

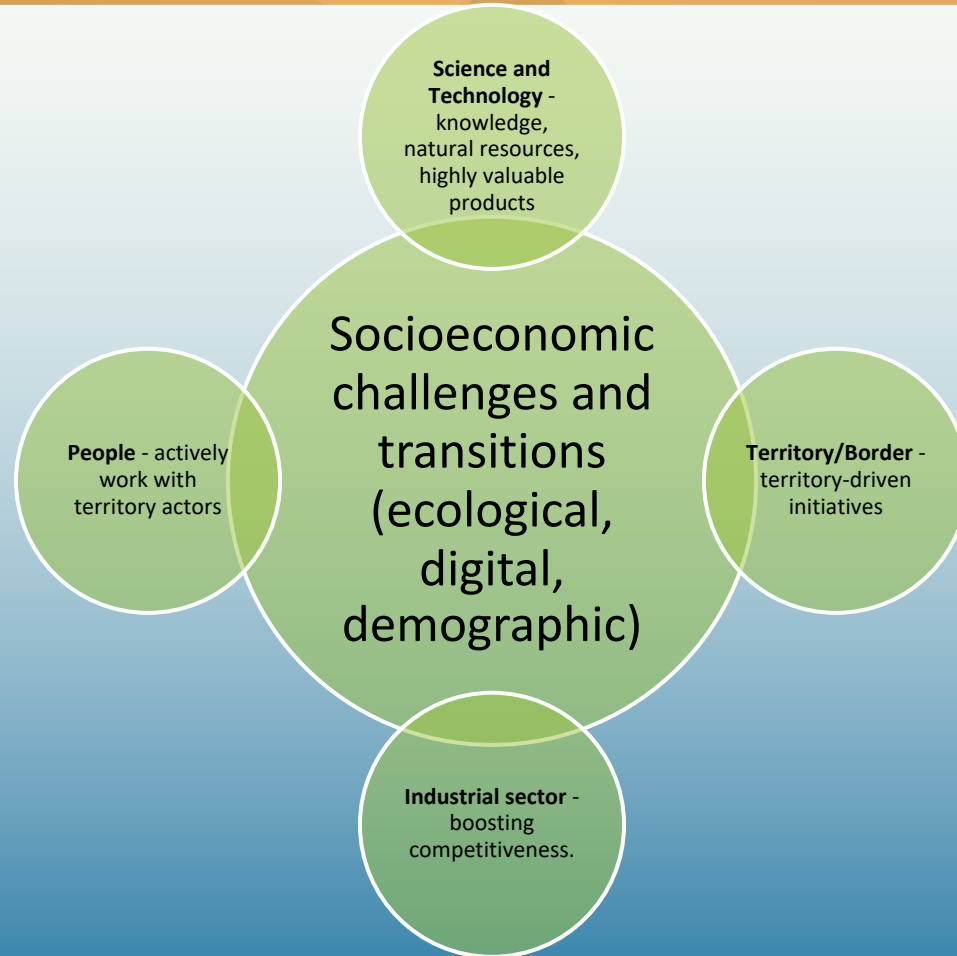


Science and innovation in the agrifood sector

Bragança, 24 de julho de 2024

To have in mind:

Only high-ambition and high-profile R&I initiatives will deliver a transformative impact for European society.





One of the most distinctive characteristics of our territory is the excellence of our agri-food products, which, in the context of climate change, require a strong commitment to the development of strategies based on **sustainability**, competitiveness and **innovation**.



The implementation of these strategies is only possible when supported by the contributions of **science and the evolution of knowledge**, essential factors for the creation of new focuses of research, development and qualification, creating axes of business innovation and economic growth.



This paradigm shift must, obviously, be applied throughout the whole chain, from the production phase to the final consumer, a concept already shaped in the well-known **Farm to Fork Strategy**. Be in line with the **Sustainable Development Goals** agreed upon in the **UN 2030 Agenda**, in the **Green Deal**, or in the **Horizon Europe Program**.

Priorities to be supported through R&I activities :

- ⇒ Understanding climate-water-energy-food nexus and streamlining water-related policies.
- ⇒ Innovative nature-based solutions for carbon neutral cities and improved air quality.
- ⇒ Emerging challenges for soil management: Soil biodiversity assessment.
- ⇒ Reducing food losses and waste along the agri-food value chain.
- ⇒ Innovative agri-food value chains: boosting sustainability-oriented competitiveness.
- ⇒ Connecting consumers and producers in innovative supply chains.
- ⇒ Reduce the use of plastics in our country and understand exposure and impact on human health.
- ⇒ Alternative proteins for food and feed.
- ⇒ Towards healthier and sustainable food.

Networks between:

- ⇒ Centers focused on Mediterranean Studies (agro-food systems, water and energy resources);
- ⇒ Sustainable Energy Systems, Circular Economy and Technologies for the Environment;
- ⇒ Agricultural, Agro-food and Veterinary Sciences;
- ⇒ Biological Sciences, Biodiversity and Ecosystems.



