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THE EUROPEAN PROTEIN TRANSITION

The Need for a Protein Shift

It is no longer news that for our diets to become healthy and sustainable for both planet and people, a shift is needed in our protein consumption, away from animal-based protein. The European Union (EU) aims to diversify its protein supply, exploring the opportunities in plant-based proteins, cultured meat and insect-based proteins. As a group, we refer to these proteins as **future-based protein** (see also the Definitions chapter).

The Importance of Cross-Border Collaboration

This protein transition plays a crucial role in strengthening the EU's food security, by making food production more sustainable and reducing reliance on imports from outside the EU. To accelerate the transition, cooperation between EU countries is essential. Each member state has its own unique context, food culture, farming practices, and market demand, which influence the development of the future-based protein market.

Therefore, it is important to understand the specific market conditions, opportunities, and challenges in each country. In this case, we want to explore the opportunities for collaboration with the Spanish market for future-based proteins. Het Portaal believes that these insights not only contribute to more sustainable food production but also provide valuable lessons for the broader EU protein strategy.

Why it matters

Footprint of Animal Proteins for Planet and People

The protein transition - the shift from a diet consisting mainly of animal proteins to a diet consisting mainly of animal-free proteins - plays a crucial role in this. The excessive consumption of animal proteins in some parts of the world leads to inefficient use of resources and agricultural land, a loss biodiversity and increased greenhouse gases, health damage to people and nature, and growing global inequality in the availability of food.

72+% 71% **EMISSIONS LAND USE** Estimates vary, but according to research Around 40% of land by Nature and the FAO, use in the EU is among others, animal devoted to agricul-**BIODIVERSITY** products account for ture, with animal between 72-78% of and feed production GHG emissions from Agriculture is the taking up 71% of agriculture globally, main cause of this share. However, and about 70% in the biodiversity and animal products EU. However, animal habitat loss. About often require a

78% of this impact

farming alone.

comes from livestock

products make up only

about 20% of human

caloric intake.



WATER

significant amount

of land use outside

of EU borders.

According to the FAO, 70% of global freshwater reserves are used for agriculture. Of this share, some 41% is used for livestock feed. Animal-based foods in particular are responsible for phosphorous and nitrogen pollution, affecting aquatic ecosystems among other things.



External costs

such as land use, emissions, etc. – of animal proteins are the highest of all food products.



HEALTH

Animal foods and highly processed foods tend to have more negative health effects. Whole plant foods are generally better for both health and the environment.

Sources: 1, 2, 3, 4



PURPOSES OF THIS DOCUMENT

Mission of Het Portaal

With these sustainability impacts in mind, Het Portaal aims to proactively engage various stakeholders with the European protein transition.

This document provides some broad insights for investors, policymakers, NGOs, and other stakeholders who want to contribute to the Future-based protein transition in Europe. We aim to encourage them to look beyond the national boundaries of the Dutch market and explore collaborations in the Spanish future-based protein market.

Additionally, we want to discuss these opportunities in person, with a group of trusted experts. Using our format "Bij Ons op Het Portaal" – expert meeting, we believe this session will provide valuable lessons not only about entrepreneurship in future-based proteins in Spain, but about the broader EU protein strategy as well.



Provide insights and recommendations on the developments of the Spanish future-based protein market.



Inspire stakeholders around this topic and encourage them to explore collaborations in the Spanish futurebased protein market.



Provide a critical overview of talking points for discussing the Spanish future-based protein market with experts.







Market Information

The choice of Spain has two reasons. First, while there is a decent amount of public information available on the Spanish future-based protein market, broad analyses of the sector remain few and far between. Considering the size of this market, we believe the time is right for a broad review. Second, the Spanish future-based protein market is still in a development phase, which presents opportunities for Dutch companies and other stakeholders to explore new markets and collaboration possibilities.

We believe the Spanish market not only offers development and market opportunities but can also serve as a stepping stone to other countries in Southern Europe with a Mediterranean diet. This makes it a good case study for developing further strategies.

Market Share

Spain is Europe's fourth-largest plant-based proteins market. According to Vegconomist, the market for plant-based food reached nearly € 600 mln in sales over 2023, a 9.4% increase over the previous year. Furthermore, Spain's food tech sector shows massive investor interest, with over 400 start-ups acquiring a total of some € 226 mln in investments over 2023 (a slight decrease compared to 2022). From our analysis, we can see start-ups relying on both private as well as public stimuli, both from Spanish and European governments.

The Spanish government has recognized the need to reduce meat consumption as part of its sustainability goals. The "Spain 2025" development plan specifically highlights current meat consumption as "unsustainable" and emphasizes the need to substantially reduce meat consumption to achieve carbon neutrality by 2050.





DEFINITION 'FUTURE-BASED' PROTEIN

What are Future-based proteins?

The landscape of future-based proteins mainly consists of products based on plants, fermentation, cells, and insects. We have chosen the term 'future-based' to refer to plant-based proteins, as well as proteins from non-traditional sources, such as fungi, insects, algae, or cultured meat.

