

Challenges in the AgriTech - FoodTech sector of the local partners of the Rising Up in Spain Program

FUNDECYT-PCTEx



Development of technological solutions to add value to the agri-food sector through its digitalization with new technologies and/or the generation of new products/processes obtained from natural resources, crops or agro-industrial waste.

- Challenge 1: Valorise agri-food waste to obtain bioactive compounds.
- Challenge 2: Production of nutraceuticals and cosmetics from microorganisms.
- Challenge 3: Production of bioplastics from agri-food waste.
- Challenge 4: Development of technological solutions to improve agri-food crop yields.
- Challenge 5: Sensorization and monitoring of agri-food crops and livestock.
- Challenge 6: Reducing the use of drugs in animal nutrition.
- Challenge 7: Application of DLT technologies to improve traceability and food safety in agribusiness.

EATEX



- Challenge 8: Rapid detection of food quality and safety parameters: sensors and devices capable of detecting pathogens, contaminants, composition, foreign bodies, etc. in a variety of food products instantaneously or with fast response times.
- Challenge 9: Improving the quality of plant-based products: solutions to achieve plant-based products with organoleptic (appearance, smell, taste and texture) and nutritional characteristics more similar to the animal products (meat, fish and dairy) that they are intended to mimic.
- Challenge 10: Reduction of sugar/salt/fat in processed products: solutions to reduce these contents while maintaining an attractive taste for the consumer, without detriment to other key food characteristics such as texture or shelf life.

Palacios Alimentación



Challenge 11: Development of ingredients/products/ that improve/disrupt our current offer in alternative protein, always looking for clean recipe and Nutriscore A.

COVAP



Challenge 12: Continuity of Livestock Production.

Challenge 13: Increase direct sales.

Challenge 14: Securing raw materials.

Challenge 15: Growth in the International Market.

For all these challenges we look for solutions that reach from new business models to small tools that improve our current activities, to investments in new activities that COVAP is not currently working on, COVAP'S activities affect all links in the chain, from agriculture and animal feed to the meat and dairy sector and ending with our own network of stores.

Clúster Alimentario food+i



Challenge 16: Alternative proteins of animal origin (not only meat, but also eggs, milk, fish, etc...).

Challenge 17: Ingredients obtained by fermentation (texturizers, flavorings, etc.).

Challenge 18: Nutraceuticals (prebiotics/postbiotics) related to health, aging reduction

Challenge 19: Ingredients of natural origin (Clean Label strategy: reduction of preservatives, antioxidants, allergens).

BUSINESS FACTORY FOOD



Challenge 20: Digitalization and automation

- *Big Data and Artificial Intelligence*: Integration of the necessary information systems and infrastructures from data capture, data processing and robustness, to its processing and analysis with artificial intelligence tools for decision making.
- *Digital Twin*: Advanced process simulation systems that enable rigorous control of systems to avoid problems, prevent downtime, test new business opportunities, plan future scenarios through simulations and customize production based on customer requirements.
- *IoT and sensorics*: Connected devices that allow "real-time" inventory tracking, predictive maintenance on machines and/or remote control of conditions to ensure the safety and quality of the final product, with special application in the HORECA channel.

Challenge 21: Traceability, Quality and Food Safety

- *Paperless quality management systems (QMS)*: Systems that enable information to be generated, processed, archived and consulted, both by the companies themselves and by the different agents involved in the entire food value chain, in a substantially more efficient, safe and reliable way.
- *Automatic continuous measurement systems*: Systems for the monitoring and control of food quality through the use of sensors, which provide results of objective parameters that can be adapted to a process line.

Challenge 22: Logistics

- *Smart Labelling*: Integral and customizable product labelling systems that allow full traceability throughout the entire value chain. In particular, the aim is to optimize logistics and inventory management in controlled locations.
- *Logistics 4.0*: Solutions that optimize the supply chain. Of particular interest are innovative systems that through interconnection, new interfaces and/or new schedules ensure more efficient shipment management in anticipation of demand, a reduction of stocks and storage, route optimization, geolocation of customers, knowledge of the location and traceability of the goods.

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Challenge 23: Sustainability

- *Innovative, sustainable packaging and new materials:* Solutions that minimize the environmental impact due to the use of plastics in food packaging. Of particular interest are projects for new, fully biodegradable, plastic substitute materials that guarantee the organoleptic characteristics of packaged products.
- *Valorization of waste and co-products:* Develop new products or new applications, through which it is possible to channel supply and demand imbalances, as well as food by-products, transforming them into innovative and healthy proposals for the industry and/or the final consumer.
- *New eco-efficient transformation processes adapted to demand:* Solutions that facilitate the implementation or improvement of transformation processes to make them more eco-efficient. The aim is to advance in a sustainable, efficient and optimized use of energy resources and raw materials, and to reduce as much as possible the waste and emissions generated in the production process of a given product.

