



Boosting Innovation for Food SMEs

2025 Good Practice Guide

By Plant Power Consortium www.plantpowerproject.eu



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The guide showcases **25 good practices** from diverse national contexts - Ireland. Slovakia. Spain, Greece and Denmark - each addressing key aspects of plant-based innovation.

The guide showcases 25 good practices from diverse national contexts: Ireland, Slovakia, Spain, Greece and Denmark - each addressing key aspects of plant-based innovation. These practices encompass initiatives, business models, products, and policies that contribute to the production and promotion of plant-based foods. By highlighting these examples, the guide aims to raise awareness about the critical importance of upskilling food professionals. To enhance the educational value and engagement of this guide, we have incorporated semistructured interviews presented in both podcast and video formats. These interviews provide firsthand insights from

industry experts, entrepreneurs, and other stakeholders involved in plant-based innovation.

The Guide has noted relevant age groups for each case study: beginner (13-15), intermediate (16-18) and advanced (18+). This guide can be used by educators to use the case studies in classroom discussion, group work, project-based learning or for research assignments.

Please note, there is a glossary at the end for technical

The inclusion of multimedia contents crucial for several reasons:

- Captures the attention of learners more effectively than text alone, making the learning experience more engaging and memorable.
- Podcasts and videos can be accessed on various devices and platforms, allowing learners to engage with the content at their convenience
- **Different learners have different preferences** for how they consume information. Providing content in multiple formats caters to a wider range of learning styles.
- **Interviews with industry professionals** offer practical insights 04 and real-world examples that can inspire and inform learners

The guide's innovative **practices** demonstrate the potential for positive change in the **food industry** and offer practical solutions for a more sustainable future.



Practices



Countries



Interviews



Podcasts



Descriptions

01 Introduction



Introduction •

The **Plant Power Inspirational Good Practice Guide** is meticulously developed to provide food entrepreneurs, educators, and SMEs with valuable insights and innovative practices in the field of plant-based food products. As the EU plant-based food market continues to escalate, this guide serves as a comprehensive resource designed to inspire and inform those committed to making a positive impact on both the environment plant-based industry.

The research framework under which this guide is based, is a combination of Competency-Based Education (CBE) and Storytelling Narrative Research Method (StM). These methodologies were selected to ensure that the guide is not only educational but also engaging, offering practical knowledge that can be applied to real-world scenarios.

Competency-Based Education (CBE)

This methodology is an innovative approach used in higher and non-formal education that organizes the learning materials and its delivery according to the competencies/skills addressed, assessing the learner's learning based on the outcome that the educational materials are addressing, rather than following a more 'course based' scheme, organized by hours or credits (Oroszi, 2020)

A resource organized by competency measures learners progress using a specific criterion based on what concrete skills does the learning material aims to teach. These skills must have an application to real world scenarios. Thus, it offers delineated learning outcomes tailored to a practical approach, in which the learner does not need to develop a complex network of academic associations. For that reason, this type of

learning is ideal for professionals willing to upskill their businesses or gaining a concrete competitive advantage applicable to their day-to-day work.

Moreover, CBE learning is suitable for online and hybrid training. The online nature of the Guide allows learners to follow a continuous learning and demonstrates commitment for accessible learning. The materials can be easily adaptable for an online fashion, including interactive content such as webinars, videos, podcasts and similar resources. Offering therefore a wide variety of interactive resources not only reinforces the relevance of asynchronous learning, but further strengthening the efficiency of methodology by maintaining its educational outputs uploaded in a digital format, that the learner can access at any time. (Kim, Park, O'Rourke, 2017)



Storytelling Narrative

Research Method (StM)

This methodology is most suitable for the type of educational output that is developed. This is because storytelling not only communicates and facilitates stakeholder engagement, but also allows learners process, interpret, and re-interpret qualitative output by triggering a deeper reflection and analysis of specific topics or competences.

StM is a qualitative research method, based on the importance of 'sources stories. In this case, the sources refer to persons' stories (experiences, perceptions and interpretation of events). The rich insights, realities and nuances of field experiences can often be challenging for researchers to translate into academic writing. Moreover, the narratives often delve into specific issues that may be difficult to both research and communicate using conventional methods. StM is thus presented as the framework providing a solution for this issue. StM adopts therefore a narrative approach that focuses on the qualitative input that the sources provide, exploring its complex, lived stories rather than just gathering objective data (Landrum, Brakke, McCarthy, 2019).



Focus on concrete skills/compe tences

Enhance practical knowledge, applicable to daily life Outcome oriented

03

Adapted to online learning

04

Competence - Based Education

Plant-Based Entrepreneurship



SECTORS

Plant-based entrepreneurship, in the food sector is rapidly gaining traction and attention as consumers increasingly prioritise environmental and ethical business practices.



However, not all plant-based initiatives are the same, and, as the good practices shows, there are plenty of relevant types:

01. Food and Beverage

This sector is the most important for plant-based innovation, as its focusses on creating alternatives to animal-based products in many different areas (meat, dairy, seafood...) as well as the way food is produced (ready to eat, frozen...) The driver behind is usually to offer alternatives in terms of diet, offering more variations to the increasing market of vegetarian/vegan choices

02. Ingredient Suppliers

Suppliers are integral to plant-based innovation, as plant-derived ingredients provide wide opportunities for their integration into the food, cosmetics and other related industries. Examples of these suppliers could be protein (soy, rice, beans), natural sweeteners (stevia), oils, fats, or other ingredients (fibre, gums...)

03. Cosmetics

The cosmetic sector is rapidly integrating plant-based ingredients due to the natural effects and kinder impact it has on the human body, especially in sensitive areas (skin, hair, general hygiene...). Replacing aggressive chemicals with natural ingredients is a trend in which plant-based ingredients have a major presence.

04. Packaging and Materials

Elaborating alternatives to plastic or other petroleum-based materials has gathered special attention in fighting climate change and implementing sustainable practices. Activities such as developing biodegradable materials, compostable packaging through plant-based solutions (seaweed, cornstarch, wood, natural resins...)

05. Urban Farming and Agriculture

This sector is also considered highly relevant for plant-based products, especially in urban areas. Developing technology and specific techniques for engaging in sustainable farming generates opportunities for growth in regenerative agriculture and permaculture businesses



Opportunities

The presented **25 Good Practices** are perfect examples of **entrepreneurs that saw a window of opportunity**, a **market gap**, and took the chance to invest in it.



Some opportunities are:

01. Product Innovations

This constitutes the most straightforward window of opportunity. With demand for diverse and exciting plant-based options increasing, entrepreneurs must experiment with new categories or different sectors (from food and beverage to cosmetics for example) as much of this knowledge is transferable.

02. Market Growth

Demand is growing rapidly, as more consumers seek sustainable products, and their choices are based on that. Recent data shows that the plant-based sector is continuing to expand. Although it fuels competition, it also presents significant opportunities for plant-based businesses.

03. Health/Wellness Industry

Currently, society is placing strong importance on diet (as the fast and processed products' negative effects are becoming widely known and proved). Plant-based products have become staples in fitness, nutrition and holistic health circles. SMEs that position their products as both nutritious and functional can tap into this market.

04. Supportive Policies

The market growth is strongly supported by a public will to support these kind of businesses, as green and sustainable policies are widely spread. In the EU, there are plenty of initiatives targeted to increase the plant-based industry. Public advocacy fuels innovation funding and accelerates industry policies directed at supporting the plant-based sector.



Challenges

The 25 presented good practices also place a strong focus on the different challenges that transitioning towards plant-based mindset and products present.



These challenges respond to common patterns which can be therefore applied, in general terms, to all plant-based entrepreneurship initiatives.

01. Market saturation

The more plant-based products increase, the more competition there would be. To stand out, businesses must develop unique branding, introduce innovative formulations, and craft compelling marketing strategies that capture consumer interest.

02. Supply Chain Reliability

Sourcing high-quality plant-based ingredients can be unpredictable, particularly for SMEs. Seasonal fluctuations and regional demand shifts can impact availability and cost. Establishing strong supplier relationships and diversifying ingredient sources can help mitigate these risks.

03. Regulatory requirements

In regions like the EU, food and hygiene safety standards, labelling laws, and ingredient approvals vary between countries, creating an additional layer of bureaucracy for plant-based brands.

04. Consumer education

While interest in plant-based foods is growing, misconceptions around taste, nutrition, and affordability remain. SMEs must actively engage with consumers through transparent messaging, clear benefits for using plant-based products, and accessible product information to build trust and drive adoption.



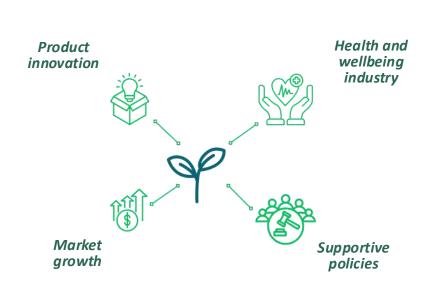


SECTORS

The presented good practices belong to the 5 main sectors mentioned. You, the reader can therefore observe how plant-based innovation can be applied in these areas







OPPORTUNITIES

All the good practices are the result of an opportunity taken, using at least one of the window opportunities mentioned!



CHALLENGES

The good practices have faced at least one of the mentioned challenges, and they provide interesting insights on how they overcame it.











GENERAL OVERVIEW

The aim of the Plant Power Good **Practices** is to highlight successful models that contribute to sustainability innovation and market adoption.

In the context of this project, the term 'Good Practice' is intended to describe a concrete case of an initiative, business company, product, approach, methodology, policy, or general solution addressing climate change and its related problems.

Key Focus Areas of Plant Power Good Practices

- The production of plant-based products.
- Mitigating climate change effects by delivering responses to the increasing demand of plantbased products.
- Increase awareness about the importance of reducing food system emissions (especially those coming from intensive farming or meat production).
- Upskilling food entrepreneurs, VET food providers and other related professionals on how can they shift towards plant-based products.

These **Good Practices** provide tangible examples of how businesses, researchers, and policymakers can foster the growth of plant-based alternatives while addressing environmental concerns, consumer demands, and industry challenges

The Good Practices are presented through storytelling. Each Good Practice tells a story of transformation how an idea was born, the motivations behind it, and the steps taken to bring it to life, including the origins, and opportunities identified (for example market gaps). All examples are described as a journey of development, each with its own key milestones, partnerships and results that shape their concrete case.

One of the key intakes of showcasing these Good Practices is addressing their specific challenges and the solutions provided, as they are the most crucial insight from which users can learn. Innovation in the plant-based sector is not without its obstacles.

Many challenges are faced by early adopters and pioneers, and could be because of:

01. Technical barriers

Technical barriers, such as lack of infrastructure and equipment, but also knowledge and technical training.

02. Consumer Scepticism

Consumer scepticism, as many consumers are still hesitant to consume plant-based due to taste or high prices.

However, these **Good Practices** often highlight how these challenges have been overcome. These solutions could be grouped in:

01. Adopting innovative processing techniques

Adopting innovative processing techniques Investing in the latest technology but also changing approaches and being open to new and different ways of delivering their final product.

02. Engaging with consumers

Engaging with consumers through marketing campaigns, transparency and creating a relatable brand to which consumers can be loyal to.

03. Integrating circular economy principles

Integrating circular economy principles. Such as local sourcing, reusing and recycle and waste management.

Altogether, these Case Studies showcase the benefits they offer to both their own initiatives and the plant-based sector. Following the Competency-Based Learning methodology, each case is representative of one specific skill and demonstrates how that skill is used in the plant-based sector.