Compared to animal proteins, future-based proteins require fewer inputs, such as land and water, and generate far fewer negative externalities, such as greenhouse gas emissions, deforestation, and health risks. We can differentiate four different types of protein by their **source**:



Plant-based proteins are a versatile and popular source, especially soy, pea, rice and fava bean. They provide various health benefits, tend to have a low input demand in terms of farming, and are readily available.



Cultivated proteins, or cell-based proteins, are derived from animal cells cultured in a laboratory without traditional livestock farming. Cultured meat has only limited availability currently, though '3D-printing' of food and certain cultivated products are starting to see commercialization.



Microbial and cellular proteins are proteins produced by organisms such as bacteria, algae and fungi. They play an important role in fermentation, as well as taste and texture. These proteins can be used for human consumption, animal feed or industrial applications.



Insect-based proteins are making strides as a new source of protein in human nutrition. They contain various vital nutrients and can be efficiently produced without much input. While market access is slow, as of January 2025, mealworm powder is authorized for use as a 'Novel Food' within EU.



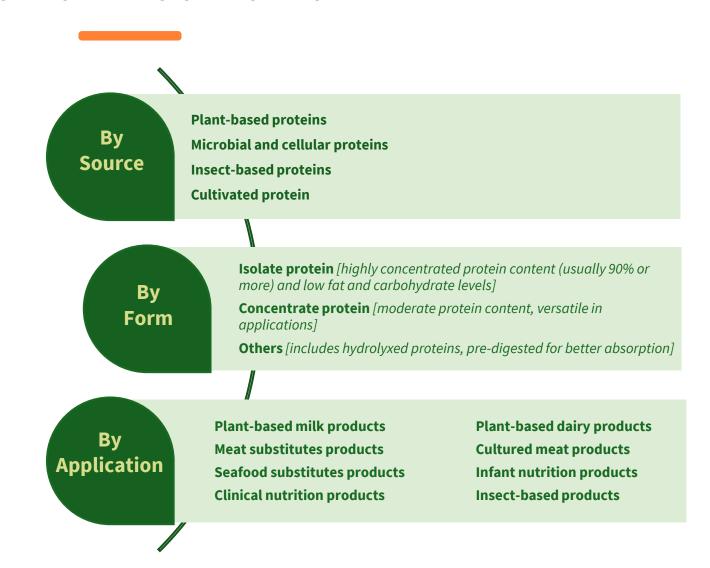
MARKET SEGMENTS WITHIN FUTURE-BASED PROTEIN

Making sense of the protein discourse

There are different ways in which to differentiate future-based proteins. We have summarized them on this slide.

When reading about the business activities of various suppliers of future-based proteins, there are terms of origin or application that seem to overlap. For instance, there are companies focusing on pea protein isolate, which is hardly palatable as whole food, however it is a crucial ingredient in the production of certain plant-based beverages or creams.

This is why, for the purposes of discussing market segments, we will differentiate the various protein groups by **application**. The market segments we discuss, will follow the different applications we have summarized here.











Plant-based Dairy









Meat











Bio.Tech. Foods.



LIQUATS



HACENDADO

Sirena







VEGETal





(ojade







COCUUS





CURRENT FOODS





Insectbased **Protein**





PLANT-BASED DAIRY PRODUCTS

By all accounts, plant-based dairy is by far the biggest future-based protein sector in Spain. Estimates vary, but some **46% of Spaniards** have incorporated plant-based beverages into their diets. According to <u>GFI Europe</u>, plant-based milk and drinks alone accounted for € 307 million in sales from the retail market in 2023. This is more than five times the share of plant-based meat alternatives in retail (€ 59 million).

- **Brands:** Within the plant-based dairy sector, classic brands such as **Alpro** and **Oatly** are widely available. However, Spain also has major national champion brands such as **Vivesoy** and **Yosoy**, part of **Pascual**, a brand with over 50 years of experience. Furthermore, there are up-and-comers such as **Pink Albatross** shaking up the ice cream market (see slide 16).
- **Growth:** While plant-based cheeses are still niche (€ 6.5 million total retail sales in 2023), this segment shows a staggering growth potential (47.5% increase over the previous year). According to a 2020 survey by <u>ProVeg</u>, the biggest growth potential lies in cheese substitutes, vegan butter/non-dairy margarine and dairy-free ice cream.
- **Source crops:** Plant-based milks, such as oat, soy, and almond currently dominate the market, with oat milk leading: In 2023, oat milk accounted for 44% of sales volume, followed by soy at 28% and almond at 17%. The plant-based yogurts category includes products made from ingredients such as coconut, almond, and soy.

Liquats Vegetals is a Catalan family-run business, and the first local manufacturer of milk substitutes, owner of the high-quality Yosoy brand. In 2021, it partnered with Ypsicon Advanced Technologies to develop a new generation of high added-value plant-based products using ultra high homogenization technology. It has as strong commitment to clean labels and additive- and sugar-free offer. In 2023, it obtained a B-Corp certification.

