



The Spanish Node of METROFOOD-RI

To enhance quality and reliability of measurement results

To make available and share data, information and metrological tools

To enhance scientific excellence in the field of food quality & safety

To strengthen scientific knowledge, promoting scientific cooperation and integration

PARTNERS



Eurecat is the leading Technology Centre in Catalonia, and the second largest private research organization in Southern Europe. Eurecat manages a turnover of 43M€ and 600 professionals, is involved in more than 160 R&D projects and has a customer portfolio of over 1,000 companies. Technology transfer is also an essential activity in Eurecat, with 36 international patents and 9 technology-based companies started-up from the centre. Additionally, EURECAT has recently been accepted by the European Commission as a KETs (Key Enabling Technologies) Technology Centre in order to collaborate with SMEs on close-to-market research and innovation activities. Eurecat R&D, innovation and training activities span from Industrial Technologies (metallic, plastic and composite materials, manufacturing processes, autonomous and professional robotics, functional printing and fabrics, simulations and sustainability) to Digital Technologies (Digital Humanities, Big Data Analytics, IT Security and Smart Management Systems, e-health, data mining and multimedia technologies), Biotechnology (Omic science and Nutrition & health) and Sustainability (water, soil, environment, energy and air). Within METROFOOD our Biotechnology Area brings its expertise and facilities to support a unique and high-level metrology services in food and nutrition for the enhancement of food quality and safety. Complementary services are brought from the Digital and Sustainability Areas.

eurecat.org/en



IRTA was created in 1985 as public body attached to the Ministry of Agriculture, Livestock, Fisheries and Food of the Catalan Government and aimed to become a strategic partner of the agro-food sector in Catalunya and a scientific point of reference and a driving force of innovation and technology transfer. IRTA comprises a network of 10 research centres and experimental stations and three associated centres all over Catalonia. IRTA gives technical assistance and specialized advice to groups, companies and representatives from the sectors in which it carries out its activity. IRTA has participated in 1179 international projects and contracts in over 47 countries since its creation. IRTA's mission is to contribute to modernising, improving, boosting competitiveness and fostering sustainable development in the sectors of agriculture, food, agro-forestry, aquaculture and fishing, as well as in areas related to the supply of healthy, high-quality foodstuffs to consumers. Last, but not least, is its contribution to food safety and safe processing of foodstuffs and, in general, to enhancing the health and well-being of the population. IRTA's Research is currently organized in the research areas of: Plant Production and Agriculture; Animal Production; Rural Environment and Socioeconomy; Rural Environment and Socioeconomy and Food Industries.

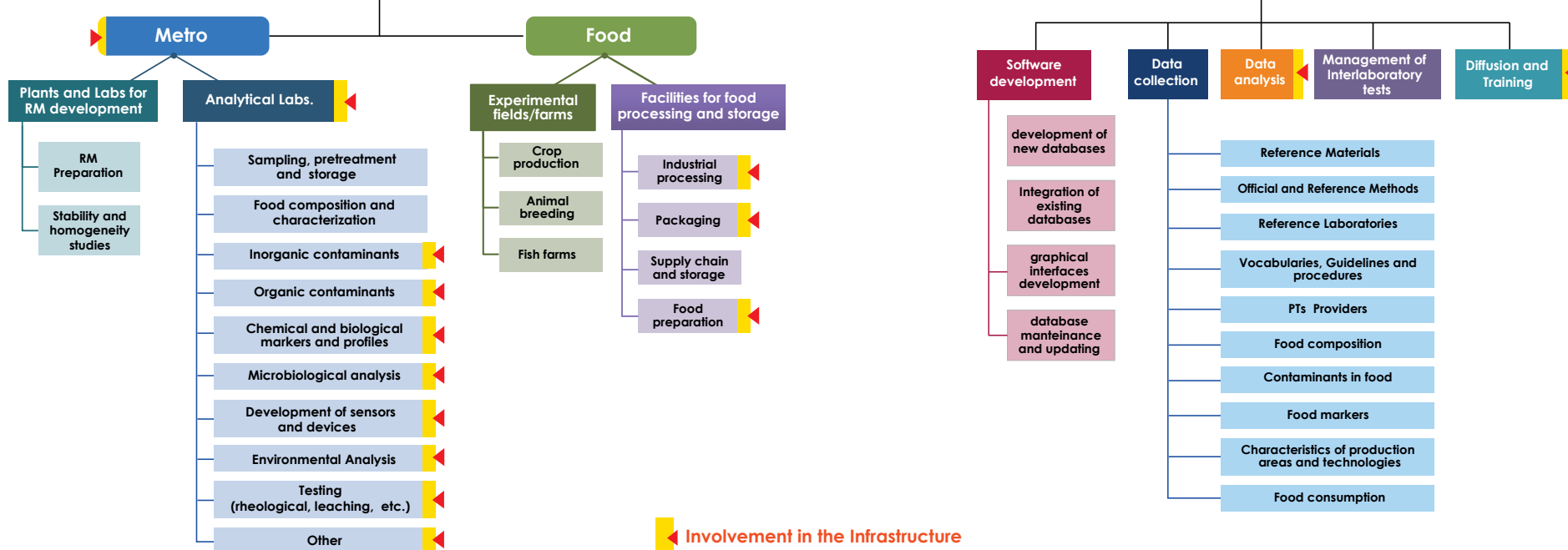
In the frame of METROFOOD, IRTA brings to the infrastructure its knowledge and equipment on Food Technologies, at Monells, that focuses specifically on Product Quality, Food Safety and Food Technology.

