab

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BioEffect brings modern molecular microbiology and biotechnology techniques to the agriculture sector to offer real-time methods that identify biologicals directly in soils and plants.

This technology saves companies millions by disqualifying irrelevant products. Ensuring the right biological products are on the market provides farmers with reliable alternatives to displace chemical products, reducing chemical residues from land, soil, and food.

Enabling superior next-generation biological products to remove the need for chemical usage

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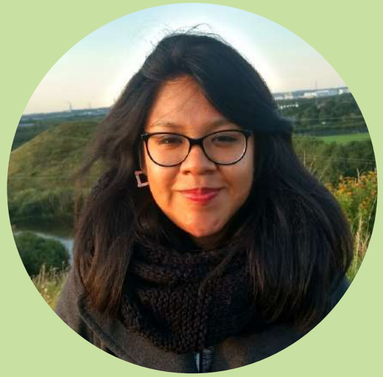
cataleela nutrition

Almost three-quarters of global agricultural produce is contaminated by at least one kind of mycotoxin, posing a significant risk to both animal and human health.
CataLeela Nutrition is developing a nanotech-based mycotoxin elimination system that can selectively 'pick & eliminate' different mycotoxins from animal feed mixtures. This proprietary nanotech offers a safer, cheaper, recyclable approach for effective mycotoxin elimination without compromising the nutritional value of the feed, which subsequently improves long-term animal health.

Eliminating extremely toxic Mycotoxins produced by filamentous fungi



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hai

Plant root monitoring technology is shaping the future of farming. Hai has developed AI sensors that create a precise image of a plant's root bundle, to detect root clogging issues within a growing tray. The diagnostics ensure the best harvest possible and they enable optimisation of growing inputs through 24/7 real-time tray monitoring. This enhances operational efficiency, akin to having a plant scientist monitoring a crop all-day round.

Smart tools that enable indoor farmers to produce high-quality crops consistently

Andrea Izquierdo

Diego Corona

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making-the-ground-invisible.uk

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NISKUS

Niskus Biotec works with agrifood companies to provide onsite automated fermentation solutions to convert their biomass side-streams into high value products, such as proteins & enzymes.

This also helps to build a circular economy.

Mobile fermenters transforming agriwaste streams into high value products

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Photo (c) iFarm

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Traditional crop breeding processes use harmful chemicals and they are too slow to meet the growing demands for better crop varieties that can feed10 billion people by the year 2050.

EvoPlant provides pioneering self-owned genetic technology solutions that sustainably produce plant cytoplasmic genomes at an extremely rapid rate. This new process mimics the natural evolution process but enormously shortens the time scale for crop breeding - to millions of years faster.

Genetic solutions to meet the increasing demands of food production

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Carbon Harvesters

Carbon Harvesters is an agritech that aims to increase the resilience of rural communities by tackling the issue of cattle farming pollution. It helps dairy groups achieve their climate goals by monitoring the carbon footprint of their farms on a weekly basis, to recommend farm-specific climate mitigation strategies that are economically feasible. These strategies certify their emission reductions and monetise the verified emissions reductions outside of the farms as market premiums or carbon credits.

Implementing economic climate mitigation strategies

Luis Alejandro Vergara

Sustainable Agriculture

carbonharvesters.com

Photo (c) iFarm

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AMPLY DISCOVERY

AMPLY Discovery aims to become a key antimicrobial drug discovery and licencing partner for animal health companies around the world.

The company employs machine learning and AI techniques to mine digital biological data in the search for new biopharmaceutical drug products that target hard-to-treat infectious diseases. Focused initially on topical treatments for animal health, the vision is to develop intellectual property across multiple delivery methods and treatments.

Ben Thomas

Dermot Tierney

Chris Creevey

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amply.life

Photo (c) iFarm

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Raspberry Harvesters have created an automated system that operates without the need for manual labour to harvest the crops.

The design employs machine learning, computer vision, robotics, soft robotics, and data science. This facilitates crop and resource management, enabling a cost reduction of higher quality fruits for consumers to enjoy.