CAPSA Food, a certified B-Corp, is a leading dairy cooperative with a focus on sustainability. Its main member organization is CLAS whose main brand Central Lechera Asturiana markets milk products. They have expanded into plant-based dairy products with vegetable drinks and dairy-free yogurts. Their Vegetanea brand offers rice, almond, soy and oat milk.

Frías Nutrición specializes in producing private-label plant-based drinks, including almond, rice, hazelnut, and soy beverages. They manufacture these products at a facility in Burgos, Spain, employing around 250 people. In 2024 the company was sold by Alantra Private Equity to Refresco. It reported a rise in sales of 22,5%, to reach € 106,4 million at the end of that year.

Pascual is a major family-owned dairy company, selling oat, soy, almond and rice beverages under its Vivasoy label. In 2021 Pascual Innoventures, launched Mylkcubator, the first global incubation program for cellular agriculture technologies in the dairy industry. The corporate venture unit of Pascual works with Eatable Adventures, a global food-tech accelerator, to grow its plant-based dairy business.

Plant-Based Dairy

Sojade a French brand popular in Spain, provides plant-based yoghurts made from soy and other plant-based ingredients. It is mainly available in health food stores.

Violife, is a global plant-based cheese brand, with wide popularity in Europe. It is owned by Upfield (Now Flora Food Group, NL) but started out in Thessaloniki (GR). They offer cheese alternatives such as slices, blocks, and spreads.

Heura Foods is one of the leading companies in the Spanish alternative protein market. Founded in 2017 in Barcelona, their sales were around € 38.3 mln in 2023. They are among the most successful plant-based meat brands. Similar to Those Vegan Cowboys in the Netherlands, the company now plants to innovate on the plant-based dairy market. In October of 2024, they launched a prototype of their first plant-based cheese products.

Based in Spain









MEAT SUBSTITUTES

One of the most recognizable product categories within future-based protein, is meat substitutes. However, the adoption rate of plant-based meats in Spanish households remains modest. Spanish eating culture is a possible factor. Meat substitute products can be segmented into three groups:

- **Plant-based** meat, such as burger patties and sausages made from plant-based ingredients. Generally, most plant-based meat is made from either **soy** (for its neutral flavor and high protein content), **wheat gluten** (for texture and chewiness) and **pea protein** (for its sustainable sourcing and superior flavor profile).
- **Mycoprotein** is another way of producing meat substitutes based on **fungus**-derived proteins that provide a fibrous, meat-like. Fungus-based ingredients also provide an umami 'meaty' flavor.
- **3D-Printed Proteins:** Innovations by companies like Novameat are introducing plant-based meats using 3D printing technology, combining ingredients like **pea** protein and **beetroot** juice to replicate the texture and appearance of traditional meats.

Plant-Based Meat subsitutes

> Meat producer Noel Alimentaria is the first in the sector to add plant-based options to its product lines in 2016. It has no private label for vegan products, but a plant-based range called Nature. It has invested €1.3 million R&D for this vegan brand. Its Verday brand is used by Marks and Spencer's for their 'Plant Kitchen' range in the UK and is supplied to Nordic markets for ham and charcuterie products. As a major meat processor Noel Alimentaria has set an example in sector, to diversify into plantbased alternatives.

Meat producer <u>Campofrio</u>, is offering several vegan product within its <u>Vegalia</u> range which was launched in 2017. The <u>Magic Burger</u>, introduced in 2020, was their first fully vegan product, and they have since expanded their plant-based offerings.

largest producers of Spanish meat specialties and has been the most popular brand in Spanish households for five years in a row. According to research by Kantar Worldpanel, 76.8% of Spanish households buy El Pozo products. In July 2024, it introduced the eLPOZO King Revolution 100% vegetable gluten and dairy-free patties.

11 Foods for Tomorrow or Heura Foods, Barcelona-based startup, goes for food activism. It was created as a social mission-turned-business which would empower people to change the current food system to a more sustainable, healthy, and nutritious one. Heura is 100% plant-based meat made of high-protein GMO-free legumes. Heura had a €38.3 million turnover and 63% growth in international sales in 2023, with a present in 17 countries across four continents. It has a Vegétal Square for its broad range of products.

Mycoprotein -Based Products

ODS Protein, is a 2021 startup, producing alternative proteins through innovative fermentation, developing mycoproteins. It aims to fight global challenges like food availability and climate change by providing sustainable and nutritious protein solutions for the food industry. Its technology converts food waste into high-protein products, achieving over 60% protein content in dry weight, ingredients for various food applications, including meat substitutes and dairy alternatives. The company has gone through at least two funding rounds, including an incubator/accelerator round in 2022. They have received support from investors, including KM Zero Venturing and EIT Food. ODS Protein has participated in several accelerator programs, like BFFood and BioIncubaTech, and works closely with the university of Vigo.