Ireland **Good Practices**

01 Strong Roots 02 DeDanú Naked Bakes 03 Leaf And Root Farm 04 **Hungry Soul** 05











Strong Roots

Country

Ireland, UK, US, Australia, Canada

Type

Product development and awareness raising

Thematic areas

Plant-Based ingredients and ecofriendly processes

Skill/Competency addressed

Using sustainability as a stream for innovation

Challenge/need addressed

Creation of natural-based frozen snacks

Brief Description

Strong Roots offers a wide range of frozen vegetable recipes (snacks, bites) that are they grow themselves, ensuring that they maintain the freshness throughout all the processing, packaging and delivery. They supply to the most important supermarkets in the Anglo-Saxon world and are highly committed with sustainability.

Strong roots is a plant-based business that sells frozen products, specialising in horticulture snack products (fries, chips, hashbrowns, bites, nuggets...) All these products are made from different vegetables that they grow themselves.

They supply to the most important supermarkets in Ireland, UK, US, Australia, and Canada. Their products follow a strict production development that avoids GMOs, artificial flavours and colours and saturated fat. Therefore, their uniqueness relies in their vegan friendly and source of fibre ingredients. Thanks to this, their products bring fresh food characteristics (health and balance) to frozen meals. Strong Roots aims to bring producers and customers closer together by offering genuine products, involving a minimal processing process, and maintaining the 'roots' of what the consumer gets.

This case study is highly relevant for the project, as it demonstrates how sustainability can become the driver for innovation and represent an opportunity for plantbased business growth. Samuel Dennigan, the CEO, has been surrounded by the fresh product market for most his years, growing up with agricultural crops in his own backyard and learning the ins and outs of the agriculture industry working alongside his father. In 2015 he founded Strong Roots, with the goal of making plant-based products more exciting and original. In the beginning, he found it difficult to enter the fresh vegetables products market, so he started researching and developing products for the frozen category and realised that there was more room for disruption in the frozen category, than fresh. He understood that consumers were flocking to meat alternatives, but they were really craving aspirational vegetables such as

beets and butternut squash, rather than just staletasting vegetable medleys in the frozen category. Moreover, at that time, frozen plant-based was a relative unknown in Dublin and nearly unheard of in the U.K. Since they also noticed that catering services to flexitarians were on the rise in Ireland, Samuel and his team decided to shift their production towards frozen, tasty and natural plant-based alternatives. After quickly establishing in Ireland and UK, Strong Roots entered the US market successfully in 2019 and have ever since then continuously expanded their outreach.

Therefore, many of their business partners believed that Strong Roots was going to peak and end there. This short-term vision affected their relationship with other brands and even consumers, generating a lot of pressure. Strong Roots has sustainability at its core as they are committed to sustainable practices not only in sourcing its food but in its food production (ensuring that its facilities collect rainwater that falls from the factory roofs and store it for later use after proper treatment) waste and energy management (reusing their waste, such as peels) which are transformed into biogas used to freeze and steam their vegetables), and packaging (using almost zero plastic and completely recyclable packaging).



This represents their main drive for innovation. They are committed to food safety which became a key priority as soon as they started in the US market. To ensure freshness, their farmed vegetables are frozen 30 minutes off the ground. Sustainability is also tracked thanks to their collaboration with Carbon Cloud's ClimateHub, including Strong Roots in their database, allowing the user to check the estimated CO2 emissions/kg of all their products.

Additionally, they have launched several social missions, donating stock (avoiding food waste), raising funds and partnering with other food waste initiatives (FoodCloud, City Harvest). All together has translated into a reduction from 36% to 28% decrease in transport weight across their product portfolio.

Strong Roots is currently the only frozen food brands to be B Corp certified (obtained in 2020), meeting high standards of environmental and sustainable performance. Consumers can find Strong Roots products across Ireland, the U.K. and the U.S. in almost all national retailers, including Tesco, UK and Walmart, and Whole Foods in the US. Strong Roots' products are also sold in over 8,000 stores worldwide including Singapore, Iceland, United Arab Emirates, Australia, The Netherlands and France. Thus, Strong Roots represents a good example on how sustainability can become the main driver for innovation and growth.

All of this represents their main drive for innovation. Strong Roots is also committed to food safety which became a key priority as soon as they started in the US market.







deDANŰ



Country

Ireland

Type

Product development

Thematic areas

Plant-based ingredients, innovative technology

Skill/Competency addressed

Merging technology with organic production

Challenge/need addressed

Develop carbon neutral, plant-based skincare range

Brief Description

DeDanú represents one of the best examples on how entrepreneurs can shift towards a plant-based business. Leah Fletcher, founder of DeDanú, established her business as a provider of manufactured skincare and beauty products that combine circular biotechnology practices, clinical research and local agricultural resources, resulting in innovative plant-based products. Her case offers an example on how entrepreneurs can 'think outside the box' for developing new plant-based products other than food-related.

DeDanú is an Irish enterprise, founded by Leah Fletcher, a woman entrepreneur who has dedicated all her professional career to plant-based innovation.

DeDanú is a wellness, beauty, skin and health product business. All their products are organic and are derived from plant origin. DeDanú formulates, manufactures and distributes all their products from their state-ofthe-art facility. Their plant-based products are sourced locally, aiming for the most natural, locally cultivated and botanical ingredients.

DeDanú has built a strong partnership network with farmers, herbalists and other suppliers, that ensures a superior quality product. This quality is reflected in their allergen-free properties, avoiding unnatural chemicals, fragrances, toxins, carcinogens, fillers or genetically modified ingredients.

They are committed to creating carbon neutral products. Their packaging is recycled glass, and they only use circular manufacturing processes. Moreover, they keep their distribution networks centralised, to supply locally.

DeDanú represents a good example of how technological innovation can be applied to the plantbased business, in this case, focused on the wellness and beauty sector. This is highly relevant to the Plant Power project, showing that plant-based innovation extends beyond food and beverage into health, beauty, and skincare as a broader example of innovation.

Leah Fletcher, originally from Athlone, Ireland, returned home after 10 years in Vancouver to launch Ireland's first carbon-neutral health and wellness brand. While in Canada, Leah noticed a rapid increase in the number of synthetic skincare products on the market that shout quick results but unfortunately led to long-term skin problems. She then noticed a gap in the market for carbon-conscious and plant-based products. She acknowledged the opportunity between pharmaceutical and wellness technology and new health trends.

In the end, this was an opportunity for her to bridge the gap between true sustainability, conscious business practices and product transparency. In 2017, Leah founded Arbutus, an Innovation centre for plant-based businesses. After observing the potential that research and technological application could bring there, she founded DeDanú, and therefore shifting towards a plant-based business.

The main challenge that Leah encountered was financial. She had enough to invest in DeDanú thanks to the profit she made from Arbutus. However, this was not the case for Arbutus.



To get funding, she applied for the Connected Hubs Scheme, a government fund for existing hubs and Broadband Connection Points. These fundings help build their assets and their connected working ecosystem. Once Arbutus was set, Leah made use of their pharmaceutical equipment to develop DeDanú products, further benefiting from it.

Their business model based on Slow Beauty, a system consisting of the latest extraction technologies that harnesses the ancient plant power of hemp and CBD. These two properties reduce inflammation and bolster the immune system while adding powerful antioxidant protection. Their clinical studies after using their products saw impressive results for participants suffering from psoriasis, sunspots, acne, eczema, dermatitis... They are constantly testing new solutions

to regularly keep your eyes and what they have previously formulated.

DeDanú has received formal recognition to its business, winning the 'Best high-end CBD brand' in 2020 and 'Most sustainable skincare brand' in 2021. After having established itself as one of the most reliable plantbased businesses in the region, DeDanú is currently exporting to North America and intends to expand its Irish team while simultaneously launching its Canadian operations in the coming years. Made with pharmaceutical standards, sustainable practices and a minimal carbon footprint, users of DeDanú products can indulge in luxury without experiencing the guilt that regularly comes with mainstream beauty industry offerings.

This story exemplifies the case of an entrepreneur who saw an opportunity to operate and shift towards a plant-based business. It also exemplifies how technology and plant production can report benefits both for the business and the environment.









Country

Ireland

Type

Product Development

Thematic areas

Plant-based ingredients, production and distribution

Skill/Competency addressed

Reinventing business and identifying market opportunities

Challenge/need addressed

Bringing the taste of traditional baked goods to vegan customers without compromising on flavour

Brief Description

Naked Bakes is a vegan, plant-based bakery business that offers vegan bakery products. They are an example of how plant-based food businesses merge with traditional bakery (in terms of flavour and packaging) without compromising the essence of vegan bakery. This innovative business has managed to find new markets and customers, which are not necessarily vegan, by reinventing their branding and packaging.

Naked Bakes is a plant-based vegan baking brand, owned by Aisling Tuck, an entrepreneur who has created an innovative product, successful among Irish consumers. Its main objective is to provide customers with a plant-based bakery, 100% Non-animal-related products.

Traditional bakeries rely heavily on eggs, butter, milk, and processed fats. In contrast, Aisling's business stands out as a plant-based alternative that not only embraces innovation but also delivers sustainable products that meet strong market demand.

Naked Bake's story demonstrates the power of innovation and the importance of reinventing the business mission. Naked Bakes was born as a rebranding of 'Oh Happy Treat', the previous plantbased bakery business that Aisling funded. This new rebranding has launched the business idea to another level, reaching bigger audiences and becoming more relevant. It is a good example, taken from the Irish country, to raise awareness of the importance of thinking outside the box, and be willing to constantly reinvent through innovation in plant-based products.

In 2017, Aisling started baking in her parent's kitchen. She did so by using only vegan ingredients, following her dietary choice. Her hobby became her passion, and she decided to start selling her surplus. After reaching out to her neighbours, and local shops, she saw a big gap in vegan bakery and started professionalising her business. The main innovative element was that these vegan products tasted, thanks to the combination of different plant-based ingredients (seeds, legumes, flours, nuts, and of course sugar), the same as traditional baked goods. Vegan consumers (which were growing rapidly) could now continue enjoying the flavours of traditional bakeries without compromising their diets.

Motivated by her vision, she launched her vegan bakery, Oh Happy Treats, a year later. Starting out in a tiny kitchen, she supplied a small group of customers and gradually expanded. From the beginning, the business focused on simplicity- offering bakery-style cookies made with just eight ingredients. The concept was easy: slice, bake, and enjoy.

When the COVID-19 pandemic hit and lockdowns began, she saw an opportunity. With home baking on the rise, she decided to package the cookie dough they were already making for cafés. The idea took off, tapping into the growing demand for convenient, highquality baking at home.

Offering a vegan alternative for aspiring home bakers, Aisling packaged her plant-based cookie dough and turned it into a retail product. She managed to meet the demand for fresh cookie dough made with plantbased natural ingredients that don't sacrifice taste. As she explains, her main challenge has been developing the right products. Producing vegan products is not easy, since all ingredients are quite specialised and cannot be found easily at wholesale levels.

She combined those limited ingredients in a way that imitates the taste of non-vegan bakery. This meant spending more money and time in the development process. She found this process useful, because with every failed recipe or combination, she extracted very concrete knowledge that she applied to the next recipe. For every new product, she had to go through many batches of bad cookies. According to her, some of her best recipes took a year to be developed.



Following 2020 and seeing that her business had great chance for expanding, she decided to engage in a new rebranding, changing the original 'Oh Happy Treats' to Naked Bakes. This represented a turning point in her business. The rebranding reported a 25% increase in her products, opening physical stores. As she mentions in several interviews, she herself designed the new rebranding in Canva. During her experience in the vegan business, she realized that vegan products were perceived different, something to be bought by a very small niche of consumers. She realized that her products could be perfectly sold together with traditional bakery, but since they had the label 'vegan', non-vegan people could think they would taste differently. Therefore, she rebranded her business, giving it a fresh new look, willing to show what they were: all-natural but anything but bland. Their new packaging, featuring bright colours and fun fonts, reassembles more to typical bakery rather than a specialised product.