Pioneers of fruit harvesting machine technology, to remove laborious chores

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Photo (c) iFarm

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BILBAO HUB

TERROIR FROM SPACE

Climate change is currently threatening the quality and yield consistency of wine production.

Terroir from Space has a unique, proprietary AI-powered solution, primarily reliant on earth observation data, to help winemakers optimise plantings, and identify new quality-driven parcels.

This process minimises costs and ensures a higher quality output of wine, allowing new viticultural ecosystems to flourish.

Helping winemakers to make the most out of their terroir in the face of climate change

Alessandro Saetta

Manuel Torres

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terroirfromspace.com

Photo (c) iFarm

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BILBAO HUB

Azolla Projects
Carbon Farming Program

Educating and rewarding farmers to create food with a negative carbon footprint.

The current agriculture system is both causing, and being affected by climate change.

Azolla projects brings carbon markets to European agriculture through AI analysis, with technologies that monitor the increase in organic soil carbon. This provides a good education to farmers and finacially rewards them to capture CO2 in their soils.

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Jerónimo Pellicer Hummelsheim

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azollaprojects.com

Photo (c) iFarm

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spherico2

A blockchain based carbon compensation marketplace to incentivise farmers undertaking regenerative agriculture practices.

Agronomic practices with high capacity for sequestering carbon dioxide are often discarded because they are not the cheapest option available to farmers.
Spherico2 is developing an innovative system to measure and verify farming activities capable of generating carbon credits, and a blockchain based carbon offsetting marketplace to make carbon removals activities profitable for farmers and accessible for buyers.

Tristano Bacchetti De Gregoris

Oliver Simon

Carlos Marco Rider

Jose Antonio García

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spherico2.com

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seedalive®
fast. simple. sound.

Established quality control methods of seed germinability are lengthy, time-consuming, unreliable, destroy the seeds, and do not capture seed dormancy.

Seedalive is developing a fast, non-destructive, and inexpensive method that reliably assesses dormant seeds.

The patent for this method based on biochemical colour change is currently in the application process.

Advanced quality control of seed germinability

Klaus Mummenhoff

Jens Varnskuehler

Sustainable Agriculture

seedalive.de

Photo (c) iFarm

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Paltech

Paltech Robotics is facilitating agricultural processes to grow food without the need to use chemical herbicides

One such process is weed control in grassland. If no herbicides are used, the effort is ten to forty times higher. To make the process of weed control easier and more sustainable for the farmer, the company is developing an autonomous herbicide-free solution for tap-rooted weeds in grassland.

Autonomous robotics for sustainable agriculture processes

Felix Schiegg

Florian Schiegg

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paltech-robotics.eu

Photo (c) iFarm

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ROBOTEC LIFESAVING ROBOTICS

Robotec offers fully autonomous, no-till, chemical-free, farming based on artificial intelligence.

Using a high-density precision microwave module, autonomous mobile robots analyse and eradicate weeds at an early stage of their growth. This reduces up to 99% of a farm's use of herbicides and pesticides, increases yields by up to 40%, and it saves up to 50% in treatment costs.

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Alex Reznichenko

Alex Poddiachniy

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robotec.ua

Photo (c) iFarm

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WARSAW HUB

With current production methods, by the year 2050 arable land per capita is set to decrease by 30%, and crop production by 40%.

SpaceCrop's Agritech tool helps small to medium-scale farmers to forecast soil water requirements, by sending them an irrigation schedule using machine learning, satellite data, and artificial intelligence. This target forecasting lead takes 5-7 days. The technology is cheaper, and more reliable, with its accurate forecasting services helping farmers lacking technical skills to work more efficiently on their farms.

Helping farms to save water and increase their crop yields & crop resilience

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WARSAW HUB

PlattenBaum

PlattenBaum implements Urban Agriculture on a mass scale.

The company develops, installs, and operates infrastructure for Urban Agriculture in residential buildings.