Libre Foods is a biotech startup focusing on 'reinventing food with fungi'. It uses fermentation technology to produce a variety of fungibased ingredients that meet consumer demands for taste, nutrition, and affordability. The company is known for its flagship product, LIBRE Bacon®, which is the first mushroom-based bacon in the EU. It is also developing other meat alternatives, such as Libre Chicken, which contains over 80% mycelium.

They received funding from e.g. CDTI (Centro para el Desarrollo Technologo Industrial) in collaboration with the Spanish Ministry of Science and Innovation, the Next Generation EU program and is recognized as one of the first European alternative protein food techs to utilize fermentation technology.

Based in Spain

Active in Spain

Based in Spain

Active in Spain

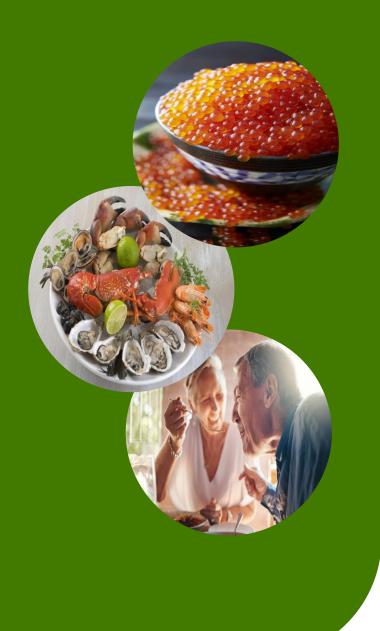
Cubiq Foods is a startup that raised €5
million in funding in 2020 for its lab-grown fats.
It is the first company to create cell-based fats high in omega-3s. In 2023 it partnered with Cargill which invested an additional €5.75
million. Cargill will add Cubiq's plant-based "smarter-fats", including its Go!Drop emulsion of vegetable oils and water, to its ingredients and plant-based formulation offerings.

Meat4All is a cultured meat research consortium project that received a €2.7 million grant from the European Union's Horizon 2020 R&D funding program in 2020. Led by <u>Biotech Foods</u>, a Spanish startup behind the cell-cultured meat brand <u>Ethicameat</u>, the project aims to industrialize and commercialize consumer-facing alternative proteins using cellular agriculture technology. They are one of the first cell-based meat projects to receive public funding from the EU.

Novameat, uses patented micro-extrusion technology and 3D printing to develop meat like steaks and skewers. It produces plant-based meat cuts and has a partnership agreement with three-star Michelin Barcelona restaurant Disfrutar. It was funded by the EU, CDTI (through Spain's NEOTEC program) for €250.000 in 2021, and it is member of EIT Food. (It is worth noting that it was the second company to secure funding from this program, after Heura Foods did so in January 2020.)

Cocuus is a foodtech startup offering a range of foods made of plant-based or cell-based animal proteins using 3D printing, bioprinting and robotics. Late 2023, they introduced its 3D-printed plant-based bacon in approximatly 400 Carrefour supermarkets across Spain under the Foody's brand. They planned to sell 1,000 tons of this bacon in 2024, but it is unclear whether they met this goal. Like Cubiq Foods, Cargill has also partnered with them. Other investors include Big Idea Ventures, and food-tech accelerator Eatable Adventure. Cocuus is projecting sales of €7.4 million with an EBITDA of €4.4 million by 2025, indicating strong growth potential. See box 21 as well.





SEAFOOD SUBSTITUTES

While still in its early stages, the seafood substitutes niche is another area of interest. It is particularly gaining attention in urban areas with diverse culinary preferences.

- Market share and growth: Currently, the market is still at an early stage for this category of products, with a valuation of about € 1.7 million. However, growth figures from 2022 and 2023 seem to be promising.
- Ingredients: Because of their specific properties, many seafood substitutes use ingredients that are less common in other future-based protein sectors. For example, tuna replacements employing tomato.
- **Controversy:** Spain is a country with an extensive culture of seafood consumption, and the traditional marine food sector is watching carefully. For example, in June 2024, plant-based seafood came under fire over a <u>labelling dispute</u> involving the marine sector.



18

Mimic Seafood is a Madrid-based startup, with the mission "to provide better food choices to consumers that save oceans". It delivers seafood to the B2B market, like wholesalers, foodservice companies, and sushi chains in various European countries, and formed a strategic partnership with La Palma, one of Spain's largest agricultural co-ops, ensuring a reliable supply of local ingredients. Its main products include: Tunato®: A tomatobased raw tuna alternative launched in 2019, made with just five ingredients for sushi applications and Aubergeel, aubergine-based eel alternative. The company is focusing on the B2B market, particularly foodservice, with plans for rapid expansion across Europe. In 2022, Mimic Seafood was recognized as the Best Gastro & Foodtech Startup, indicating continued growth and success in the plant-based seafood market.

Recently, the seafood startup, <u>Current Foods</u>, founded by the Spanish - Sonia Hurtado, announced their partnership with <u>Zyrcular Foods</u>, with the objective of producing and distributing their plantbased salmon and tuna in Spain and eventually the rest of Europe.