The new branding did not affect their core values. By using all Irish ingredients, they are committed to sustainability, as well as working towards an ecofriendly model. Being a plant-based business, they are already naturally quite sustainable in terms of the ingredients they use. In terms of packaging, they try their best to be as sustainable as possible too. For instance, the brown paper that the cookie dough is rolled up in can be used as a sheet of parchment when it comes to baking, all that's left to do is slice it up and hake.

Naked Bakes is rapidly growing, and in 2023 they obtained the gold award as the Blas na Éireann Irish Food Awards being shortlisted for two more at the 2024 awards. That same year, Naked Bakes started supplying to Lidl and SuperValu stores as part of a twoweek promotion and further becoming frequent suppliers to their stores. They have a successful manufacturing factory in Tallaght, employing 12 people. In the mid-term, Naked Bakes is open to exploring opportunities in the UK for expansion.

Learners can benefit from this example by understanding the importance of trying to find gaps in the market and acknowledge the importance that plant-based products have on consumer demands.



Advanced

Leaf and root



Country

Ireland

Type

Product Development

Thematic areas

Plant-based ingredients, ecofriendly strategies

Skill/Competency addressed

Building and setting up an agroecological horticulture business

Challenge/need addressed

Bringing together farmers with land, producing organic products

Brief Description



Podcast with **Fergal Anderson** on the next page Leaf and Root is a certified organic farm in Ireland, co-founded by Fergal Anderson, which is the person interviewed in this podcast. By embracing agroecology, the farm integrates sustainable food production with natural ecosystems, empowering local communities through education and Community Supported Agriculture (CSA). As part of Talamh Beo, Fergal advocates for food sovereignty and sustainable farming practices, inspiring innovation and collaboration in agriculture.



Podcast interview with Fergal Anderson from Leaf and Root Farm

Click to watch...



Website

www.leafandroot.org

Contact

www.leafandroot.org/contact

CLICK TO **VIEW**

LEAF AND ROOT





Interview with Jacques **Brennan** on the next page





Country

Ireland

Type

Plant-based Cheese

Thematic areas

Sustainable food production, plantbased alternatives, food innovation

Skill/Competency addressed

Combining innovation, sustainability, quality & health in natural food products.

Brief Description

Hungry Soul, a plant-based food producer in County Clare, Ireland, founded by Jacques, who began exploring plant-based alternatives to improve his health. His journey started with a cookery book 'Hungry Soul', which evolved into hands-on research in vegan food products. Dissatisfied with the limited cheese-alternative options available, Jacques turned to product development. Initially, he experimented with firm plant-based cheeses, but it was his softstyle plant-based cream cheese that resonated most with taste-testers. Recognising the potential for a high-quality, flavourful, and versatile vegan alternative, he developed Hungry Soul Spread It!, a plant-based cream cheese. The simplicity of its production process enabled a faster route to market. Packaging challenges -such as shelf life- were overcome through iterative testing. What sets Spread It! apart is its that it performs well in cooking and baking too. The brands core mission is providing nutritious, ethical food without animal harm. For the Hungry Soul team, that's the real success.



<u>Interview</u> with Jacques Brennan from Hungry Soul

Click to watch...



Website

www.hunrysoulplantpower.com

Contact

https://hungrysoulplantpower.com/contact/







- 01 Molinos Del Duero (Brand: Alere Vital)
- 02 Hiperbaric
- 03 NaturSnacks
- 04 Natac
- Pharmadus Botanicals 05









Country

Spain

Type

Product Development

Thematic areas

Plant-Based ingredients, ecofriendly strategy processes

Skill/Competency addressed

Merging technology with sprouting as a sustainable bioprocess

Challenge/need addressed

Innovate and diversify in the flour market and develop nutritive and functional plant-based flours from sprouting

Brief Description

Duero (Brand: Alere Vital)

Alere Vital, a brand dedicated to the transformation of cereals committed to enhancing the well-being of people, creating initiatives that inspire a healthier lifestyle. Alere Vital has carried out research and development work, in a journey towards natural, sustainable, environmentally friendly and quality, helping to achieve a healthy and natural lifestyle.

Although germination is an ancestral strategy to produce spouts widely used in Asia, the production of plant-based flours has spread worldwide and gained interest during the last decade, probably associated to environmental concerns, health awareness, and new consumer preferences. Health benefits, circular strategies and sustainability are probably the main drivers of the germination success.



The idea of using grain sprouting as strategy to create plant-based flours with enhanced nutritional value and modified functional properties may be simple, but on the other hand it demands a stepwise optimisation of the process to ensure satisfactory results.

Sprouting involves soaking seeds in water, allowing them to germinate under controlled conditions of humidity and temperature. While this process enhances seeds' nutritional profile, it poses significant challenges, as high moisture levels and warm temperatures create an ideal environment for microbial growth, resulting in product short shelf life and storage difficulties with risk of presence of foodborne pathogens.

Optimisation is relatively straightforward, conditions needed to be established. The first hurdle was to standardize sprouting conditions, which vary significantly due to grain type and even cultivars. Parameters such as germination time, temperature, and light exposure needed to be optimised to maximize nutritional benefits while minimising microbial risks.

For instance, barley needs would require a relatively low germination temperature to maintain its structural integrity, while quinoa would need higher temperature conditions to achieve full germination. Tailoring the germination process would also ensure consistent results, enhancing objectives such as nutrients' bioaccesibility or anti-nutritional factors reduction, such as phytic acid.

Once sprouting was completed, the next challenge is

preservation, with drying becoming the critical step. Traditional drying methods often result in inconsistent texture and colour, and in reduction of bioactive compounds; innovative techniques, such as lowtemperature dehydration and vacuum drying could help to retain sprouts' functional and organoleptic properties.

Due to the heightened risk of microbial contamination of sprouts, a prevention protocol needed to be established. These included seed sanitization before sprouting, water quality monitoring, and postgermination microbial stabilization treatment. The use of mild heat treatments and natural antimicrobial agents were two technological possibilities to further reduce microbial load without compromising the sprouts' nutritional integrity. By addressing these safety concerns, it could be ensured compliance with European Union regulations for sprouted seed production, increasing chances for a broad market acceptance.

The final technical challenge is transforming the dried sprouts into functional flours. Milling required careful calibration to produce a fine, consistent powder while preserving the sprouts' enhanced nutritional properties. The resulting flour exhibited improved techno-functional qualities, such as higher water absorption and enhanced binding properties, making it suitable for diverse applications in the food industry such as instant soups and creams.

Sprouted flours have potential application such as gluten-free breads or high-protein snacks. Each application showcased unique advantages, such as increased fibre content, improved digestibility, and bioactive compounds that provide health benefits as for example reduced inflammation and oxidative stress.

This technical trip is not just about overcoming challenges but about creating a blueprint for sustainable food production. Sprouting as a process required minimal inputs (less energy, water etc), making it an eco-friendly alternative to traditional food manufacturing. The ability to sprout a variety of seeds, including pulses, pseudocereals, and ancestral grains, promoted biodiversity and supported local agricultural systems.

of technical The combination precision sustainability lays the foundation for a thriving new market. While still in its incipient, sprouted flours hold immense potential to revolutionise plant-based diets, meeting consumer demand for nutritious, flavours, functional, and environmentally friendly products.

The sprouting process is a sustainable model of innovation since it unifies tradition and technology. By embracing technical innovation at every step, from germination to drying and milling, this approach has turned a simple natural process into a scalable, sustainable practice. Every day more SMEs use this strategy to produce plant-based flour. Molinos del Duero is a Spanish enterprise which have begun to implement this strategy to produce more sustainable and healthier new plant-based flours.

The company Molinos del Duero created Alere Vital, a young brand with the expertise of a long-standing company, that was born with the purpose to innovate in the world of flour and bring to the market products with new properties that improve well-being. To this aim, they have carried out research and development work, on a journey towards the natural, sustainable and respectful of the environment and quality, which help to achieve a healthy and natural lifestyle. Their sprouted grain flours are made from whole grain flour and organically grown, with controlled germination, drying at low temperature and finally milled in a stone mill.

The company Molinos del Duero created Alere Vital, a young brand with the expertise of a long-standing company, that was born with the purpose to innovate in the world of flour and bring to the market products with new properties that improve well-being

> **CLICK** TO VIEW

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Country

Spain

Type

Plant based ingredients, innovative technology

Thematic areas

Innovative technology & Digitalisation

Skill/Competency addressed

High pressure processing technology for plant-based food and beverages

Challenge/need addressed

Create safe products with HPP making efficient use of resources

Brief Description

High Pressure Processing (HPP) technology is synonymous with minimally processed, ready-to-eat products of higher sensory and nutritional quality with an extended shelf life that reduces food waste; and with total food safety. HPP can be applied on packaged products (In-Pack), avoiding cross contamination; or directly on bulk liquids for greater productivity and having no limitations on packaging (In-Bulk). This technique allows to drastically reduce or eliminate the use of preservatives or additives in food (clean label products).

In recent years, consumer behaviour has shifted dramatically. A growing emphasis on health, sustainability, and ethical choices has promote a new model of consumers who prioritise plant-based products. Consumers expect highprotein, nutrient-dense drinks with added functional benefits such as prebiotics, antioxidants, or other benefits with impact on their well-being. Moreover, the need to fight against climate change has made sustainable choices even more attractive. Plant-based drinks have a smaller carbon footprint compared to dairy or animal-based alternatives.

However, to produce and preserve these beverages is not an easy task. In the late 1980s, an innovation labs of Japan revolutionized the food processing industry with a new pasteurisation methodology without heat, this process was called High-Pressure Processing (HPP). Using water and pressure, discovered a way to produce safe products without temperature keeping the original colour, taste and flavours.

At first, this technology was used for meats, jams and sauces. Over time, its versatility became evident, and this technology has spread to drinks ensuring food safety and keeping products fresh and delicious. But the real transformation happened when HPP move to fresh and nutritional plant-based drinks. HPP aligns perfectly with the clean-label trend, allowing manufacturers to maintain natural freshness without chemical preservatives and produce cold press drinks. Although the technology offers a quick, reproducible and safe process to produce fresh beverages, the path to widespread the technology and methodology is not easy and has to overcame different obstacles.

The HPP machine requires significant investment, and not all companies can afford it however, big innovative public facilities and private companies offer tolling services, where businesses could use facilities to process their products and can help to optimise the process of their products. Also, finding the ideal pressure (typically 300-600 MPa) and holding time to effectively inactivate pathogens while preserving sensory and nutritional qualities can be a challenge for small companies that need support to find the optimal treatment.

Eco-conscious thinkers also looking for ways to change conventional plastic packaging into biodegradable aligning with sustainability goals. Today, HPP continues to expand in Spain and Castilla y León counts on one of the few producers of this technology called Hiperbaric who lead the way with cutting-edge equipment and research, while local producers embrace its potential for unique products.

The story of Hiperbaric is an exciting journey of 25 years of work, effort and passion. It began in 1999 with a dream: to revolutionize the food industry with innovative and safe technology. That dream became a reality with the birth of Hiperbaric, a pioneer in the development of High-Pressure Processing (HPP) equipment. Since then, Hiperbaric has continued to grow and evolve, driving innovation in the HPP sector and transforming the way we consume food.