www.irta.cat/en



Physical-RI

e-RI



Physical Facilities

Analytical Labs

Eurecat: Centre of Omics Sciences (COS). A unique centre with all the latest metabolomics, proteomics, transcriptomics and genomics technology. It offers an extensive range of biomarker research services in various areas of health, food and the environment, from project design support to the analysis and integration of the data obtained from various omics technologies. In the food quality fields, they offer a wide range of services, from fraud detection, pesticides, additives, fatty acids, mycotoxins, among other determinations to microbiology analysis, including GMO sequencing analysis. The COS are well equipped for mass spectrometry analysis with state of the art equipment (UPLC-qTOF, 3 LC-QQQ, GC-qTOF, GC-QQQ, GCxGC-MS; MALDI-TOF/TOF; nLC-Orbitrap, MALDI-TOF tissue imaging). There are also NMR instruments for small molecules studies (600HzNMR and 500HzNMR) and several liquid handling instruments. COS laboratories are correspondingly well equipped for molecular biology, biochemical and microbiological analysis (real-time PCR, PCR instruments, PGM IonTorrent sequencer, S5 IonTorrent sequencer, NextSeq Illumina sequencer, Sanger 3500HT sequencer, Agilent microarray platform, Microorganism identification by MALDI Biotyper, etc). The Nutrition and Health Unit (UTNS) is a technological unit that provides scientific services to the food and pharma industry in the nutrition and health field. UTNS has complete facilities to develop in vitro and in vivo research studies and human intervention studies for the validation of the efficacy and safety of bioactive compounds and for the discovery of biomarkers for the prevention of diseases. UTNS has specific research facilities for food and beverage processing sector offering solutions that cover different stages of a product's life cycle from ingredient and products innovation, processing conditions, fulfil characterization and sensory testing. The pilot plant is equipped with versatile equipment to process food products.