Angulas Aguinaga, a traditional seafood company has entered the plant-based seafood market through a collaboration with start-up Vrave. They launched a konjac-based calamari product called "Aros de Mar" under the Aguinamar brand, available in Carrefour and Alcampo supermarkets.

Furthermore, the Spanish company <u>Cocuus</u> has used food inkjet technology and 3D printing to produce mimetic salmon, oysters and tuna.

While <u>Heura Foods</u> is mostly known for plant-based meat alternatives, it has ventured into the plant-based seafood market as well. Heura has launched <u>seafood-inspired products</u>, such as plant-based fish fillets and tuna alternatives, using a focus on clean ingredients and sustainable practices. These are called 'fish successors instead of alternatives.

(See also slide 15 and 17.)

The Plant-based Seafood Co., originally located in the UK, has expanded into Spain and other European markets, offering plant-based shrimp, crab, and fish fillets.

If there is one company that exemplifies the meteoric rise of the future-based protein sector in Spain, it is the Barcelona-based scale-up Heura. Translated as Foods for Tomorrow, Heura positions itself as the rebel activist of the bunch - and it's working. Their upward trajectory caught the attention of investors, as the company raised 40 million euros from high-profile investors such as Unovis Capital and Flora Food Group (a leading pan-European manufacturer of plant-based products). Heura had a €38.3 million turnover and 63% growth in international sales in 2023, with a presence in 17 countries across four continents.

Meat Substitutes Heura Foods is now one of most successful plant-based meat brands. Their products are carried by supermarkets such

as Carrefour, SPAR and Makro. Their meat is 100% plant-based and made of high-protein GMO-free legumes.

Seafood Substitutes While Heura Foods is mostly known for plant-based meat alternatives, it has ventured into the plant-based seafood market as well. Heura has launched

seafood-inspired products, such as plant-based fish fillets and tuna alternatives, using a focus on clean ingredients and sustainable practices. These are called 'fish successors instead of alternatives.

Plant-Based Dairy Similar to Those Vegan Cowboys in the Netherlands, the company now plans to innovate on the plant-based dairy market. In October of 2024,

they launched a prototype of their first plantbased cheese products. He:ra

A I TENNATIVEC

SUCCESSORS

MORE NUTRITIOUS, MORE SUSTAINABLE, JUST AS DELICIOUS.



Source: <u>10</u>, <u>11</u>, <u>12</u>, <u>13</u>, <u>14</u>





Spain's insect industry is primarily focused on commercializing insect-based products for animal feed. Though still a nascent category in Spain, whose legislation does not yet allow the processing of insects into flour for human consumption, various companies are active in this space. Spain is said to have 37 insect farms in operation.

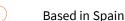
While the European Union has passed legislation allowing mealworm to be incorporated in food for human consumption, broad development of the market has been slow. The adoption of insect production is seen mostly in the (pet)feed and fertilizer sectors. Meanwhile, large scale mealworm factories in France are grappling with financial turmoil indicating it is still a volatile market.

Insect-based proteins

<u>Tebrio</u> in Salamanca owns the world's largest insect farm for their mealworm production. The farm, covering 80.000 m2, is able to produce 100,000 tons of insects annually for animal and human consumption. The worms are a source of fat and protein, and antibacterial chitosate can be extracted from the beetle (its mature form). In November 2024 Tebrio successfully closed a €30 million funding round, and the company has plans to build another 90.000 m2 facility to expand production. Investors in this round include Banco de Santander, Sodical Instituto Financiero de Castilla y León, GPC, and the CDTI Innvierte Economía Sostenible closed-end collective investment company. Tebrio is B-Corp Certified.

<u>Iberinsect</u> is a Catalonian biotechnology startup founded in 2019, specializing in the cultivation of mealworms. Iberinsect's products fall into three categories: Food, Fertilizer and Feed (mainly poultry and fish feed). They are lately trying to gain more ground by innovating in the pet food sector. For human consumption, they appear to still be in their R&D phase.

Source: 12, 13









CLINICAL, SPORTS AND INFANT NUTRITION

The future-based protein market offers possibilities for various niche markets. While their market shares are small, they are an interesting avenue to be aware of. Three examples are summarized here.

Clinical nutrition

Arla Foods Ingredients, while not a Spanish company, Arla Foods Ingredients operates in Spain and specializes in milk- and whey-based nutrition solutions and ingredients for infants, toddlers, medical, and sports nutrition. Their expertise in dairy-based proteins complements the plant-based offerings in the market.

Kerry Group acquired Pevesa Biotech, a Spanish company specializing in non-allergenic and organic plant protein ingredients for clinical nutrition.

Clinical nutrition & Infant formulation

Abbott Laboratories operates a manufacturing facility in Granada, Spain, producing a wide portfolio of powdered products for infants and adults. While primarily known for dairy-based infant formulas, Abbott's presence in Spain's infant nutrition market is significant.