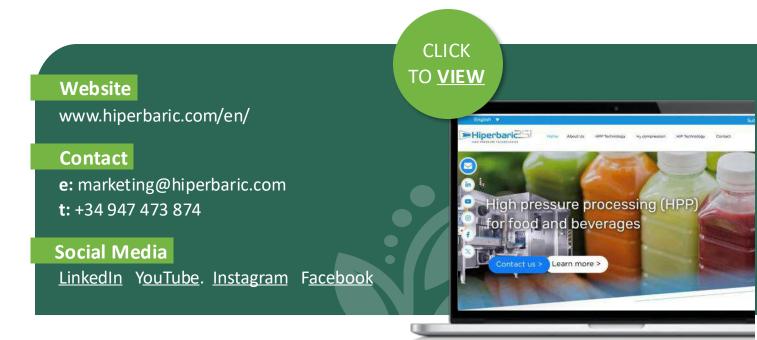


As is often the case with great stories, it all started in a small boiler making workshop. There, in 1999, under the umbrella of an R&D project led by Andrés Hernando, CEO and founder of Hiperbaric, and with the help of a young team, the first prototype of a High-Pressure Processing (HPP) industrial food processing equipment was born. "At that time, HPP technology only existed in laboratories; we were the ones who extended it to an industrial scale," Hernando points out.

The company has achieved at national and international level different awards for his contribution to innovation and technological progress, so it has invested heavily in R&D, which has enabled it to develop increasingly efficient and safe equipment, as well as to expand the applications of HPP technology to new sectors such as pharmaceuticals, cosmetics and biotechnology.

Hiperbaric faces the future with optimism and ambition. The company plans to continue investing in R&D to develop new innovative solutions that meet the needs of the food industry and consumers. Andrés Hernando assures that "HPP technology has enormous potential to contribute to food safety. At Hiperbaric, we are committed to continue driving innovation in this field to build a better future".

Hiperbaric's journey is an example of innovation, passion and commitment. A story that has transformed the food industry and continues to write a safer and more sustainable future for all. As consumer demand for healthier, more sustainable options grows. HPP stands ready to answer to these demands and support to local farmers on the production of plant based ready to drink.









Country

Spain

Type

Product Development

Thematic areas

Plant based ingredients, innovative technology, ecofriendly strategies processes & production

Skill/Competency addressed

Combining innovation, sustainability, quality & health in natural food products

Challenge/need addressed

Promote healthy and sustainable alternatives in daily meals

Brief Description

NaturSnacks represents a leading example of innovation in the healthy food industry. Sandra de Blas, founder of NaturSnacks, specialises in producing natural snacks through dehydration processes, combining sustainability, local agricultural resources, and cutting-edge food technology. By offering convenient and nutritious alternatives to traditional snacks, NaturSnacks showcases how businesses can address the growing demand for healthier and more sustainable eating habits, paving the way for innovation beyond conventional food production methods.

Nowadays farmers and small and medium enterprise (SME) faced an abundance of fruits and vegetables with limited shelf life. Recycling fruits and vegetables into new products is an excellent pathway to achieve zero waste creating innovative and sustainable products and reducing environmental impact. Drying process can turn the waste into new opportunity to produce high value goods.





Most of the innovation lays in new market trends and consumer demands. Global awareness about sustainability and health-conscious eating habits underscored the need for nutritious products, longlasting, and convenient. Simultaneously, the local market sought ways to manage agricultural waste effectively.

Traditionally drying methods have been used for the preservation of foods; however, sun-drying is an inconsistent process which often compromise the quality of the food and difficult to reproduce overtime. Conventional drying processes struggled to meet the dual demands of quality preservation and scalability. Initial setups required significant energy input and logistical hurdles, such as control of uniform heating and cross contamination during the drying process.

However new technological drying approaches within traditional knowledge can be incorporated into advanced engineering remarkable and bring innovations for the development of novel food products. Drying emerged as a game-changer. Unlike conventional methods, this technology reduces the need of chemical preservatives, extended shelf life without refrigeration. The low temperature during the drying allow to produce ready to eat fruits and vegetables full of texture.

Drying offers an exciting opportunity to revolutionize how fruits and vegetables are preserved, marketed, and consumed. Drying locks in nutrients, flavours, and textures, making it ideal for consumers looking for convenient and healthy snacks. Highlighting the origin and journey of the produce can enhance its appeal.

Consumers are drawn to products that demonstrate environmental responsibility. Drying reduces food waste by preserving surplus or "imperfect" fruits and vegetables, and this narrative can be a key marketing point. This technology allows brands to personalize products for specific markets and consumers looking for healthy snacks and ready-to-eat products.

However, drying industry faces several challenges that impact its growth, efficiency, and adoption. Probably the main drawback is the high energy consumption as one of main aspects, nowadays the process is energyintensive, requiring significant power for drying. Also, the cost of equipment and operation can make it less accessible for small-scale producers. However, invest in energy-efficient technologies, renewable energy sources, and improved insulation of drying ovens to reduce operational costs can be applied easily helping on the implementation of the technology.

Variability in product quality, such as uneven drying or texture changes, can occur due to improper parameter settings. However, the development of standardized protocols for different food types and invest in realtime monitoring systems to ensure consistent quality.

This technology is an important step for the improvement of fruit and vegetable sector. However, educate consumers about the benefits of dried products through marketing campaigns, collaborations with retailers, and clear labelling about nutrition and convenience is required to promote it.

NaturSnacks is a small Spanish enterprise located in Pedrajas de San Esteban, Valladolid, founded by Sandra de Blas who is enthusiastic for offering a healthy and sustainable alternative in the food sector. NaturSnacks is dedicated to the production of healthy snacks, made with 100% natural and plant-based ingredients. The company develops, produces and distributes all its products, ensuring high standards of quality and sustainability.

The ingredients used by NaturSnacks are carefully selected, prioritizing local products and promoting sustainable agricultural practices. This approach ensures that the products are free from allergens, artificial preservatives, colourings and genetically modified organisms.

A particular aspect of NaturSnacks is its strong engagement in sustainability. The enterprise uses recyclable packaging and follows a circular production model to minimise its carbon footprint. In addition, it works closely with local growers, promoting a business model based on fair trade and rural development.

NaturSnacks is an example of how technological innovation can be applied to the health food sector. This case not only highlights how plant-based innovation can be a reality in the snack market but also demonstrates the positive impact it can have on consumer health and the environment.









Natac

Country

Spain

Type

Product Development

Thematic areas

Plant based ingredients, innovative technology

Skill/Competency addressed

Novel ingredients production

Challenge/need addressed

Develop novel ingredients

Brief Description



Podcast with José María **Pinilla** on the next page

Natac is an eco-friendly company which uses the most advance extraction and purification technologies for the production of premium-quality plant-based ingredients. Their portfolio comprises extracts derived from Olive, Saffron, Rhodiola, Echinacea, Artichoke, and many more traditional plants that are well-documented in scientific literature. Each extract is concentrated with its own profile of bioactive compounds such as polyphenols, flavonoids, and triterpenes, among others. The diversity of their botanical portfolio provides a range of health benefits, like improving cardiovascular protection, supporting mental wellness, boosting immunity, and more. These powerful benefits can differentiate your products, and make you stand out in the market. Thanks to their expertise, their large production capacity, an integrated sustainability model, and organic certification, Natac continues to push the boundaries as a leader in the global botanical industry.



Podcast interview with José María Pinilla from Natac Group

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Interview with Beatriz Escudero on the next page





Country

Spain

Type

Product Development

Thematic areas

Plant-based ingredients, innovative technology

Skill/Competency addressed

Novel herbal productions

Challenge/need addressed

Develop novel wellbeing teas

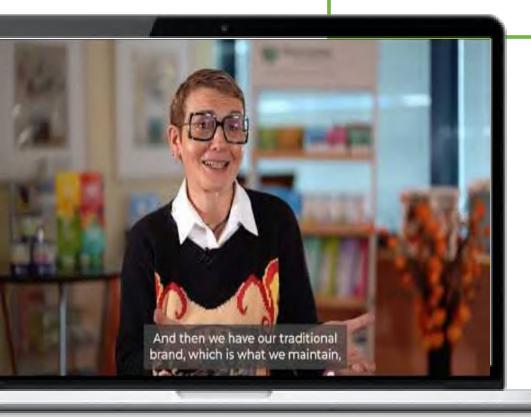
Brief Description

Pharmadus Botanicals started in 1965, in Ponferrada. Surrounded by nature and situated in the region of Bierzo, lived the Escudero family. There begins "Infusiones La Leonesa", an artisan workshop that later would become an industrial facility and always with a clear aim: to take care of people's health through the infusions. The first product that came out of this new factory was Manasul: an exclusive and effective formula for weight control and constipation. Manasul reached the cups of millions of homes all around the world. It was so successful that the company changed its name and was renamed "Manasul Internacional". It was the first Spanish multinational in medicinal plants, with headquarters in Switzerland, Korea, Chile and the United States. The facilities and processes have been designed to take special care of the product, with the highest standards of Food Safety: controlled atmospheres, pharmaceutical clean rooms, pressurised SAS, our own microbiological and physic-chemical laboratory (determination of active principles, control of pesticides, pollutants and heavy metals.). Pharmadus Botanicals selects its suppliers at source to have only the best plants and constantly monitors its products with quality audits. We only use organic herbs that meet our standards for high quality.



<u>Interview</u> with **Beatriz Escudero** from Pharmadus Botanicals

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Biofarm Príroda

Country

Slovakia

Type

Sustainable organic farm

Thematic areas

Ecological technological strategies, sustainable food production, circular economy

Skill/Competency addressed

Organic farming, water conservation, zero-waste management and permaculture

Challenge/need addressed

Demand for organic, locally produced food; minimising environmental impact

Brief Description

Biofarm Príroda is an example of a sustainable agricultural business in Slovakia that integrates ecological technologies and direct farmto-table distribution. The farm focuses on organic vegetable and livestock production, eliminating synthetic pesticides and fertilizers, and implementing permaculture principles. It uses rainwater irrigation systems, composting, and recycled packaging to minimise its ecological footprint. Direct sales to customers allow the farm to maintain price competitiveness while ensuring fresh, high-quality organic food.

This model can serve as an inspiration for farmers who want to switch to organic farming but are concerned about the financial or technical challenges. It shows that a combination of traditional and modern approaches allows for the creation of a competitive organic business.



Biofarm Príroda is an example of a sustainable agricultural business that combines ecological technologies, minimisation of environmental burden and local production. This model is particularly relevant in the context of the project, as it demonstrates how small and medium-sized enterprises can implement ecological strategies while maintaining competitiveness in the market. It explains how farms can contribute to the circular economy and support sustainable food chains.

Biofarm Príroda was established in response to the growing demand for organic food in Slovakia. The founder of the farm, with many years of experience in agriculture, realised that consumers were increasingly interested in the origin of food, the way it was grown and the environmental impact of agricultural production. The identified opportunity was to create a farm that would combine traditional agricultural practices with modern organic technologies, while offering local and fresh products directly to customers. The farm faced several challenges in the beginning. One of the main problems was the higher price of organic products compared to conventional food, which made it difficult to enter the market. It also required significant investments in green technologies, such as a rainwater irrigation system and natural plant protection methods. The farm overcame these challenges by selling directly to customers, eliminating intermediaries in distribution and increasing price

competitiveness. also engaged lt various environmental initiatives and obtained organic certification, which helped it build customer trust.

Biofarm Príroda is characterised by several innovative elements. The first is the introduction of permaculture principles, which support natural biodiversity and reduce the need for external inputs. The second innovative element is the use of recycled materials for product packaging and the implementation of a zerowaste policy, which minimises waste. From a business perspective, the farm brings a sustainable business model that shows that organic farming can be not only environmentally responsible, but also economically viable. From a social perspective, it contributes to the development of the local economy, creates jobs and provides healthy and quality food to consumers. Currently, Biofarm Príroda is active and constantly expanding its production. Expansion into other regional sales channels and cooperation with larger retail chains are planned, while maintaining direct deliveries to Medium-term plans customers. include introduction of agrotourism activities, where visitors could learn about the principles of organic farming and try out farming activities. The long-term goal is to expand educational activities in the field of organic farming and become a model farm for other businesses that want to switch to sustainable farming.

