

## Sector: Agri-Food

### Areas of Intervention & Priorities 2021-2027

Areas of intervention	Priorities
<b>1. Improvement of primary production</b>	Promoting and improving the characteristics of Greek primary production to boost its competitiveness
	Evaluation, promotion and improvement of genetic material (of plants and animals, with an emphasis on native species)
	Innovative and emerging crops for production of products with or without added value (livestock farming, industrial crops, medicinal and aromatic plants, nutrient-dense plants/superfoods)
	Innovative technologies (ensuring hygiene/quality; improvement of treatment and processing techniques; precision systems; remote monitoring technologies; advanced materials technologies; non-intensive plant product management systems; pest and disease diagnosis and control; integrated production and farming management systems; decision-making support systems)
	Holistic management (addressing climate change challenges; organic farming; biodynamic and biocyclic systems; promoting underused products and by-products of Greek raw materials; certifiable production systems)
<b>2. Streamlining natural resource management</b>	Reducing inputs and production costs
	Conservation, quality and management of water resources (innovative irrigation techniques; water footprint of crops and farming; protection from agrochemicals)
	Reducing the environmental footprint (across the whole agri-food chain) including alternative energy sources
	Protection of soil resources (erosion and chemical pollution control measures; measures to improve biological and physical characteristics of agricultural land)
	Streamlining waste & by-product management and use (reducing the environmental footprint for energy generation and other uses)
	Agricultural and functional biodiversity (e.g. plant species mixtures; soil biodiversity; methods to enhance natural enemies and pollinators)
<b>3. Nutrition, Health, Consumers</b>	Nutrition policy (Greek diet; Mediterranean diet; health-protecting nutritional aspects; dietary behaviours among the population; special dietary

	needs & preferences of population segments; contemporary nutrition trends) (including consumers)
	Dietary approaches for non-communicable diseases (e.g. boosting immunity; preventing child obesity and comorbidities; gut microbiome and nutrition)
	Use of high-performance and analysis technologies (multi-omics, e.g. genomics, transcriptomics, metabolomics, metagenomics, etc.) in nutrition
	Food reformulation & production of food with improved bioactive characteristics (reduced use of additives/processing aids; addressing common causes of non-communicable diseases)
	Studies on standards, certification and labelling of agri-food products
	Personalized nutrition for specific population groups: covering increased nutrition needs and special needs of population groups (including children, menopausal women, seniors, athletes, vegans)
	Biological activity of food ingredients and human health (enhancing Greek biodiversity; promoting traditional Greek products to ensure sufficient nutrient intake; and promoting alternative protein sources)
	Improving consumer awareness – Promoting behavioral changes among consumers towards responsible and sustainable patterns of consumption and production: <ul style="list-style-type: none"> <li>• Using state-of-the-art analysis &amp; communication technologies and data collection platforms.</li> <li>• Developing tools to analyze scientific information for consumer knowledge</li> <li>• Informational/educational actions</li> <li>• Consumers and food waste reduction</li> </ul>
<b>4. Food safety</b>	Food safety “mapping” (monitoring/assessment) and optimization technologies, risk assessment strategies: <ul style="list-style-type: none"> <li>• Utilization of tools to harmonize food labelling (including date marking) with applicable legislation</li> <li>• Industrial-scale application of “new” mild food quality and safety technologies [nanotechnology, alternative mild (non-thermal) processing methods] and linking with the regulatory framework</li> <li>• Novel (natural) conservatives – search for bioactive molecules from sustainable (e.g. water) environments –bioconversion of waste – continuing green revolution/blue growth</li> </ul>
	Bio-economy, food & nutrition security:

	<ul style="list-style-type: none"> <li>• Developing green production systems to produce safe, long-life, high nutritional value and low environmental footprint food</li> <li>• Utilizing agricultural by-products and/or co-products, as well as food industry by-products to produce safe and healthy food and animal feed</li> <li>• Reducing food waste and introducing sustainable food waste recycling processes to produce safe and healthy food and animal feed</li> <li>• Planning &amp; development of meal safety and nutritional value interventions in the catering industry using state-of-the-art tools.</li> </ul>
	<p>Tools for communication and consumer involvement in food safety:</p> <ul style="list-style-type: none"> <li>• Developing strategies, interactive tools and applications to promote consumer information and their active involvement in food safety.</li> <li>• Educating consumers to identify hazards concerning a) safety and b) quality, and to understand information on labels regarding the conservation and handling of food.</li> <li>• Exploring consumer trends regarding safety as well as alternative approaches to food (e.g. veganism).</li> </ul>
	<p>Application of state-of-the-art food safety and food quality tools</p> <ul style="list-style-type: none"> <li>• Actions to eradicate food fraud &amp; adulteration of food, by actively tracking risk across the food supply chain</li> <li>• Developing genetic and digital markers/footprints for food production certification using practices that have been shown to maximize safety and promote their specific commercial (national and traditional) comparative advantages. – Digitalization of food safety monitoring; electronic platforms for bulk data harmonization and management</li> <li>• Application of state-of-the-art technologies (bioinformatics, big data analysis, remote sensing, blockchain technology, RFID tags, Internet of Things) – Applications of -omic technologies in food safety: Genomics (Whole Genome Sequencing/Next Generation Sequencing), transcriptomics (FullRNA-seq) &amp; Proteomics and Metabolomics (MALDI-TOF).</li> </ul>
	<p>Identifying and addressing existing and emerging food safety issues &amp; introducing state-of-the-art strategies for risk assessment:</p> <ul style="list-style-type: none"> <li>• Identifying existing &amp; emerging hazards (hazard analysis) and food safety issues based</li> </ul>