Laboratorios Ordesa leads the PROTECCIÓN project, aiming to develop new non-animal protein sources for infant and clinical nutrition.

Sport nutrition

Nutris Ingredients specializes in healthcare, including food and food supplements, medical nutrition, and sport nutrition.

Atlantic Grupa d.d. a European company providing various sports nutrition products, including plant-based protein supplements, available in the Spanish market.

Based in Spain

Active in Spain





SUPERMARKETS

Spain's supermarket landscape is a key factor in the accessibility and success of alternative protein products.

Major supermarket chains like **Mercadona**, **Carrefour** and **Lidl** are pivotal in bringing plant-based and future-based protein products to consumers. These retailers have increasingly incorporated plant-based foods into their aisles, responding to the demand from an evolving demographic of environmentally conscious, health-focused, and ethically driven shoppers.

Carrefour, for instance, has expanded its range with its own plant-based line, while Mercadona has introduced various plant-based options under its "Hacendado" private label. Lidl has also gained momentum by introducing high-quality vegan products under its "Vemondo" range, catering to diverse tastes.

International brands like **Beyond Meat** and **Oatly**, along with local startups such as **Heura**, are expanding their presence in Spanish supermarkets, making these products more accessible to a broader audience.



















32

Mercadona, with 1.600 stores and 26,2% market share, the largest Spanish supermarket chain, offers a still limited but growing variety of vegan products under its private label <u>Hacendado</u>.

33

French retail giant <u>Carrefour</u>, with 1.521 stores in Spain (including those of El Corte Inglés) has the largest selection of organic, vegan and vegetarian options in Spain. It has its own <u>Veggie</u> line, and in addition, sells numerous meat-free products under the Spanish organic <u>Eco Cesta</u> brand.

34

<u>La Sirena</u>, owned by Grupo Ramos, is a leading frozen food specialist, with over 260 stores. and has been actively expanding its white-label plant-based product offerings. The chain distributes its products through its own online platform and wholesale agreements with retailers like Amazon, Glovo, and Carrefour.

35

German retailer <u>Aldi</u>, with 468 stores, sells its own vegan soy protein <u>Wonder Burger</u>, and sells between 300 and 490 plant-based products under its <u>GutBio</u> private label.

36

<u>Eroski</u>, with 1.600 stores and 4,3% market share, is a cooperative with a social mission. Its private label <u>Eroski Veggie</u>, offers 20 food and fresh products, carrying <u>V-Vegan</u> quality mark.

37

<u>Sánchez Romero</u>, operating 10 supermarkets in Madrid, offers a selection of vegan meat options and distribute well-known international brands. It has no private label.

38

German retailer <u>Lidl</u>, with 700 stores in Spain, launched its <u>Next Level</u> vegan meat range in 2020, and sells 140 carbon-neutral vegan and vegetarian products under its own Vemondo brand.

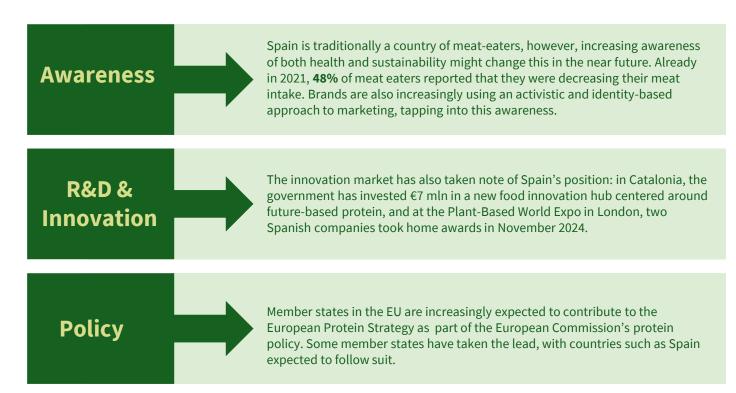






TRENDS AND OPPORTUNITIES SUMMARY

The shift from traditional animal-based proteins to future-based proteins is driven by environmental concerns and offers significant opportunities for innovation and market growth. Technological advancements of these proteins are unlocking new possibilities for both consumers and producers. As the market evolves, clear trends are emerging. We see strong potential in the Spanish market—not only for development and expansion but also as a strategic gateway to other Southern European countries with similar Mediterranean diets - an ideal case study for developing future strategies.