This model can serve as an inspiration for farmers who want to switch to organic farming but are concerned about the financial or technical challenges. It shows that a combination of traditional and modern approaches allows for the creation of a competitive organic business. Another advantage is the demonstration of how to effectively communicate the values of organic farming to customers and build a brand based on transparency and trust.

Biofarma Príroda represents a successful model of organic farming, combining sustainable technologies, direct deliveries to customers and transparent communication. This case shows that organic farming can be economically profitable if the business strategy is set correctly and modern technologies are effectively used. Biofarma can thus serve as a model for similar initiatives that want to achieve sustainable food production without negative impacts on the environment.

Biofarm Príroda is characterised by several innovative elements. The first is the introduction of permaculture principles, which support natural biodiversity and reduce the need for external inputs. The second innovative element is the use of recycled materials for product packaging and the implementation of a zerowaste policy, which minimises waste













Alfa Sorti

Country

Slovakia

Type

Plant-based food production company

Thematic areas

Sustainable food production, plantbased alternatives, food innovation

Skill/Competency addressed

Plant-based food processing, sustainable packaging, food technology innovation

Challenge/need addressed

Growing demand for high-quality plantbased meat alternatives

Brief Description

Alfa Sorti is a Slovak company specialising in the production of plant-based food alternatives and develops innovative meat-free products using advanced processing technologies. Their products are high in protein, cholesterol-free, and free of artificial preservatives. Sustainable packaging initiatives and a focus on reducing their carbon footprint contribute to a more environmentally friendly food system while maintaining strong market competitiveness.

Alfa Sorti was founded with the aim of offering consumers healthy and tasty alternatives to traditional meat products. The company's founders identified a growing demand for plantbased products that would satisfy the needs of vegans, vegetarians, but also flexitarians and people looking for healthier eating options



Alfa Sorti is a Slovak company specializing in the production of vegetable food products that serve as alternatives to meat. Their brand "Goody Foody" offers a wide range of vegan and vegetarian products, contributing to the development of the plant-based food market in Slovakia. Their innovative approach to the production and packaging of these products is in line with the goals of the project aimed at supporting sustainable and ecological solutions in the food industry. Alfa Sorti demonstrates how plant-based alternatives can be implemented into the wider food chain, thereby supporting nutritional diversification and reducing environmental burden.

Alfa Sorti was founded with the aim of offering consumers healthy and tasty alternatives to traditional meat products. The company's founders identified a growing demand for plant-based products that would satisfy the needs of vegans, vegetarians, but also flexitarians and people looking for healthier eating options. This trend was supported by increased interest in healthy lifestyles and sustainability, as well as growing consumer concerns about the environmental impact of animal production. The market showed a lack of quality plant-based alternatives that would resemble traditional meat products in terms of taste and texture, which Alfa Sorti saw as a key opportunity.

The company faced several challenges in developing its products. The first challenge was to create plant-based products with a texture and taste like meat, which required investment in research and development of technologies for processing plant-based ingredients. The company tested various methods, such as extrusion and fermentation of plant proteins, to achieve an authentic taste profile.

Another challenge was to convince traditional consumers of the benefits of plant-based alternatives. In Slovakia, plant-based alternatives were not as popular as in Western countries until a few years ago. which meant that Alfa Sorti had to invest in marketing campaigns, organizing tastings and collaborating with influencers in the field of healthy nutrition. An important part of their strategy was also to include the products in regular supermarkets, making them available to the public.

Alfa Sorti has implemented innovative technologies in the production of its products, which has allowed it to achieve high quality and authentic taste. Their key innovations include the use of high-pressure processing of plant-based ingredients to achieve a meat-like texture, as well as optimizing recipes for maximum nutritional value. Their products are rich in protein, cholesterol-free and made without artificial preservatives, which brings health benefits to consumers.

From an environmental perspective, they contribute to reducing their carbon footprint by offering alternatives to meat, the production of which is resource-intensive. Plant-based alternatives have a significantly lower impact on water and soil resources, thus contributing to the sustainability of the food system. In addition, the company has invested in the development of sustainable packaging, thereby reducing plastic waste.

Alfa Sorti is an example of how plant-based innovation can be integrated into mainstream food markets. This case shows how product development, consumer education & sustainable packaging can create appealing meat alternatives that support healthier diets & reduce environmental impact.



Beginner





Vegget Microfarm

Country

Slovakia

Type

Innovative urban microfarm

Thematic areas

Urban agriculture, sustainable food production, circular economy

Skill/Competency addressed

Vertical farming, organic cultivation, water-efficient irrigation, community engagement

Challenge/need addressed

Limited space for food production in urban areas, reduction of emissions

Brief Description

Vegget Microfarm integrates vertical farming and organic cultivation techniques to produce fresh greens, herbs, and microgreens in an **urban setting**. They employ a **zero-waste** philosophy, composting all organic waste and using biodegradable packaging. Beyond food production, Vegget is deeply engaged with the local community through workshops, farm open days, and educational programmes that promote sustainable agriculture.

The Vegget model can be an inspiration for other similar initiatives that are looking for ways to effectively use urban spaces to produce healthy, sustainable food.



Vegget Microfarm is a model of modern urban agriculture that focuses on sustainable plant-based food production in urban environments. Their approach combines organic farming methods with community engagement and public education, creating added value not only for consumers but also for the entire urban infrastructure. This case is relevant to the project because it shows how small farming initiatives can integrate organic practices while supporting local food production and consumption. The Vegget model can be an inspiration for other similar initiatives that are looking for ways to effectively use urban spaces to produce healthy, sustainable food.

Vegget Microfarm was created in response to the growing demand for fresh, organically grown food in urban areas. Many people are aware of the importance of local food production and its impact on the environment, while wanting to have access to fresh ingredients without having to import them from great distances. The founders of the farm identified this opportunity and decided to create a concept of sustainable microfarm production within Bratislava, specifically in the Vannoy district of the city.

The main opportunity was to effectively utilise available urban land to grow plant-based products, ensuring maximum freshness and reducing the carbon footprint associated with food transportation. In addition to the production itself, the farm's founders wanted to raise awareness of the benefits of urban agriculture and offer the opportunity to educate the public through workshops and community activities. The founders faced several challenges when setting up

the farm. One of the biggest was the availability of suitable soil in an urban environment. Urban soil is often not suitable for growing because it can be polluted or has an unsuitable structure for plants. The solution was the use of raised beds and hydroponic systems, which allow for effective control of the quality of the substrate and nutrients for the plants.

Another challenge was ensuring sufficient water sources for irrigation. Vegget Microfarm has implemented efficient irrigation systems that minimise water consumption and utilize rainwater to maintain soil moisture.

The third major challenge was to convince the city's residents of the importance of local food production and to encourage their interest in community farming. To this end, farmers began organizing educational events, farm open days, and workshops that allow Bratislava residents to learn about the process of growing food and its environmental benefits.

Vegget Microfarm stands out with several innovative elements that distinguish it from traditional farming models.

- Vertical farming and intensive use of space -1. Since urban farms have limited space, Vegget uses vertical farming techniques and raised beds, which allows it to maximise yield in areas with limited space.
- Organic farming methods Farmers do not use 2. chemical fertilizers or pesticides but apply natural methods of plant protection such as biological spraying, crop rotation, and composting.
- 3. Waste minimisation and zero-waste philosophy - The farm focuses on zero waste, uses recycled and biodegradable packaging, and all organic waste is composted and returned to the soil.
- Community Engagement and Education -4. Regular events are organised where residents can try out farm work, learn about sustainable farming, and contribute to the development of community agriculture.

The business benefits are that Vegget has created a successful urban farming business model with direct sales to customers, increasing profitability and eliminating distribution costs. The social benefits include supporting the local economy, strengthening community relations, and raising awareness of ecological practices in agriculture.

Currently, Vegget Microfarm is active and constantly expanding its product and service offerings. They produce fresh leafy greens, herbs, flowers, and microgreens, which they sell directly to customers and

collaborate with local restaurants.

In the future they plan to:

- Expand their growing space and invest in new growing technologies.
- Develop cooperation with other restaurants and hotels that are interested in fresh local ingredients.
- Strengthen educational activities and create more programmes for schools and community organisations.
- Implement other elements of the circular economy, such as using biowaste to produce compost and biogas.

Vegget Microfarm offers a wealth of inspiration and educational opportunities for individuals entrepreneurs in the field of organic farming. Interested parties can visit the farm, participate in workshops and gain practical experience in growing plants in an urban environment. This case study also shows how modern methods can be used to increase production without negatively impacting nature.

Vegget Microfarm is an example of the successful integration of agriculture into the urban environment with an emphasis on sustainability, community, and quality. Their model shows how to effectively use urban spaces to produce food while promoting environmental awareness and community ties.





page





Country

Slovakia

Type

Product Development

Thematic areas

Sustainable plant-based food technology & circular agri-food processing chains

Skill/Competency addressed

Designing and operating innovative processing lines for fruit- and plantbased raw materials

Brief Description

McCarter is a leader in the beverage market in Slovakia, since 1997. They believe in the power of natural ingredients and the functional benefits of its products. Their philosophy is built on values that shape every step of their work – from the selection of raw materials to the final product. They believe in **natural ingredients without compromise**, where each drink contains only the best that nature has to offer. Innovation is key, they strive to constantly improve recipes and produce new products that bring real health benefits to support a balanced and conscious lifestyle for our customers.

The interview with Juraj Durec outlines how the company develops energy-efficient processing lines—covering washing, cutting, pulping, drying, storage and distribution—for a wide range of fruit and other plant inputs. By collaborating with universities and overseas partners, they create custom-made equipment when none exists, isolate nutrients from natural sources rather than chemicals, power their facilities with renewables, and prepare for upcoming IFS standards.

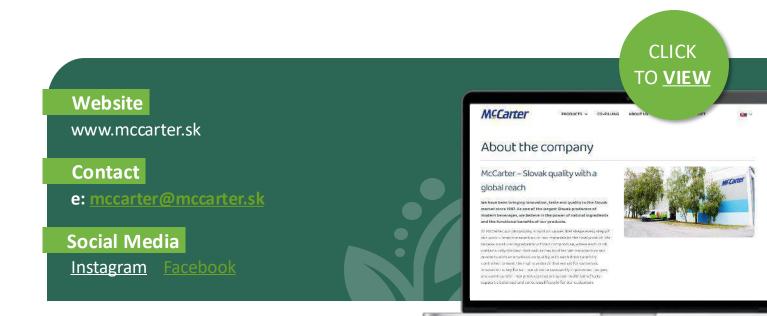
The overarching goal is a fully sustainable, zero-waste supply chain that can deliver highquality, plant-based foods at scale.



<u>Interview</u> with Juraj Durec from McCarter

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Interview with **Vladimir Vietoris** on the next page



ZVÄZ SLOVENSKÝCH VEDECKOTECHNICKÝCH SPOLOČNOSTÍ



Slovak Food Science & Technology Society

Country

Slovakia

Type

Digital transformation

Thematic areas

Emerging technologies for a resourceefficient, transparent food industry

Skill/Competency addressed

Implementing data-driven decisionmaking in food production and ecommerce

Challenges/ Needs addressed

Rising demand for transparent supply chains and verifiable data from regulators and consumers

Brief Description

The Union of Slovak Scientific and Technical Societies (ZSVTS) is a voluntary, public-benefit, non-profit, democratic and non-political association of professional scientific and technical societies, committees and territorial coordination centres. The Slovak Food Science & Technology Society falls under the ZSVTS umbrella and is chaired by Professor Vietoris from SPU.