The system is dedicated to commercial production and resident's use, fostering communities, while creating new revenue streams, and contributing to improving the aesthetics of cities.

Tackling the challenges of food security, social resilience, and sustainable urban living

Maayan Strauss

Kerem Halbrecht

Sustainable Agriculture

plattenbaum.de

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ALGONOMI

Algonomi cultivates microalgae biomass to produce a variety of bioactive ingredients for commercial use.

CO2 from manufacturing industrial processes is used for the cultivation process to reduce CO2 from the atmosphere.

The output of algae biomass and its various bioactive extracts to B2B customers is sold to different industries, e.g. cosmetics, garments, and the food industry.

Commercialising nature's oldest and most potent organism: Algae

Robert Nyberg

Leon Mercier

Sustainable Aquaculture

algonomi.fi

Photo (c) iFarm

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AARHUS HUB

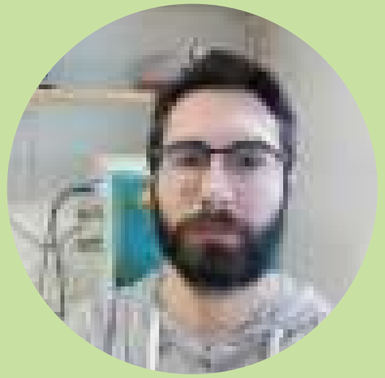
Cirkulär

Cheese production requires 10 litres of milk to produce1kg of cheese. On a global scale, 45% of all milk production goes into cheesemaking, which is having a detrimental effect on the environment.

Cirkulär AB has developed a process to produce a pure protein that is identical to the one found in milk, which the dairy industry can use to complement milk in dairy processing.

Making cheese production more cost & environmentally beneficial

Eric Öste



Stefano Sacchetto

Alternative Proteins

cirkular.org

Photo (c) iFarm

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bright biotech

A proprietary light-driven, protein expression technology that uses chloroplasts to make extraordinarily high yields of plant proteins.

This game-changing manufacturing system is sustainable, free of animal pathogens and bacterial endotoxins, and highly scalable.

Suitable for the recombinant protein contract manufacturing and development market. Bright Biotech is currently producing recombinant proteins, which aid cell growth to promote regenerative medicine practices, and also industry processes such as clean meat production.

High quality & affordable recombinant proteins for the medical & life sciences R&D sectors

Mohammad El Hajj

Alternative Proteins

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Photo (c) iFarm

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EFS Engineering Solutions is launching a new 'Plant Jerky' product made from sunflower seeds, pumpkin seeds, and pea protein. It resembles beef jerky with a meat-like structure and has a taste similar to the original product.

With knowledge and access to state-of-the-art equipment & facilities, EFS has the expertise to produce a range of different plant-based meat snacks in the future.

Smart engineering solutions to produce quality plant-based meat snacks

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Dörthe Lammers

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Photo (c) iFarm

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Unicorn Biotechnologies is developing cultivated (lab-grown) meat by developing a fully automated, modular bioreactor system to produce animal cells at industrial scales.

Through leveraging proven cell culture technologies it slashes product development timelines from 18+ months to just weeks, radically reducing production costs, and scaling cell-based manufacturing outputs from grams to tonnes.

Next-generation bioreactors to massively scale cell-based manufacturing

Jack Reid

Adam Glen

Alternative Proteins

unicornbiotechnologies.com

Photo (c) iFarm

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GLAZE

There are currently different standards and regulatory requirements demanding companies to manufacture, process and maintain products to a certain quality level.

GLAZE develops hardware products supporting automated and continuous QA of industrial procedures by inspecting layers of a multitude of material types. The hardware is compact and portable allowing usage off-line (handheld devices), at-line (at tracks next to conveyor belts) or in-line (directly on samples on conveyor belts).

