

THE FUTUREPROTEIN MANIFESTO

A public declaration of the big messages from science and industry to consumers about alternative proteins

The increase in the world's population and the growing awareness of the environmental impact of food production represent a challenge to develop alternative and sustainable food sources, especially when it comes to producing protein.

With protein being basic in a healthy diet, it is of utmost importance to produce enough in a more sustainable way, since production of traditional animal sources is one of the highest impacting activities on the environment as it has high and intensive consumption, going along with consumption large amounts of water and extensive greenhouse gases emissions.

The food industry is targeting development of new solutions for alternative proteins, but are citizens ready for their consumption? This Manifesto aims at sharing the most important messages to increase awareness about the proteins of the future.

Protein is basic in a healthy diet. Neither a protein deficiency nor an excess will necessarily benefit our health. In developed countries, the average protein intake is sufficient and even exceeded the amounts needed. Nutritionist and health professional recommendations are available on the specific protein requirements of each population group and individual physiological conditions.

The production of animal-based protein has a high impact on the environment through the consumption of water, land and energy and the release of greenhouse gases. The pressure on the cattle production due the increasing demand on meat leads to intensive farming methods and is causing important environmental impacts. Traditional agriculture uses more freshwater than any other human activity, with nearly a third required for livestock. Forests are being cut to create pasture as well as arable land to meet the demand for animal feed. Moreover, significant part of the greenhouse gases of anthropogenic activity originates from meat production at global level.

There is a need for alternative sustainable sources and production of protein to feed the world's increasing population and **to reduce the impact on climate change.**

Decreasing pressure on livestock production will also help to improve animal welfare, reduce the use of antibiotics, avoiding the risk of the emergence of resistant microorganisms, reducing disease transmission and, ultimately, improving meat quality.

A varied diet is the basis of a healthy diet. Reducing excessive consumption of meat, particularly red meat and highly processed meats, in favour of plant and/or alternative protein sources can help reduce the intake of saturated fats while increasing dietary fibre intake, contributing to the improvement of our health, reducing the incidence of obesity, cardiovascular diseases and cancer...

Alternative proteins are new options to traditional or conventional ones and should always be consumed as part of a varied and healthy diet, giving priority to minimal or low processed vegetable protein rich sources such as pulses and nuts and more sustainable animal sources. Alternative proteins can be applied for the development of meat substitutes in vegan and vegetarian diets or in diets of people willing to decrease their meat consumption.

Alternative proteins are food. Alternative sources of protein include proteins **extracted from conventional plants** like fava bean, peas, nuts, or quinoa, and **non-conventional protein rich plant sources** such as chia, hemp, linseed, rapeseed, or even protein extracted from grass and green leaves. **Insects** are widely consumed and appreciated in many countries and cultures as tasty dishes. **Microalgae** have been consumed for thousands of years in different cultures. Fermentation has been used by humans since the beginning of time, where **yeasts, fungi and bacteria** have been used to produce bread, beer, wine, cheese or yoghurt. **Mycoprotein** is produced by the same type of fungi used to produce blue cheese, miso and tempeh.

Alternative proteins are a good source of protein. Insects and microalgae as they are usually consumed in their dry form can have two or three times as much high-quality protein as meat. They can also be rich in other important nutrients. Insects can be a good source of iron; microalgae can be rich in omega-3 fatty acids and mycoprotein (protein from fungi) is also rich in fiber as many plant sources.

Alternative proteins are more sustainable. In general, the production of animal-based foods tends to have higher greenhouse gas emissions than producing plant-based foods. Overall, animal-based foods tend to have a higher footprint than plant-based. Insects can be farmed in small places such as greenhouses, in boxes, and feed on parts of food that we do not consume but that are in perfect condition, contributing to recycling. They need less space, less food and less water to produce the same amount of protein and produce much less greenhouse gases than cows, pigs or chickens. Microalgae, mycoprotein and insects grow faster than traditional farm animals and can be produced locally reducing the impact of transport and benefiting local economies. Cultured meat or meat produced by cultivating animal cells has these same advantages and is arising as a more sustainable option to meat from farmed animals.

Alternative proteins are safe when they are commercialised in the EU. Every alternative protein must accomplish with the EU strict safety regulation previously to their commercialization. They all are produced in controlled conditions, fed with controlled safe and sustainable materials and in compliance with good manufacturing practices.

One of the main challenges to be faced by food industry is ensuring that a diversity of alternative proteins is available, affordable, and attractive to people. Improving sensorial quality (texture, flavour, taste...) of products with plant proteins and developing a portfolio of recipes will be key for their acceptance. Therefore, as an example, we will find insects whole, in meal form or as ingredient in protein rich products.

The ability to produce in an efficient way low cost, high-quality protein near consumers will also bring increased food security (food granted supply) granting alternative proteins availability, accessibility, and affordability.

Communication and transparency are of outmost importance for the food industry to gain consumer trust. Information on their nutritional composition, origin, production

processes and the environmental impact of the protein ingredients used shall be given to the consumer. Food industry is concerned by the need of clear and clean(er) labels. **Correct and understandable ingredients and products definitions shall be designed.**

The use of agri-food industry by-products for animal feed can also contribute to the release of land and other agricultural resources to feed people, as well as reduce greenhouse gases emissions. Food waste and by-products of food processing, also including protein-rich materials, are discarded in huge amount every day all along the food chain. In particular, among the different compounds to be recovered from food by-products, proteins are indeed the most essential nutrient for all the livestock.

An increasing diversity of alternative proteins is expected, which could help improving diets diversity and consequently our health. Although there is still a limited availability in the market, being mostly ingredients for food (flours, powdered in energy bars...) or meat-based product imitations, we believe that consumer's needs will drive demands so that alternative proteins availability will increase in the coming years.

EUROPE is boosting R&D and innovation around alternative proteins through their H2020 and new programme HORIZON EUROPE for funding research. EITFood has defined Alternative proteins as one of their focus areas: "These Focus Areas are the cornerstones of the EIT Food Innovation portfolio in the coming years". EIT Food is Europe's leading food innovation initiative, under HORIZON 2020, working to make the food system more sustainable, healthier and trusted by consumers.

This document results from the conclusions of a consumer survey and the expert's and stakeholder's workshop that took place the 19 November 2020, during the project: *The Protein of the future and the Future of Protein in Europe-FUTUREPROTEIN*, supported by EITFood.

The project partners, AZTI, Puratos, University of Aarhus and Fraunhofer want to thank the expert speakers that participated in the workshop.

The opinions here manifested are solely limited to reflections made on the outcome of the workshop organised within the EIT FOOD FUTUREPROTEIN workshop, and do not intend to represent the opinion of the entire EITFood consortium.

For more information on this project please go to <https://www.eitfood.eu/projects/the-future-of-protein-the-protein-of-the-future-in-europe-2020>.

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