High Pressure Equipment



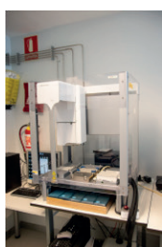
Industrial Microwaves



Portable TAC



Sequencers



Liquid Handling Robot



LC-MS Instruments



GC-MS Instruments



MALDI-TOF/TOF



NMR Lab

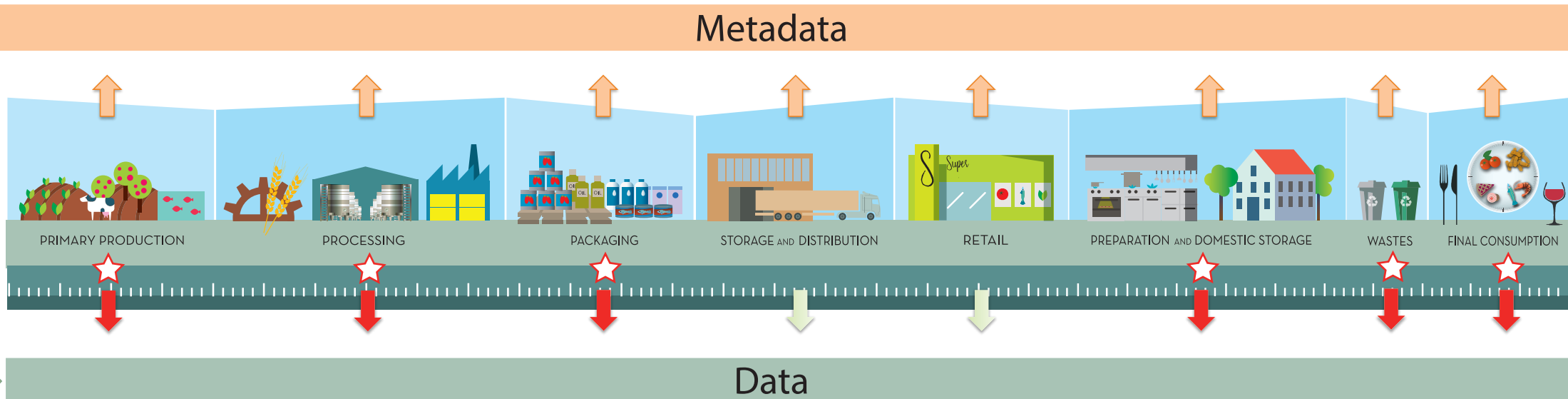
ANALYTICAL CAPACITIES																																																				
OTHER ANALYTICAL CAPACITIES	MATERIALS		AGROECOSYSTEM				NUTRITION		AUTHENTICITY TRACEABILITY				FOOD QUALITY				FOOD SAFETY																																			
	Ceramic materials and composites	Plastic materials	Other	Soils and sediments characterization	Bi-availability studies	Air pollution	Wet & Dry depositions	Bio-indicators	Other	Metals	Surface and groundwater quality characterization	Proteins and amino-acids	Water	Minerals	Other	Genetic markers	Metabolic profiles	Elemental profiles	Rare Earth Elements	Sensory profiles	Toxic elements	No target analysis	Isotopes of heavy elements	Isotopes of light elements	Other	Microbiological analysis	Biocative compounds	Physico-chemical analysis	Nutritional quality	Organoleptic properties	Other	Radiactivity	Foodborne viruses and Pirots	Phenols	Parasites	Hydrocarbons	Homomers	Biocides	Biogenic amines	Nanomaterials	Pathogenic micro-organisms	Food contact materials (migration)	GMO	Alergens	Additives	Other toxins (marine, freshwater, bacterial, ...)	Mycotoxins	Veterinary drugs	VOCs	Pesticides	Chemical speciation	Trace elements

Within these equipment's, non-thermal technologies at lab scale are used for food processing: pulsed electric fields, pulsed light, ultrasounds, and high pressure homogenizer. Additionally, a specific pilot plant for prepared and pre-cooked convenience food including the equipment for receiving, storage, food preparation, cooking and packaging areas. Amongst the processing services, UTNS has its own laboratories, in which is able to study the physicochemical properties, rheological properties (texture parameters and emulsion stability), sensorial properties (performing consumers' acceptability test or descriptive analysis by a trained panel)

and shelf life studies in food products throughout its production process and/or improvement. **IRTA:** Pilot plant for food management. Available for processing and preservation of fresh/cooked/dry-cured meat products, dairy products, juices/soups/sauces, fish products, bread, vegetables, ready-to-eat meals, and others under controlled/customized conditions using traditional and innovative technologies. It includes driers, cookers, autoclaves, packaging systems, clear room, high pressure processing equipment, microwaves, radiofrequency, pulsed electric fields, etc. A mobile computed tomography unit is also available for in situ experiments

at the industry. Chemical, physical, microbiological and sensory analyses platform. IRTA offer a wide variety of analyses in raw ingredients and food products. Chemical analyses include protein and peptide, lipids and carbohydrates composition, bromatology, food contaminants and alkaloids, volatile profiles, etc. Physical analyses comprise texture assessment, NIR probes, metal analysis, image analysis and MMR. Facilities involve mass spectrometry, chromatography, and elisa equipments as well as Soxtec, microscopy, texturimeters, NMR, UV/VIS spectrometry, NIR and NIT systems, ICP-optical, autoanalyzers by segmented flow, etc.

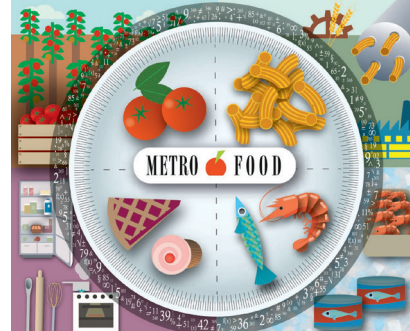
Food Chain Data



Food Quality & Safety Data



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