	<p>on novel search technologies (software tools and databases).</p> <ul style="list-style-type: none"> <li>• Impact of climate change on food safety due to emerging hazards.</li> <li>• Risk assessment using all available data worldwide, legislation, related literature, experience, as well as specific conditions and processing stages, for hazard prevention and monitoring measures taking into account the historical character of data</li> <li>• Structured food safety strategies and state-of-the-art hazard and crisis management models based on hazard monitoring, re-evaluation and assessment.</li> </ul>
<b>5. Food Industry 4.0 – Processing Technologies</b>	<p>State-of-the-art agricultural and food product packaging, manufacturing, post-harvest preservation, active/intelligent packaging:</p> <ul style="list-style-type: none"> <li>• Biodegradable and recyclable plastic packaging/Reduction of packaging plastics</li> <li>• Internet of Things (IoT) and other “intelligent” packaging applications</li> <li>• Packaging informing consumers about the safety of the food product</li> <li>• Active packaging – Bio-preservation</li> </ul>
	<p>Utilization of emerging/state-of-the-art technologies (e.g, IoT, blockchain, AI, Big Data) across the agri-food chain (primary production, processing, standardization, labelling, packaging, certification, storage, distribution, traceability, consumer information systems):</p> <ul style="list-style-type: none"> <li>• Utilization of state-of-the-art technologies (blockchain, IoT, Augmented Reality, big data analytics, machine learning, etc.) to apply state-of-the-art food traceability, certification, storage and distribution systems, as well as consumer information systems.</li> <li>• Use of IoT and data analytics sensors and services to monitor warehouses and food logistics</li> <li>• Traceability and digital certification services from “farm to shelf” incorporating blockchain</li> </ul>
	Robot machinery and robotic automation applications
	Biosensors (to ensure quality, safety and authenticity of food during production and processing), biotechnology methods and microbial fermentation systems
	Organoleptic assessment and improvement (enhancing and utilizing ingredients with a direct impact on the organoleptic characteristics; methodologies reinforcing or weakening their effects across the chain in order to improve quality and/or create new products).

	State-of-the-art cost-reducing and productivity-increasing technologies in food processing
<b>6. Sustainable Production</b>	<p>Responding to social crises and challenges (self-sufficiency and resilience of supply chain):</p> <ul style="list-style-type: none"> <li>• Current, medium- and long-term social crises and challenges (including self-sufficiency of communities, response to crises such as COVID-19)</li> <li>• Population growth and simultaneous depletion of resources (in nutrients and/or energy) and biodiversity</li> <li>• “Do more with less” farming techniques</li> </ul>
	<p>Sustainable production &amp; Sound environmental management:</p> <ul style="list-style-type: none"> <li>• Reduction of energy consumption</li> <li>• Utilization of renewable energy source systems</li> <li>• Streamlining of waste management</li> <li>• Implementation of circular economy systems</li> <li>• Development of new products based on a low environmental footprint</li> <li>• Environmental impact mitigation</li> <li>• Emergency risk reduction</li> <li>• Promoting sustainable food consumption among consumers</li> <li>• Using state-of-the-art ICT-based production technologies to improve sustainability of production in terms of resources, materials and energy consumed.</li> <li>• Digital monitoring and certification of sustainable practices (energy use, GHG emissions).</li> </ul>
	<p>High-nutritional value products &amp; natural environment sustainability:</p> <ul style="list-style-type: none"> <li>• Promoting production of high nutritional value food products compatible with the modern lifestyle</li> <li>• New approaches, methods, technologies for production of high nutritional value, safe food respecting sustainability of the natural environment (reduced environmental footprint; reduced use of chemicals and practices harmful for humans, animals and the environment at large; local production chains; co-product/by-product utilization)</li> <li>• Production of high nutritional value food products and promotion of nutrition models that are compatible with the modern lifestyle, contribute to health and well-being, rely on a better use of local/national production capabilities and take into account not only the natural and social environment, but also the</li> </ul>

	local, national and international economic contexts.
	Circular business models and value chains
	Supply chain (including interventions for supply chains of products which are of particular importance to Greece, as well as supply chains inclusive of vulnerable groups).
	Food waste reduction across the production and supply chains
	Sustainable food packaging (reduced environmental footprint of food packaging; development of cost vs environmental impact models for packaging; improvement of packaging technology; recyclable packaging; packaging based on natural materials; sustainable packaging materials; biodegradable packaging).
<b>7. Fisheries - Aquaculture</b>	Governance models for fisheries & aquaculture (environmental management; climate crisis adaptation; multi-use of the marine space)
	Animal health & welfare (preventive and non-invasive treatments; strengthening resilience against pathogens; stress in cultivated organisms; natural antimicrobial agents)
	Production efficiency improvement (precision culture; production technology adaptations; reduction of discarding and utilization of by-products)
	Alternative raw materials for aquaculture feeds (availability and safety; preparation of cultivated organisms; special nutrition products; nutritional status indicators for organisms)
	Aquaculture biotechnology (special nutrition products; polyculture; new species production)
	Social dimension of aquaculture (product quality & safety; improving acceptance of aquaculture products; aquaculture & fisheries environmental footprint)