GLAZE is addressing the need for non-destructive testing/ inspection (NDT)

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Holloid

The internet of microscopes

Holloid offers 3D imaging and measures bacteria, algae, yeast, microplastics, and other particles. These in-depth insights enable process control in food, biotech, and other industrial facilities.
Production managers can see in real-time if their bioreactors are operating as they should be. This improves food safety, reduces food waste, prevents downtimes, and increases efficiency in the dairy, beverage, algae, meat, and many other food processing categories.

An inline data monitoring solution for food production - providing big insights on tiny particles

Marcus Lebesmühlbacher

Pinar Frank

Digital Traceability

holloid.com

Photo (c) iFarm

SEEDBED PIONEERS

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DIL HUB

SERINO

Serino is building the future of high-tech infrared sensor hardware, enabling humans and machines to capture and understand hidden and invisible ingredients. This pocket-sized sensor technology can be used to analyze food quality, or as a diagnostic tool for breast cancer detection.

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Marcella Günther

Tracy Bai

Rico Holfeuer

Digital Traceability

serino.eu

Photo (c) iFarm

SEEDBED PIONEERS

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WARSAW HUB

GoEconut offers an easy-to-use food tracking software for food manufacturers to quantify, improve, and communicate the environmental impact and nutritional performance of their products - faster, cheaper, and more easily. GoEconut identifies hotspots along the value chain to assist in continuous improvements and investment decisions. Their software solution is 20 times cheaper, 90% faster, and 10 times more complete than the current traditional consultancy solution on the market.

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Clara Loran

Umut Kartal

Digital Traceability

goeconut.com

Photo (c) iFarm

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AARHUS HUB

MARINATEX

MarinaTex is designed to help solve the growing concern of single-use plastics and the ocean plastic crisis.
MarinaTex is a high-quality home-compostable material developed for the packaging industry as a planet-conscious alternative to translucent plastic film. The new bio-based material has been shown to biodegrade in 4-6 weeks. It does not leach harmful chemicals and it has a higher tensile strength than LDPE at the same thickness.

Quality sustainable packaging to replace translucent plastic film

Lucy Hughes

Scott Mighall

Circular Food Systems

marinatex.co.uk

Photo (c) iFarm

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Popular bioplastics are currently produced from biomass, that's cultivated for polymer production, which is disrupting the food value chain.
REWOW produces circular bio-based polymers out of waste products, e.g used cooking oils, which if not collected, causes pollution and sewage system issues. Long term the company intends to create a portfolio of different products for various applications, such as ingredients for cosmetic formulations.

Upcycling organic waste products to produce circular bio-based polymer materials

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Ilaria Lorusso

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rewow.eu

Photo (c) iFarm

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BILBAO HUB

The annual coffee consumption in the world is approximately 10 million tonnes.

Due to its rich oil content, coffee waste when not used as compost pollutes the groundwater, and its disposal costs are high.

Biotico converts coffee waste into enzymes which reduces disposal costs by 29%. The enzymes produced also offer a wide range of uses for the textile, detergent, cosmetics, animal feed, food and pharmaceutical industries.

Helping coffee makers to save costs and reuse their coffee waste for other product uses

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biotico-tech.com

Photo (c) iFarm

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In line with the common fisheries policy "Landing obligation", which ensures that all fishermen do not discard any fish species in the Mediterranean sea, Tetis Biotech has found a cost-effective method to produce high-quality marine collagen from these marine species that would otherwise be considered waste. The company uses green-tech methods to ensure the marine collagen is disease-free and produces eco-labels to assure its quality and safety.

Innovative health solutions for fish waste products

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Taner Yıldız

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tetisbiotech.com

Photo (c) iFarm

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DIL HUB

SoulBites

Upcycled food sources that are of high quality, have proven health benefits and can be used as a raw material for human consumption.

Soul Bites upcycles fruits at an agricultural and post-harvest level that would normally be discarded due to their cosmetic appearance. It uses applied processes that maintain real fruit colours, flavours, and they enhance the fruit's nutritional values. The company also upcycles protein-rich byproducts using cutting-edge technology that produces an upcycled plant protein source with superior biological properties.

