TITOLO: Alternative protein and cultured food: agrofood policy, economic and management analysis

Progetto di ricerca

Alternative protein products represent a viable substitute for conventional animal-based foods. They include proteins derived from plant-based, microbe-based, ocean-based, fungus-based, insect-based sources, and, increasingly, cultured meat and seafood produced through cellular agriculture. Growing consumer interest offers a strong opportunity to shift European diets toward greater sustainability and health, in line with the EAT-Lancet Commission, the European Green Deal, and the Farm to Fork Strategy. Nevertheless, animal-based products still dominate consumption patterns, with 94% of Europeans consuming them daily.

In this context, the development of alternative proteins introduces new challenges and opportunities related to the marketability of products, the governance of emerging value chains, and the formation of innovative business models. While cultured meat and seafood represent one technologically advanced segment, many alternative proteins including plant-based formulations, precision- and biomass-fermented proteins, microalgae- and algae-derived ingredients, fungi-based proteins, and insect-derived products, also rely on complex, technology-intensive, and increasingly regulated production systems. These systems require coordinated governance arrangements that span a wide range of actors, including upstream biotechnology suppliers, ingredient and fermentation-technology providers, agricultural producers, equipment manufacturers, processing firms, and downstream retailers or food-service operators.

Across this diverse landscape, ensuring transparency, traceability, food safety, sustainability verification, and ethical oversight will be essential to build consumer trust and support the transition from niche adoption to mainstream consumption. Strengthening these governance mechanisms will play a pivotal role in enabling alternative proteins to scale effectively, compete with conventional products, and contribute meaningfully to more resilient, equitable, and environmentally sustainable food systems.

Moreover, business models in cultured meat and seafood need to integrate multi-actor collaboration, given the interdependence between scientific research, intellectual property management, regulatory approval, investment flows, and commercialization strategies. Start-ups, incumbents in the meat and seafood industries, and public institutions will need to co-design scalable production infrastructures, navigate high capital expenditures, and develop distribution and branding strategies capable of positioning cultured products as credible and desirable alternatives to conventional proteins. Governance mechanisms will also be essential to ensure that the economic, environmental, and social value created along the value chain is distributed fairly among actors, including farmers and coastal communities affected by the transition.

Thus, there is a need to:

- identify the key consumers' behavioural determinants and the agro-food governance frameworks that can enable a wider uptake of alternative protein products;
- empower food-system actors to make alternative protein products an easy, accessible, and economically viable choice by diversifying and expanding market supply and ensuring favourable agro-food environment conditions;
- ensure that advancements in alternative protein products and agro-food environments contribute to improving the health and sustainability performance of the European food system;

- guarantee alignment with regulatory requirements and ethical considerations throughout the development and deployment of these innovations.

The researcher will support activities aimed at:

- Conducting a comprehensive literature and policy review, examining existing research on alternative proteins including plant-based, cultured, and insect-based foods and analyzing agro-food regulations, safety standards, and policy frameworks that shape their production, commercialization, and consumption. This includes identifying key regulatory challenges, emerging governance models, and international policy trends.
- Collecting and analyzing quantitative and qualitative data on production systems, market trends, consumption patterns, and environmental, economic, and social impacts of alternative proteins relative to conventional animal agriculture. This work will also involve assessing nutritional profiles, safety considerations, and the broader implications for food-system sustainability and resilience.
- Engaging with stakeholders across the value chain, including policymakers, industry representatives, scientific experts, NGOs, and other relevant actors, to gather insights into policy needs, market barriers, innovation pathways, and perceptions surrounding alternative protein development. Findings will contribute to a nuanced understanding of governance challenges and opportunities.
- Mapping and evaluating policy landscapes at local, national, and international levels to identify gaps, inconsistencies, and areas for improvement in existing regulations related to production, labeling, marketing, and oversight of alternative protein products. The fellow will develop evidence-based policy recommendations that support sustainable, ethical, and economically viable growth of the sector.
- Developing research outputs and supporting dissemination, including preparing case studies of regions with successful policy strategies, producing research papers, reports, and policy briefs, and contributing to outreach activities that inform both the public and decision-makers. This will include participation in conferences and meetings, as well as collaboration with partner researchers and institutions to strengthen cross-sectoral knowledge exchange.

Piano di attività

The researcher's activities aim to contribute to the food supply chain management and economic dimensions of alternative protein products' promotion. In particular, he/she will focus on:

(i) statistical-economic analysis of agri-food products in the European market for analysis along agri-food supply chains;

(ii) literature review analysis and meta-reviews of sources useful for research activities;

(iii) content analysis of focus groups transcriptions with specific software, such as NVIVO;

(iv) contributing to structuring and data collection through face-to-face interviews and focus groups with agri-food supply chain actors in Italian and English on business economic and financial issues;

(v) contributing to consumer data collection through interviews, surveys related to market dynamics and new consumer trends (equity, fair trade, eat local, food business models) and case study analysis;

(vi) data processing through multivariate statistical techniques, including factor analysis, cluster analysis, regression.

(vii) elaboration of research reports and presentation materials, including data visualization, synthesis of findings, and preparation of policy and managerial recommendations for stakeholders across agri-food supply chains.

The research activity will be conducted in English. The research fellow will work on Progetto **LIKE-A-PRO** – GA 101083961 – CUP J33C22003350006 e Progetto **FEASTS** - GA 101136749 - CUP J33C23003710006. The listed activities will be carried out under the supervision of Prof. Antonella Samoggia, scientific project leader and mentor.