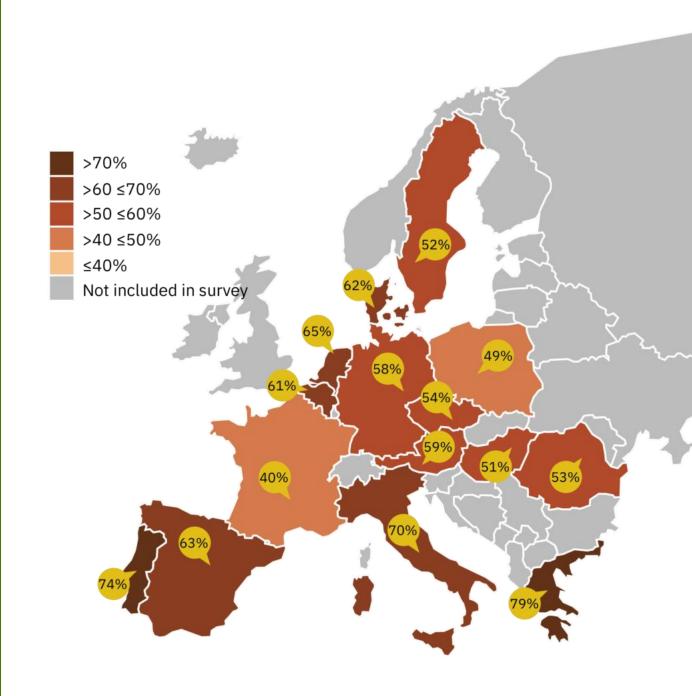
Source: 14, 15, 16, 17, 18

GFI consumer insight on animal protein consumption

Representative surveys commissioned by GFI Europe of consumers across 15 European countries by YouGov in February-April 2024 found that the majority of people in all, but two countries thought that meat consumption in their nation was too high. Spain ranked fifth highest, with 63% agreement.

'Proportion of people per country that agree with the statement 'The amount of meat that we eat on average in my country is much/slightly too high.'

This shows that there is great promise for producers who wish to capitalize on the efforts of Spanish consumers to consume less meat. Furthermore, it is interesting that some 30% of Spaniards self-identify as **flexitarian**.







CONSUMER TRENDS AND PREFERENCES

When evaluating the success of future-based proteins in Spain, some interesting consumer trends can be considered:

As can be expected from a
Mediterranean food culture, **taste and quality** remain crucially important
drivers of choice.

Locally sourced and culturally significant products also to be more popular.

- For example, plantbased sausages appear to out-sell burger patties when it comes to plantbased meat.
- Substitutes of chicken strips and nuggets are also popular, both as snacks and meal components.

Spanish consumers care more about health than they do about sustainability, in their choice for opting for a future-based diet. However, compared to the European average, they seem to be more aware of **both health and sustainability**.

- It is also noteworthy that low-fat is more important than low-sugar.
- Specific ingredients are sometimes avoided, most notably palm oil.
 'Clean label' promises appear to be important for Spanish consumers.

In a global comparison, the Smart Protein Project found that of all surveyed countries, Spaniards are most likely to "eat plant-based cheese instead of animal-based cheese (36%), to buy it regularly (38%) and to pay a higher price for it (28%)".

Source: 21, 22, 23

Brand Activism – Heura Foods, Pascual, Pink Albatross

неста

As seen in previous slides, it's hard to ignore Heura's uniquely Spanish identity and supremacy in the future-based protein market. The brand backs this up with activism-based branding and provocative use of color and terms.

In its marketing, Heura makes clear calls for participation and solidarity with combating climate change. It positions itself as a 'rebel' in the food world, while also keeping the joy in its messaging. Take note of its jocular tone and cheeky reactive messaging towards meat and more traditional proteins.



Pascual and its subsidiary, ViveSoy, take a different approach. By prominently proclaiming "Stories Cultivated Here", ViveSoy appeals to the connection to the Spanish countryside.

"Why should we need R&D", the ViveSoy mamas ask us, "when we have everything we need right here?" In times of increased geopolitical instability, embracing local production is a sound strategy. Clearly, it also appeals to Spanish identity more broadly, as the advertisements for Pascual and ViveSoy gain millions of views. As opposed to Heura, local production is at the heart of its story.



Pink Albatross is Spain's "first clean-label, plant-based ice-cream company". The startup was founded in Madrid by Luke Saldanha and Pepe Biaggio, who were among the entrepreneurs of the ProVeg Incubator.

Pink Albatross has emerged as a key player in Spain, offering innovative dairy-free ice creams made from plant-based milks. The founders adopt an activistic and authentic rhetoric, with phrases such as: "Who says you need CREAM in your ICE CREAM? We don't think you do!"

Brand Activism – Huera Foods, Pascual and Pink Albatros

Video: Calling All Good Rebels



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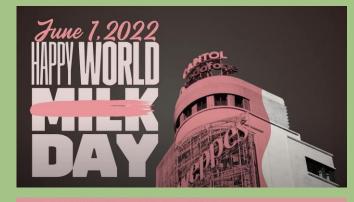
MORE NUTRITIOUS, MORE SUSTAINABLE, JUST AS DELICIOUS.

Video: <u>R&D Department:</u> Closer to a Better Taste





Video: Who said you needed cream in your ice cream?



WE WANT TO KEEP
CHANGING
THE WORLD OF ###





EUROPEAN POLICY

In October 2023, the European Parliament asked the European Commission for **a comprehensive European protein strategy** to increase European production and reduce dependency on foreign suppliers. Although this strategy is not part of the Green Deal, it also contributes to its main objective, namely a climate-neutral EU in 2050. The European Commission is expected to review its protein policy in 2025.