Challenge 24: New product development

- *Healthy products and personalized nutrition:* new food products, improved products and/or biotechnological food applications aimed at functional and nutraceutical nutrition for health and active aging.
- *New ingredients and properties:* new biotechnological solutions, sustainable and organic substances enabling an organoleptic, nutritional or functional improvement of a food product.

Challenge 25: Process and marketing innovation

- *Marketing and interaction with customers and consumers:* new ICT solutions that accompany the value propositions of the food sector and involve new features of interest both for customers and for any agent in the food value chain, facilitating communication in both directions.

Challenge 26: Open Challenge

Open Challenge: Any project that can be applicable to the food sector and that involves the introduction of some kind of innovation or improvement. Any initiative/project that involves an innovation, in a broad sense (product, process, marketing, etc.), for the food sector in Galicia, from the origin and treatment of raw materials through fifth range products to close the food circle, seeking the circularity of the flow of products and services used in the different phases of the main value chain as well as the lateral links, is considered of interest.

AgroBank Digital INNovation



Challenge 27: PRECISION AGRICULTURE

Innovative and disruptive solutions that improve precision agriculture through the use of collaborative technologies and tools for process automation (comprehensive software, implementation of video surveillance systems, autonomous robots for harvesting crops or the use of intelligent and connected atomizers for weed control).

Challenge 28: ALTERNATIVE ENERGIES AND SUSTAINABILITY IN THE FIELD

Tools focused on innovation, efficiency, and energy sustainability in the field from the generation and use of renewable energies. Search for and implementation of measures based on the circular economy that help reduce the carbon footprint of farms, as well as its accounting, monitoring and neutralization (inclusion of automated bidirectional systems with information on flow rates, humidity and soil nitrification, installation of sustainable mobility systems in the field, application of technology to measure the use and effectiveness of water, creation of collaborative platforms for the measurement and control of CO2 or development of waste recovery studies to avoid the emission of pollutants).

Challenge 29: AUTOMATION OF PROCESSES OF TRANSFORMATION

Innovative solutions that enable comprehensive control of industrial production in the agri-food sector through technological processes and systems that support digital, robotic, and collaborative management in the agro-industrial chain (digitization and robotization of processes, performance software for the handling plant, installation of sensors in the factory for data collection, robotization and automation of processes or the use of artificial vision sensors to remove spoiled product).

Challenge 30: SUSTAINABILITY AND ENERGY EFFICIENCY IN AGRIBUSINESS

Innovative solutions that reduce the environmental impact of agro-industrial processes through the generation of alternative energies in the factory, the use of sustainable materials and the application of processes that promote the reduction of efficiency and the circular economy (reduction of water consumption, control of the life cycle of agri-food product packaging, investment in new trayless Flow and line adaptations, elimination of paper in different controls through the automation of the production chain or recirculation of circuits for cooling chambers and tanks).

Challenge 31:

EFFICIENT AND SUSTAINABLE WATER MANAGEMENT

Solutions, services, and processes aimed at automating water in the agri-food sector (field use and industrial or production phase) to achieve responsible water management throughout its life cycle (water treatment and reuse in irrigation processes, creation of platforms and technologies to improve irrigation efficiency, technological mechanisms for sludge treatment and management or monitoring of pipelines and water management).

Challenge 32:

CIRCULAR ECONOMY, INNOVATION IN PACKAGING, STORAGE AND LOGISTICS

Innovative service tools, products or devices that automate and improve the efficiency of packaging, stocking, storage, shipping or transport processes for agri-food products (geolocation management of cold storage and warehouse locations, digitalization in shipping processes, creation of handling lines with implementation in the control and double verification of formats for Flow-pack, palletizers with sustainable technology in design and feeding or weight control to optimize mass balances and monitoring in real time).

Challenge 33:

NEW E-COMMERCE AND SALES PLATFORMS

Solutions for the commercialization of agri-food products in the models of sale, payment, auction, insurance, and financial products (direct trade platforms, marketplaces for agribusiness materials and services, online fish market, digital insurance throughout the processing chain and internationalization of products).

Challenge 34:

AGRICULTURAL FOOD TRACEABILITY AND SAFETY

Platforms, technological solutions, and tools to improve the traceability of agrifood products from their origin to the final consumer (reporting and regulatory management, as well as control and monitoring of the agrifood logistics chain).

Ecoembes



Challenge 35:

SMARTWASTE: focused on the use of technology in the processes of serialization, traceability and recognition of packaging throughout its life cycle.

Challenge 36:

ECODESIGN: New packaging solutions, reintroduction of recycled material, life cycle analysis methodologies and improvements in environmental impact.