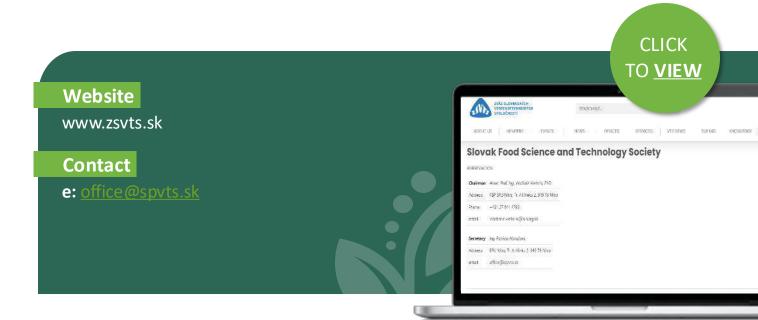
In the six-topic expert interview, Vladimir Vietoris (Chairman of the Society) maps the food sector's key innovation trajectories: exponential advances in automation, Al-assisted product design, and blockchain-based traceability. Digitalisation is portrayed as a catalyst for savings and faster decisions- illustrated by a Slovak nutrition-supplement e-shop that already runs most of its operations on real-time data analytics. Robotics and AI reduce manual labour in both factories and service settings (e.g., HORECA), while synthetic Al-generated "personas" accelerate sensory research without recruiting large consumer panels. **Blockchain ensures** immutable records of origin and quality, although cost and know-how remain barriers for smaller producers. Finally, the expert highlights alternative proteins- especially plant and seaweed streams- as another major pillar, emphasising the need for integrated, automated processing lines to bring these sustainable foods to scale.



Interview with **Vladimir Vietoris** from ZSVTS

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- Naturli' Foods 01
- 02 Organic Denmark
- Cavi-art 03
- Hanegal A/S 04
- 05 Vegetarian Society of Denmark







Naturli' Foods

Country

Denmark

Type

Business / Product Manufacturer

Thematic areas

Plant-based food innovation; Sustainable food systems; Consumer awareness

Skill/Competency addressed

Product development; Market adaptation; Climate-friendly entrepreneurship

Challenge/need addressed

Need for mainstream plant-based food alternatives that match taste and texture expectations; Supporting consumers in shifting diets

Brief Description

Naturli' Foods is a Danish leader in plant-based innovation, offering a wide range of meat and dairy alternatives. With a focus on flavour, texture and climate-conscious production, they make sustainable food choices easier for everyday consumers.

Naturli' Foods is a Danish company that has become a leading name in the plant-based movement across Europe. Established in 1988, the company started with a simple but powerful mission: to offer natural, sustainable alternatives to animal-based foods.

While initially focused on organic products, Naturli' quickly adapted as global awareness around climate change, animal welfare, and health increased. In the mid-2010s, the company identified a gap in the market: many consumers were open to reducing their meat and dairy consumption but struggled to find plantbased options that matched the taste and texture of what they were used to. Naturli' capitalised on this opportunity by developing products that offered familiar eating experiences, making plant-based eating both accessible and enjoyable.

This shift was guided by close observation of consumer behaviour, feedback from focus groups, and strong relationships with Danish retailers. Naturli' realized that if plant-based products were to be accepted by a broader audience, they needed to be positioned not as alternatives, but as everyday foods. One key example of this thinking was their insistence that Naturli' Minced, a 100% plant-based meat alternative, be stocked in the fresh meat section of supermarkets. This was initially met with resistance, but Naturli' held firm,

believing that normalizing plant-based choices meant placing them where shoppers were already making decisions about dinner. The strategy paid off—retailers saw increased sales, and consumers began to see Naturli' as a practical and appealing option rather than a niche product.

Like any pioneering company, Naturli' encountered several challenges. These included scepticisms from mainstream retailers, overcoming negative perceptions of plant-based food as bland or highly processed, and technical hurdles in perfecting taste and texture without the use of artificial additives. Naturli' addressed these with a mindset rooted in persistence and quality. The company invested in product development and taste testing, refined recipes with real chefs, and embraced full transparency in ingredients and sourcing. Their team adopted a practical but optimistic approach: innovation had to be meaningful, rooted in consumer experience, and in service of a bigger environmental goal.



Naturli' is considered highly innovative for its realistic meat and dairy alternatives, such as their Minced, Chick-Free pieces, and Plant Butter. These products are made from ingredients like peas, almonds, soy, oats, and coconut, without GMOs or artificial preservatives. Their environmental benefits are significant—by replacing animal-based foods with plant-based ones, Naturli' helps consumers lower their carbon footprint, reduce land and water use, and support biodiversity. On a social level, the company also champions inclusive eating, creating options suitable for vegans, flexitarians, and those with dietary restrictions.

Today, Naturli' Foods is an active and growing enterprise. Its products are found across Danish supermarkets and increasingly in other European markets. The company continues to innovate, working on new formats and flavours to appeal to evolving consumer tastes. It remains committed to its broader mission: helping to reshape food culture and drive a transition toward sustainable, climate-friendly diets.

In the mid to long term, Naturli' aims to further internationalize its product range, expand its educational efforts around plant-based eating, and continue pushing boundaries in both flavour and function. For Naturli', success is not just about market share - it's about inspiring a future where good food is better for the planet.











Country

Denmark

Type

Association / Sector Support

Thematic areas

Organic and plant-based food systems; Policy and advocacy; Sustainable agriculture

Skill/Competency addressed

Networking and value chain development; Sector transition to sustainability; Food systems education

Challenge/need addressed

Need for structured sector support and advocacy for plant-based and organic food growth; Connecting stakeholders in the organic food ecosystem

Brief Description

Organic Denmark supports producers, businesses, and consumers in transitioning to organic and plant-based food systems.

Their work bridges education, policy, and market promotion, helping build a sustainable agri-food sector in Denmark

Organic Denmark (Økologisk Landsforening) is the leading organisation for organic agriculture, food production, and consumption in Denmark. Founded in 1981, it was created by a group of visionary farmers and consumers who wanted to build a sustainable alternative to industrial agriculture.

Today, it represents a diverse membership of organic farmers, food companies, and engaged citizens. Its goal is clear: to create a strong, resilient organic sector that not only supports the health of people and the planet but also meets the changing demands of consumers and the wider food system.

From the start, Organic Denmark identified a key opportunity- there was a growing desire among Danish citizens for transparency, sustainability, and trust in food. Organic Denmark acted as a bridge between these consumers and producers who shared the same values. Through campaigns, research, and market engagement, the organization worked to increase both supply and demand for organic products. It became a national leader in advocating for policy changes, supporting innovation in organic farming, and educating the public on why organic and plant-based approaches are essential for the future. As awareness of climate change and the environmental impact of meat production increased, Organic Denmark began to place a sharper focus on plant-based foods within the organic sector.

Over the years, the organisation faced several challenges, including scepticism from mainstream retailers, policy inertia, and the complexities of scaling organic production while maintaining quality. There were also structural challenges around supply chains and market access for smaller producers. However, Organic Denmark has addressed these challenges with a long-term, partnership-driven mindset. It works closely with government ministries, researchers, supermarkets, and international partners to influence policy, improve standards, and create robust market conditions for organic and plant-based goods. Their solutions are often rooted in collaboration—offering practical tools and advisory services to farmers and companies while maintaining a clear focus on sustainability.

Organic Denmark stands out for its role mainstreaming organic products in Denmark. The country now has the highest market share of organic food consumption in the world—largely due to Organic Denmark's efforts. Its work includes promoting plantbased innovation as a key climate action strategy. It supports farmers who wish to diversify into plantbased production and works with brands to launch new, organic plant-based products. From oat drinks and vegan spreads to organic tofu and plant-based ready meals, the organisation is helping reimagine what sustainable food systems can look like. Its entrepreneurial benefit lies in strengthening the competitiveness of Danish organic producers and helping them respond to shifting consumer trends.





The societal and environmental benefits of Organic Denmark's work are significant. By supporting organic farming, they promote biodiversity, soil health, reduced pesticide use, and better animal welfare. Their promotion of organic plant-based diets contributes to reduced greenhouse gas emissions, more sustainable land use, and healthier communities. They also champion food education in schools, support innovation through pilot projects, and act as a central voice for Denmark's organic and sustainable future.

Today, Organic Denmark is highly active, not only at the national level but across Europe internationally. It is involved in several EU-funded projects and networks, and it continues to advise on policies that support organic, plant-based food systems. In the coming years, it plans to deepen its engagement with food producers, further promote organic plant-based innovation, and strengthen Denmark's role as a global leader in sustainable food.

For Organic Denmark, the future lies in collaboration, climate responsibility, and ensuring that organic and plant-based food is not only an alternative - but the norm.









Cavi-art

Country

Denmark

Type

Business / Sustainable Product Innovation

Thematic areas

Marine-based plant alternatives; Circular economy; Innovation in food sustainability

Skill/Competency addressed

Alternative protein development; Circular innovation; Responsible marine resource use

Challenge/need addressed

Need to reduce reliance on overfished marine species; Growing demand for vegan and seafood-free alternatives

Brief Description

Cavi·art® is a seaweed-based alternative to fish roe, developed by Jens Møller Products. It offers a plant-based solution that protects marine ecosystems while delivering a luxury product for food manufacturers and chefs

Cavi-art is a Danish company that produces seaweedbased caviar alternatives and has carved out a unique niche in the plant-based food sector. Founded by Jens Møller in the 1990s, the company began with a strong environmental mission: to create a sustainable, ocean-friendly alternative to traditional fish roe

The idea was sparked by growing concerns about overfishing and the destructive impact of caviar production on marine ecosystems. Recognizing both a market need and an ecological opportunity, Cavi-art set out to develop a product that could replace fish roe sacrificing flavour, appearance, functionality. This early vision—to protect marine life through innovation—continues to guide the company's work today.

The initial challenge was technical: how to replicate the delicate pop and salty flavour of caviar using entirely plant-based ingredients. After significant experimentation, the team succeeded in developing Cavi-art®—small pearls made from responsibly harvested seaweed, processed and seasoned to deliver the familiar experience of fish roe. Their production is based in Denmark, where the company maintains full control over quality and sustainability. Another challenge was convincing chefs, retailers, and consumers to try something new in a category typically dominated by luxury animal products. The team overcame this through persistent outreach, tastings, and collaboration with culinary professionals. Their open mindset and willingness to adapt led to growing trust and adoption, particularly among sustainabilityconscious foodservice providers and gourmet kitchens.

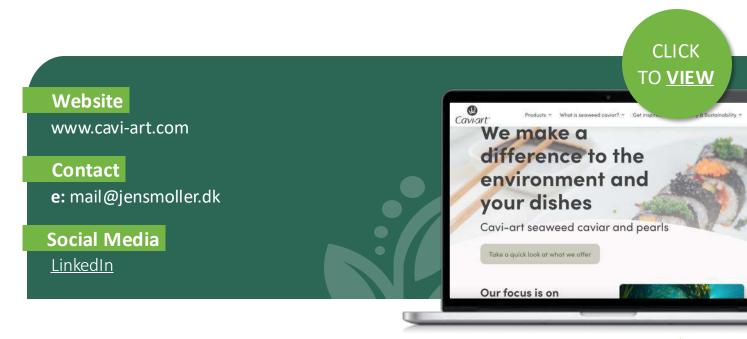
What makes Cavi-art innovative is not just the product itself, but the principles behind it. The company is deeply committed to the United Nations Sustainable Development Goal 14—Life Below Water—and uses only seaweed that is harvested without harming marine ecosystems. Unlike fish roe, which contributes to the depletion of wild fish populations, seaweed is a regenerative crop that absorbs CO₂ and supports ocean biodiversity. The company's production also avoids the use of artificial colours and preservatives, ensuring a clean-label product with minimal environmental impact. This combination of technical innovation and environmental responsibility has allowed Cavi-art to develop a truly future-oriented product. From an entrepreneurial perspective, the brand has shown that ethical innovation can compete in taste and aesthetics with animal-based luxury foods.