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soulbites.ch

Photo (c) iFarm

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WARSAW HUB

LINUM

Re-waste technology

According to a recently implemented law, disposable plastic materials, such as plates and cups can no longer be sold in the EU. Due to the current pandemic, there is however an increasing demand for these products to cater for takeaway orders from restaurants.

Linum's solution recycles waste to create disposable, biodegradable products made of flaxseed, hence the name "Linum".

Using waste to produce biodegradable flaxseed products

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IsoFirms

Around fifty percent of the population in Europe is overweight and in need of help to improve their health and lifestyles.

IsoFirms Isosteviol is a patent-protected ingredient providing more nutrition to the muscles. It increases muscle mass through protein synthesis, and reduces body fat percentage.

IsoFirms Isosteviol is currently pending a novel food application.

A healthy natural ingredient to help people control weight gain

Randi Søndergaard

Torben Nielsen

Targeted Nutrition

isofirms.com

Photo (c) iFarm

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inulox

Excess sugar consumption is a big issue - people are consuming up to three times the recommended amount in the UK, which is leading to higher BMI's, and an increased risk of type 2 diabetes.

To combat this, Inulox Ltd has developed an enzyme technology 'Sugar2Fibre' capable of turning ingested sucrose from foods into a vegetable fibre called inulin. This enzyme is being developed as a therapeutic and will be licensed to food/supplement manufacturers.

Turning unhealthy sugars into healthy fibers

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Niels Wicke

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inulox.com

Photo (c) iFarm

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Aqua Lub

Aqua Lub is a novel, highly lubricating salivary substitute technology with long-lasting hydration properties, performing strikingly better than commercial aqueous lubricants and the naturally lubricating human saliva.

To be used as a saliva substitute to help dry mouth sufferers. This product will also offer savings to the NHS.

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BIOprospectum

Innovations to benefit the pharmaceutical, functional & nutraceutical food industries.

Bioprospectum focuses in silico and in vitro developments, with an emphasis on science applications in the antioxidant, antimicrobial, anti-inflammatory, and anti-cancer areas. The company researches new bioactive peptides with antioxidant properties for use in health food products. The latest food product launch is FoodOx, a new technology to fight free radicals and promote cell regeneration, reducing fatigue and increasing immunity, anti-aging, and neuroprotection.

João Relvas

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bioprospectum.com

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Cano-ela

no refined ingredients

Cano-ela removes refined ingredients from the food supply chain and replaces them with natural seed structures, e.g. oleosomes, protein bodies, cell-wall fractions, obtained from canola, and other oil-rich seeds.

These seed fractions are delivered to food companies as natural ingredient mixtures, to help them produce healthier plant-based product formulations.

Natural seed ingredients with higher bio-functionality values

Juliana Romero Guzmán

Alberto Masetti Niccolai

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cano-ela.com

Photo (c) iFarm

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FF

Functional food natural fruit extracts.

FortiFruits aims to be the premier producer of naturally enriched fruit extracts containing a high content of bioactive substances aka, enhanced antioxidants.

These extracts can be added to natural food products and dietary supplements to enhance their flavours and colours.

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MEG ENZYMES

The digestive system becomes impaired with age as a result of reduced secretion of digestive enzymes, decreased saliva production, and missing teeth.

MeGenzyme's fruit and vegetable-based products & supplements contain active enzymes to help digestion, and reduce the demineralization of bone tissue. They also emphasise the natural flavours in dishes and are an excellent source of vitamins, fiber, and antioxidants.

Adressing the digestive & nutritional needs of a growing senior population

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MAGIC BROTH

Studies show we only consume up to 5% of our body's required amount of collagen protein, and most collagen supplements on the market are hydrolysed (chemically processed).

Furthermore, the EU's current agriculture practices result in over 20 million tonnes of animal origin waste per year. MB Kulagenas uses this waste to produce a natural 'dry broth' product with multiple applications and collagen protein health benefits - to your bones, joints, skin, nails, and gut.

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For more detailed information on the EIT Food Seedbed Incubator cohort, please get in touch with our co-ordinator:

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