Although Spain does not have a national protein strategy, we can assume that once the European Protein Strategy is launched, the country will follow the presented guidelines and promote them nationally. Other member states are already picking up the pace: We expect that the protein strategy guidelines will largely follow the advice to the European Commission issued by Germany and Denmark at the end of 2024. A common approach is deemed necessary, and among other things, on the following:

Strengthening of the sustainable domestic production of plant-based proteins, produced in accordance with high European standards

Fostering of research and innovation in the area of plant-based proteins, as well as other alternative sources of protein, along the entire value chain, targeting need-oriented and optimized use of plant-based or alternative protein resources (e.g. green proteins)

Exploring potential information and knowledge exchanges, for instance on dietary guidelines that balance both health and climate to stimulate demand and on options for raising awareness among consumers and retailers of the advantage of sustainable protein sources

SPANISH GOVERNMENTAL HEALTH GUIDELINES

According to the FAO, the Spanish government most recently updated its dietary guidelines for the general public in 2022. Most notably, the guidelines written by by the Spanish Agency for Food Safety and Nutrition (AESAN) of the Spanish Ministry of Consumer Affairs state the following:

 Proteins: Per week, eat at least 4 servings of legumes, 3 or more servings of fish, 3 or more servings of nuts (up to a maximum of 1 serving/day) and up to 4 eggs. Up to 3 servings per day of milk and dairy products, preferably without added sugars and with low salt content. A maximum of 3 servings/week of meat, prioritizing poultry and rabbit meat and minimizing the consumption of processed meat.

With these guidelines, sustainability and health seem to have been integrated, while allowing for the traditional Spanish fish-based diet. Notably, 3 servings per week of fish are specified to be from species with less environmental impact. And as opposed to recommending meat, there is only a maximum, with the stipulation to avoid processed meat. Other notable dietary guidelines that inform the Spanish Ministry of Health:

- FINUT (Fundación Iberoamericana de Nutrición) is a non-profit organization for improving nutrition across the Spanish and Portuguese speaking world.
- Fundación Dieta Mediterránea, a branch organization promoting the traditional foods of Spain, is supported by various commercial groups and produced nutrition guidelines such as the one picture to the right.

Pirámide Dieta Mediterránea para población infantil y juvenil Postres y dulces tradicionales Curados y embutidos ≤ 1 R Ternera, cordero, cerdo ≤ 2 R Pollo, pavo, coneio 3-4 R Productos del mar: pescado blanco, pescado azul, marisco... ≥ 3 R Legumbres: garbanzo, lenteja, guisante... ≥ 3 R Frutos secos: almendra, avellana, ácteos: leche, yogur, queso... 3-4 R nuez, pistacho, piñón... 1 R Frutas: naranja, manzana, pera Aceite de oliva virgen extra 1-2 R melón, sandía, fresa... 1 R Cereales integrales: pan, arroz, Hortalizas y verduras: tomate, judía verde, lechuga... 1 R ¡Bebe agua cada día! ≥6R Actividad física diaria Descanso adecuado v ejercicio físico Sostenibilidad Actividades productos locale culinarias y de temporada Pictured above: The Mediterranean Diet Foundation's diet guidelines

for children and adolescents (Feb 2024)

Scientific comparison: 'Food in the Anthropocene', by the EAT-Lancet Commission (Feb 2019)

Dutch comparison: 'De Schijf van Vijf', written by the semigovernmental institute Voedingscentrum (last updated in 2016)



INDEX COMPANIES



- 1. <u>Liquats Vegetals</u>
- 2. CAPSA Food
- 3. Frías Nutrición
- 4. Pascual
- 5. <u>Sojade</u>
- 6. <u>Violife</u>
- 7. Heura Foods



- 8. <u>Noel Alimentaria</u>
- 9. <u>Campofrio</u>
- 10. El Pozo Alimentación
- 11. Foods for Tomorrow
- 12. ODS Protein
- 13. Libre Foods
- 14. <u>Cubiq Foods</u>
- 15. Novameat
- 16. Meat4All
- 17. Cocuus



- 18. Mimmic Seafood
- 19. Current Foods
- 20. Angulas Aguinaga
- 21. Cocuus
- 22. Heura Foods
- 23. The Plant-based Seafood Co.



- 24. Tebrio
- 25. <u>Iberinsect</u>



- 26. Arla Foods Ingredients
- 27. Kerry Group
- 28. Abbott Laboratories
- 29. <u>Laboratorios Ordesa</u>
- 30. <u>Nutris Ingredients</u>
- 31. Atlantic Grupa



- 32. Mercadona
- 33. Carrefour
- 34. <u>La Sirena</u>
- 35. <u>Aldi</u>
- 36. Eroski
- 37. Sánchez Romero
- 38. <u>Lidl</u>

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