Beyond its environmental benefits, Cavi-art supports the broader plant-based transition by offering food manufacturers and chefs a way to make their dishes more sustainable without sacrificing appeal. Its range of products can be used in everything from canapés and sushi to gourmet entrées and ready meals. The company also works on developing new applications for its seaweed technology, exploring areas such as sauces, dressings, and even 3D food printing.

By continuing to invest in R&D, Cavi-art shows its commitment to long-term innovation diversification. Today, Cavi-art is an active, fast-growing business with customers across Europe and beyond. Its products are widely used in foodservice and are becoming increasingly available in retail. The company's mid- and long-term goals include expanding its international reach, increasing awareness of seaweed as a sustainable ingredient, and continuing to develop alternatives to marine-derived food products. In a time when ocean ecosystems face unprecedented pressure, this one sustainable solution.



Cavi-art offers a concrete example of how thoughtful, plant-based innovation can help shift entire industries toward sustainability without compromising on taste.



Intermediate





Country

Denmark

Type

Business / Organic Food Manufacturer

Thematic areas

Organic convenience food; Additivefree plant-based products; Flexitarian market development

Skill/Competency addressed

Sustainable ready-meal innovation; Clean label product development; Ethical food entrepreneurship

Challenge/need addressed

Need for convenient, plant-based options with transparent sourcing; Consumer demand for ethical, highquality food

Brief Description

Hanegal A/S is an organic food producer offering a range of ready meals and spreads, including several plant-based options. Known for quality and transparency, Hanegal supports sustainable food transitions through ethical convenience food.

Hanegal is a pioneering Danish food company that has been setting the standard for organic and sustainable food production since 1994. Founded on a deep commitment to health, quality, and environmental responsibility, Hanegal began as a small enterprise with a bold mission: to create honest food without additives, made from organic ingredients and rooted in transparency.

From the outset, Hanegal was driven by the belief that consumers deserved food that nourished both the body and the planet. Over the years, it has evolved into a leading organic brand in Denmark, offering a wide range of meat, vegetarian, and vegan products to both retail and foodservice sectors.

The shift towards plant-based products was not a marketing trend for Hanegal—it was a natural extension of its values. As climate change and animal welfare became increasingly central to consumer concerns, the team at Hanegal recognised the urgent need to offer alternatives that supported a more sustainable food system. They identified a growing demand among flexitarians and environmentally conscious consumers for high-quality, convenient plant-based options that didn't compromise on flavour or nutrition. These insights were gathered through market research, customer dialogue, and close observation of shifting dietary trends, particularly among younger generations.

Like any trailblazer in a traditional industry, Hanegal faced early challenges. Developing meat-free products that could match the taste, texture, and satisfaction of traditional offerings required both technical expertise and a willingness to experiment. The company maintained a strong in-house R&D culture and worked closely with food scientists, chefs, and nutritionists to perfect its recipes. It also had to address consumer perceptions—especially among loval customers familiar with Hanegal's organic meat products—by ensuring that its new plant-based range met the same high standards of taste and craftsmanship. This was achieved through gradual rollout, careful branding, and ongoing dialogue with customers. The mindset adopted was one of openness, curiosity, and respect for the evolving food landscape.

Hanegal's innovation lies in its holistic approach to food production. Whether producing organic charcuterie or vegan pâté, the company applies the same principles: organic ingredients, 100% no additives, transparency, and a deep respect for nature. Its plantbased range includes ready meals, spreads, and alternatives to traditional cold cuts—offering variety and convenience for modern consumers. Hanegal is one of the few companies that fully integrates ethical production into every aspect of its business, from sourcing to packaging. It also continues to innovate with new recipes and formats, exploring ways to reduce environmental impact through ingredient choices, waste reduction, and sustainable energy use.



For society, Hanegal contributes significantly to the growing movement towards climate-friendly diets. By offering plant-based foods that are accessible and appealing, it supports healthier lifestyles and reduces reliance industrial meat production. Environmentally, its organic practices promote soil health, biodiversity, and reduced greenhouse gas emissions. Hanegal also plays an important role in education and advocacy - helping to shift public understanding of what good food means and why our choices matter.

Today, Hanegal is a thriving company with a growing presence in Danish supermarkets and foodservice providers, including schools, canteens, and hospitals. It continues to operate with a strong ethical compass, maintaining transparency and trust with its customers. Looking ahead, the company is committed to expanding its plant-based offerings, entering new markets, and deepening its impact.

This includes investment in product development, sustainable packaging innovations, and strategic partnerships with like-minded organisations. Hanegal's long-term vision is to make sustainable, organic, and plant-based food the everyday choice - by proving that it can be just as delicious, practical, and satisfying as anything else on the shelf. For Hanegal, the future of food is not just plant-based - it's principled.





Interview with Rune-**Christoffer Dragsdahl** on the next page





Country

Denmark

Type

Non-governmental organisation (NGO)

Thematic areas

Plant-based transition; Policy and advocacy; Public awareness

Skill/Competency addressed

Cross-sector collaboration

Challenge/need addressed

Structural barriers; Myth-busting

Brief Description

The Vegetarian Society of Denmark (Dansk Vegetarisk Forening) is a long-established nonprofit organisation dedicated to accelerating the transition towards more plant-based diets and food systems in Denmark. Founded in 1896 by medical professionals, the society originally promoted plant-based eating for health and ethical reasons. Today, its mission has expanded to include climate action, food security, and sustainability, reflecting a holistic understanding of the benefits of reducing reliance on animal products.

The society works across multiple levels—from policy to public engagement—engaging with government, food producers, chefs, healthcare professionals, and consumers. It has played a central role in shaping Denmark's plant-based agenda, including contributing to the creation of the world's first national action plan for plant-based foods and a €170 million public grant scheme for innovation. Through campaigns, education, training, and collaboration, it promotes practical solutions—like default plant-based meals in public institutions and chef training programmes—to make sustainable diets more accessible. The society also supports international outreach, sharing Denmark's experience with other countries through what it calls "plant-based diplomacy."



Interview with **Rune-Christoffer Dragsdahl** from **Vegetarian Society of Denmark**

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Greece **Good Practices**



- 01 Liofyllo
- VioLife 02
- BioPack 03
- Green Cola 04
- 05 Innova

Intermediate





Country

Greece

Type

Custom Lab Service to craft products

Thematic areas

Innovation, Sustainability, Craftsmanship

Skill/Competency addressed

Custom Lab, Team Building Events, Design Atelier, GreenPath Workshops

Challenge/need addressed

The acceptance of the market

Brief Description



Podcast with **Alexandra** Makrygeorgou on the next page The mission of the Liofyllo team is a heartfelt blend of innovation, sustainability and cultural preservation, deeply rooted in the essence of the Mediterranean and Greek heritage. By transforming agricultural waste from olive leaves, a byproduct often discarded as waste, into an eco-friendly material, Liofyllo breathes new life into an age-old symbol of prosperity - the olive tree. In a world where humanity's actions often strain the environment, Liofyllo acts as a beacon of hope, showcasing the profound potential of a circular economy. Liofyllos' mission is not just about repurposing waste but about creating a legacy. Every panel they craft from olive leaves is imbued with the spirit of sustainability, using biodegradable and bio-based adhesives to minimize environmental impact while maximizing innovation. Liofyllo's mission is driven by a commitment to honouring nature's gifts while addressing the pressing need for sustainability.



Podcast interview with **Alexandra** Makrygeorgou from Liofyllo

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Mrs Alexandra Makrygeorgou

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Violife

Country

Greece

Type

Product Development

Thematic areas

Plant-based Ingredients, Innovative Technology

Skill/Competency addressed

Development of dairy-free, plantbased cheese alternatives

Challenge/need addressed

Providing sustainable and veganfriendly cheese options to reduce the environmental impact of dairy farming

Brief Description

Violife, based in Thessaloniki, Greece, is a leader in producing innovative plantbased cheese alternatives. The company has developed a diverse range of dairy-free cheese products that cater to the growing demand for vegan and environmentally sustainable food options. Violife's products are free from common allergens, GMOs, and preservatives, reflecting commitment to healthconscious and eco-friendly production. Violife comes from the Greek word Vios, which means Life. So, it's, life squared, live life to the full.

Violife offers a diverse range of plant-based cheese alternatives, including slices, blocks, grated options, and creamy spreads in various flavours such as Cheddar, Gouda, Mozzarella, and Smoked. Their products are designed to melt, grill, grate, toast, and spread, providing versatility for various culinary applications.

Violife has become a globally recognized brand, supplying products to major retailers and food service providers.

The company's plans include expanding its product range using innovative new flavours and exploring other plant-based dairy alternatives.

Violife showcases how food SMEs can scale sustainable products. Users can connect via their website.

All Violife products are free from common allergens, GMOs, and preservatives, aligning with sustainable and health-conscious consumer preferences. commitment to plant-based alternatives supports environmental sustainability by reducing reliance on animal agriculture.

With over 30 years of experience in vegan product development, Violife has established a global reach, distributing to more than 50 countries. As a world leader in plant-based cheese alternatives, they are backed by Upfield, the world's largest plant-based food transformation company, enhancing their capacity for innovation and market reach.

Demonstrates how innovation in plant – based food can drive global change, making it a prime example for others to replicate.

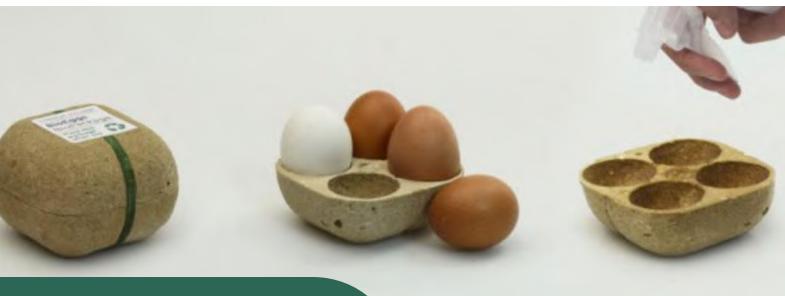
Violife aligns with the Plant Power project by promoting plant-based innovation, reducing greenhouse gas emissions from dairy production, and offering solutions that encourage a shift toward sustainable food systems.











BioPack

Country

Greece

Type

Product Development

Thematic areas

Sustainable packaging and innovative technology

Skill/Competency addressed

Development of biodegradable and compostable packaging solutions

Challenge/need addressed

Reducing plastic pollution and offering eco-friendly packaging alternatives to food SMEs

Brief Description

BioPack is a pioneering Greek company that specializes in the development of biodegradable and compostable packaging materials. The company addresses the critical environmental challenge of plastic waste by offering sustainable packaging solutions tailored to the food industry. Their innovative approach combines local resources with cutting-edge technology, promoting a circular economy and supporting SMEs in their sustainability efforts.

BioPack develops biodegradable and compostable food packaging to reduce environmental waste. Providing eco-friendly alternatives to singleuse plastics. Thus, support businesses in reducing their carbon footprint and contribute to a circular economy.