The network of existing research and development units in Portugal, composed by Higher Education Institutions, Research Centers, Associated Laboratories, and Collaborative Laboratories, constitutes an innovation ecosystem that must provide transformative effect in the agri-food sector, creating more efficient regional dynamics, and providing synergistic results at different levels:

- **greater profitability of the value chain through the incorporation of innovation in all the extent the production line;**
- **validation of the excellence of Portuguese products (quality mentions);**
- **development of innovative products (functional foods, superfoods, nutraceuticals);**
- **production processes that respond to the current level of consumer demand.**

At all stages of the agri-food chain there are priority challenges that need effective responses:

- ⇒ How to achieve a more resilient agriculture, better prepared to slow down climate change (e.g., drought vs. floods, plagues and diseases), and to increase biodiversity and soil quality?
- ⇒ How to produce food that is healthier, safer and more affordable to everyday people while also respecting the environment, reducing the ecological footprint and minimizing waste?
- ⇒ How to promote agro-food clusters, generating internationalizable products and, at the same time, ensure self-sustainable short food supply chains?
- ⇒ How to bet on segments of greater sophistication, such as functional foods or foods to different age, or to specific groups, and simultaneously guarantee the food availability worldwide?

- ✓ Through the implementation of **sensorisation networks**, including drones and platforms for the control and monitoring of farming;
- ✓ **Diversifying the production**, by using more resistant varieties, inducing overexpression or suppression of certain genetic and phenotypic parameters, using biocontrol techniques, among others;
- ✓ Creating hydro-agricultural management algorithms supported in **big data**, with real-time information about the level of moisture, soil water stress, use of aerial phytopharmaceuticals, aquifer contamination, production levels, energy and hydraulic consumption levels, and crops more appropriate for each plot, optimization of cost control, water efficiency and minimizing environmental impacts;
- ✓ Increasing the capacity and the skills of **human resources** linked to the agro-industrial sector, either to go along innovations in the productive stage, or to add technological innovation in the transformation and distribution stages of agri-food products;
- ✓ Betting on knowledge and technological **innovation production centres**, according to what is already the case of Bragança;

- ✓ Respecting the most **innovative trends** in the agri-food sector, such as the current axes of research in Nanotechnologies for the Food Industry, or the use of Biosensors for Quality Assessment and Food Safety;
- ✓ Providing a better articulation of the **climate-water-energy-food axis**, with strong orientation to meet the goals set for the climate and energy transition;
- ✓ Promoting the balance between the productive scaling necessary to **internationalize foodstuffs** (crucial to the regions' economic capacity) and the commitment to the short production and distribution chains (with clear benefits, taking in account the carbonic neutrality aim);
- ✓ Fulfilling the **circular economy's** principles, with waste and surplus reduction throughout the agri-food value chain, also meeting other requirements associated with the concepts of innovation and food sustainability;
- ✓ Raise awareness to everyone in general, with a special focus on **younger people**, about the benefits of healthy eating, which have a direct impact on health promotion.

- ✓ Investing on **functional foods, superfoods and nutraceuticals**, which will consolidate as a new added value with great potential for food producers;
- ✓ By developing **new food packaging**, made from more sustainable materials, which will not only meet the main purpose of packing the product, but will also transmit useful information to the consumer (e.g. food conservation status): smart packaging;
- ✓ Establishing **new protein sources** (unexplored legumes, algae, insects) that can relieve the productive pressure of animal sources, with obvious benefits for carbon neutrality;
- ✓ Developing **new food products** resulting from partnerships between higher education institutions, scientific and technological interface entities and companies;
- ✓ Promoting products with **proof of quality** (DOP, IGP, ...) through nationwide initiatives, also involving the tourism sector and the academia;
- ✓ Developing strategies for **diversification of products**, with the possibility of introducing new species, especially by improving agronomic conditions (greater availability of water resources), making the regions more resilient.

Any productive innovation initiative must respect the principles of the Circular Economy

**Ensure
sustainability
at all stages of
production**

- durability, reusability, ability to upgrade and to equipment repair
- eliminate the presence of dangerous chemicals and increase the percentage of recycled materials without damaging the quality of the product
- greater energetic efficiency
- use of suitable materials for further recycling
- contribution to the reduction of the carbon and environmental footprint
- materials and equipment that do not quickly become obsolete

**Circularity in
production
processes
(middle way for
the generation
of added value)**

- integration of the Most Effective Techniques Available regarding circular economy practices
- promoting industrial symbiosis
- use of digital technologies to track, monitor and map resources
- implement validation systems to evaluate the incorporation of green technologies or certification processes

The European Union

has considered food, water **and nutrients** as one of the priority intervention sectors in its **Circular Economy Action Plan**.

The agriculture-food axis

can benefit to a great extent from the incorporation of technology and productive innovation, reaching levels of excellence in its products, valuing and promoting what best our territories must give, and narrowing the interface between scientific activity and socio-economic development, along with the promotion of improvements in health and well-being.

This is the best time

to strengthen and rejuvenate our agroindustry sector with highly skilled human resources, consolidating the potential of our food products through a complete adaptation to current market demands with increasingly higher standards in sustainability issues allied to health promotion, catapulting the quality of our products internationally, and reaching new levels of economic activity.

Events like
this

- which bring together a multidisciplinary panel of national and international speakers to discuss current global issues, are essential to obtain a comprehensive view on these problems

The
participation
of specialists

- from so diverse areas will allow us to discuss, in a profound and informed way, the role of science in the development of strategies to be adopted, with a view to a better and sustainable future.

Thank you so much!