BioPack contributes to reducing emissions and waste in food systems, aligning closely with the Plant Power project's focus on eco-friendly innovations. BioPack was founded in Athens to tackle the growing problem of plastic pollution. The team identified an opportunity to develop compostable packaging solutions tailored for food SMEs.

The challenges they have encountered are high production costs and limited awareness biodegradable options among businesses.

However, by collaborating with local suppliers and leveraging EU funding they are scaling operations and

educating clients.

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This business is demonstrating innovation by designing packaging materials that decompose naturally without harmful residues. This in turn is helping food SMEs meet environmental regulations, significantly reducing plastic waste in food distribution and raising awareness about sustainable packaging solutions.

BioPack serves a growing number of Greek and international food SMEs. It has plans to expand production capacity and invest in research and development of new materials.

SMEs can consult BioPack for eco-friendly packaging solutions, inspiration and Learning Opportunities.

BioPack showcases how innovation in packaging can address pressing environmental challenges and can serve as an inspiration for sustainable business practices within the food sector.



Website

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Country

Greece

Type

Product Development

Skill/Competency addressed

Development of natural, healthier soft drink alternatives

Challenge/need addressed

Providing a healthier, low-calorie alternative to traditional sugary soft drinks while maintaining great taste

Brief Description

Green Cola is a Greek company that has revolutionized the soft drink industry by introducing healthier, natural alternatives to traditional cola. Using stevia as a natural sweetener, Green Cola offers a range of beverages free from sugar and artificial ingredients. The company focuses on sustainability and health, catering to the growing market demand for more natural and functional beverage options.

Green Cola aligns with the Plant Power project by promoting innovation in the beverage industry using plantbased ingredients, supporting healthier consumer choices, and reducing environmental impacts associated with traditional soft drink production.

Green Cola specialises in producing innovative, healthier carbonated beverages that use natural sweeteners and ingredients providing a healthier alternative to traditional soft drinks.

They reduce sugar consumption by using natural sweeteners like plant-based stevia and promote sustainable practices in beverage production.

Green Cola was founded in response to increasing consumer demand for healthier soft drink options. The company identified a gap in the market for carbonated beverages that are both low in calories and free of aspartame, phosphoric acid, sugar and preservatives.

Ensuring the product maintains the taste and feel of traditional cola while using natural sweeteners, Green Cola developed a unique formula using stevia as a natural sweetener, along with other natural ingredients, to create a cola that meets healthconscious consumers' expectations.

Showcasing its entrepreneurial skills the company is actively expanding its product line and market presence, distributing its beverages in several countries worldwide, establishing Green Cola as a pioneer in the healthy beverage market. Through continued innovation with new flavours and products that align with health and sustainability trends, Green Cola exemplifies how beverage companies can innovate to meet modern health trends while maintaining market appeal.

From a social and environmental perspective, the reduced sugar consumption among consumers contributes to better health outcomes and the company supports sustainable agriculture practices.

Market Growth: The company has experienced significant growth, driven by increasing consumer demand for health-oriented products and the shift away from sugary drinks. Besides the classic Green Cola, the company offers variations such as Green Cola Lemon, Green Orange, and other flavoured carbonated drinks, continually expanding its portfolio to cater to diverse consumer tastes.



Functional Ingredients: Some products include natural caffeine from green coffee beans, aligning with the trend towards functional, health-enhancing beverages. By replacing sugar with stevia, Green Cola contributes to lower overall sugar consumption, addressing health concerns such as obesity and diabetes. The use of stevia and green coffee beans supports sustainable agriculture practices, promoting eco-friendly farming methods.

Green Cola is committed to minimising its environmental impact, focusing on eco-friendly packaging and reducing its carbon footprint during production.

Although, originating in Greece, Green Cola has successfully expanded its presence to multiple countries across Europe, Asia, and North America, growing its brand recognition.

The brand appeals to health-conscious consumers looking for low-calorie, natural ingredient-based beverages, differentiating itself from traditional soft drink competitors.

By replacing sugar with stevia, **Green Cola** contributes to lower overall sugar consumption, addressing health concerns such as obesity and diabetes. The use of stevia and green coffee beans supports sustainable agriculture practices, promoting eco-friendly farming methods.







Brief Description

iNNova Health Foodlabs is a laboratory for nutritional research and development of innovative functional foods. Dr. Panagiotis Panopoulus is a Medical Biochemist and Project Manager there. He is involved in several European projects and has published multiple research papers on his work. His mission with iNNova Health Foodlabs is to increase competitiveness in the agri-food sector and food industry by focusing on high quality food analysis and research. This allows them to create personalised nutrition solutions that maximise efficiency quality and health benefits over time. They work in education, training within vocational education, developing curricula, and organising workshops to bridge the gap between research into practical application in nutrition and food science. During the conversation, he shared their challenges with investment for equipment so they can advance their research and methodologies. He notes their focus is on trophometry which allows them to analyse and enhance food at molecular level. This enables them to create personalised foods tailored to individual nutritional needs ensuring maximum efficiency and health benefits. What's their impact? Listen for more.

food.



<u>Interview</u> with **Dr. Panagiotis Panopoulos** from iNNova Health Foodlabs

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Glossary

Word/Phrase	Brief Explanation
Blockchain-based Traceability	A digital ledger system used to record and verify every step in the food supply chain. In plant-based food systems, it ensures transparency, prevents fraud, and supports sustainability claims by securely tracking origin, processing, and distribution data.
Bioaccessibility	Refers to the fraction of a substance; such as a nutrient, contaminant, or bioactive compound, that is released from its food matrix in the gastrointestinal tract and becomes available for absorption in the gut. It represents the potential amount of the compound that can be absorbed into the bloodstream after digestion, but before actual absorption is measured.
Circular Biotechnology	Uses natural processes to turn waste into useful products, keeping resources in use (closed loop).
Circular Economy	Minimisation of waste by reusing, repairing, and recycling resources in a closed loop.
Certified Organic	A product is made without synthetic chemicals, GMO's or harmful pesticides, following strict organic farming standards.
Eco-friendly	A product or practice that does not harm the environment.
Flexitarian	Someone who primarily follows a plant-based diet but occasionally includes meat or animal products.
Foodborne Pathogens	Microorganisms capable of contaminating food and causing illness in humans when ingested. These pathogens can multiply in food under favourable conditions and produce toxins or directly infect the gastrointestinal tract, leading to foodborne diseases. Common examples include Salmonella, Escherichia coli (E. coli), Listeria monocytogenes, Norovirus, and Clostridium botulinum
GMO's	Genetically modified organisms- plants or animals whose DNA has been changed for specific traits.
Greenhouse Gas Emissions	Greenhouse gas (GHG) emissions are gases like carbon dioxide and methane released into the atmosphere that contribute to global warming and climate change.
НРР	A non-thermal food preservation method that uses extremely high pressure (typically between 100 and 600 megapascals) to inactivate microorganisms and enzymes in food, thereby extending shelf life while maintaining nutritional quality, flavour, and texture. This process is performed at or near room temperature, preserving the food's fresh-like characteristics without the use of heat.

Glossary (continued)

Word/Phrase	Brief Explanation
IFS Standards	International Featured Standards are globally recognised certifications ensuring food safety, quality, and compliance across supply chains. For SMEs in the plant-based sector, IFS certification enhances trust, transparency, and market access.
Organoleptic Properties	The sensory attributes of a substance, particularly food or beverages, that are perceived by the senses of taste, smell, sight, touch, and sometimes hearing. These properties include characteristics such as flavour, aroma, colour, texture, and appearance, which collectively influence consumer perception and acceptance.
Permaculture	A holistic agricultural design system that mimics natural ecosystems to create self-sustaining, low-impact food production. It emphasises biodiversity, soil health, and minimal external inputs- aligning with sustainable plant-based practices.
Pressurised SAS	An advanced extraction technique that combines the use of supercritical fluids; most commonly supercritical carbon dioxide with conventional solvents to enhance the extraction efficiency of bioactive compounds, contaminants, or other target substances from solid or liquid matrices. The supercritical fluid acts as a solvent or co-solvent under specific temperature and pressure conditions, improving solubility, mass transfer, and selectivity, while operating at relatively mild temperatures that help preserve thermally sensitive compounds.
Vertical Farming	The cultivation of crops in stacked layers, often using controlled environments (CEA). It enables year-round plant-based food production with efficient use of space, water, and energy, making it ideal for urban sustainability.

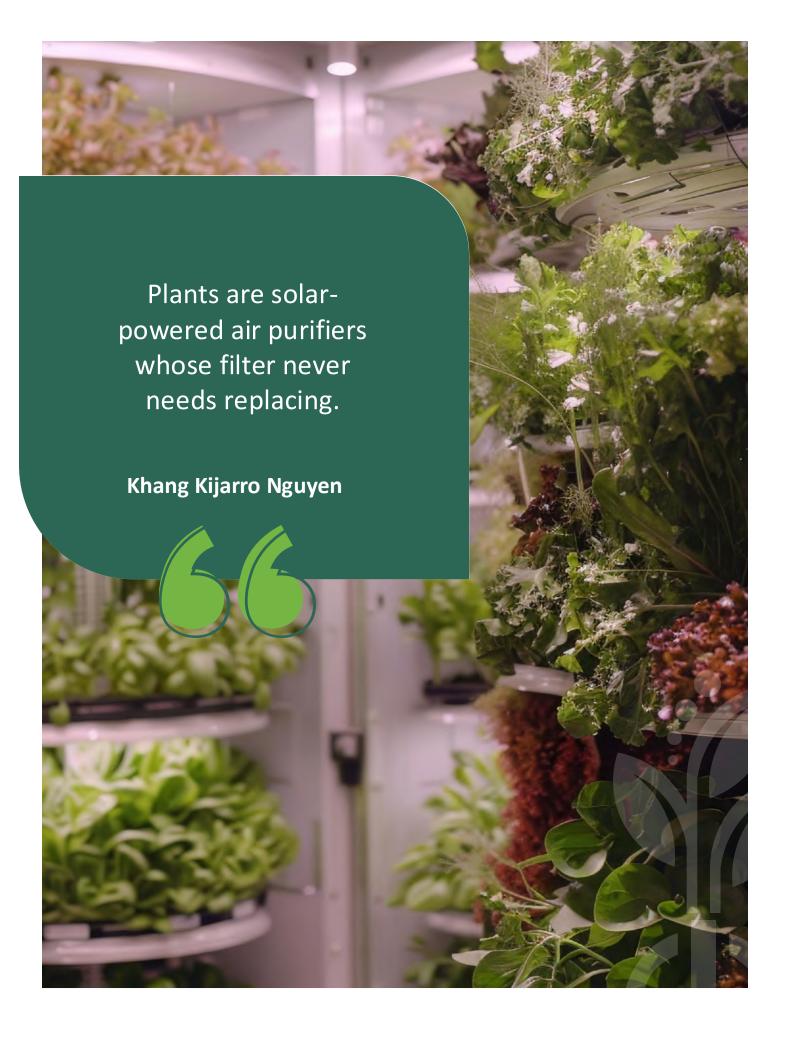


The case studies presented in this guide offer a compelling snapshot of the diverse innovation shaping Europe's plant-based sector. Across food production, skincare, urban agriculture, and sustainable packaging, these examples highlight the potential for plant-based entrepreneurship to deliver healthconscious, climate-friendly, and economically viable solutions.

Each good practice illustrates how a clear vision, creative thinking, and community engagement can transform emerging market gaps into successful ventures. From pioneering technologies to traditional ecological methods, the businesses showcased have not only overcome sector-specific challenges but have set benchmarks for others to follow.

Together, these stories confirm that the plant-based transition is possible, and it is already happening. Entrepreneurs, educators, and policymakers alike can draw on these models to promote inclusive, sustainable growth across the food system and beyond.





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