

Agrifood Living Labs: the METROFOOD-IT Living Labs

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Agrifood is one of the major sectors contributing to pressures on planetary boundaries by affecting biogeochemical cycles, climate, ecosystems, and biodiversity with about a third of greenhouse gas (GHG) emissions at the global level (FAO,2018). A radical transformation of the traditional way of production, processing, distribution, and consumption of food is needed. Place-based Living Labs can facilitate the synergies of the major players and the connections of projects, initiatives, and best practices, as well as enhance collaboration between sectors, such as local food, transport, and energy (Bulkeley et al., 2016). Agrifood Living Labs are a new type of research and collaboration centered organisations based on co-creation, aiming at promoting innovation in the agrifood sector (Mulvenna et al., 2011).

METROFOOD-IT - the *Italian Research Infrastructure for Metrology and Open Access Data in support to the Agrifood*, in relation to the ESFRI METROFOOD-RI for the domain Health and Food - will run Living Labs as a co-creative space for co-designing, experiencing, and assessing new solutions in support to the agrifood systems, where users will be also directly involved in evaluating new ideas, concepts, and technological solutions.

The *Living Lab on circular bioeconomy and industrial symbiosis*, hosted at the ENEA Research Center of Brindisi (Italy), includes access to a demonstrator that will showcase how biomolecules can be recovered from wastes generated by the agrifood chain to generate new production processes. The innovations showcased will be inspired by the "zero waste at the end of the process" objective, placing sustainability at the centre of the strategies and thus promoting "greening" processes and systemic interventions aimed at spreading eco- innovative models on the market. Benefits will be related also to the reduction of the environmental impact of plastics and pollutants from the dairy industry integrating it with territorial and socio-economic indicators.

The *Agrifood FabLab* hosted by the Santa Chiara Lab of the University of Siena (Italy) focuses on sustainability of the agrifood systems by mobilising all the agrifood system actors, including food businesses, local authorities and policy makers, investors, entrepreneurs, consumers, and stakeholders, as well as transferring the technology in their production processes. The Agrifood FabLab represents an innovative environment focused on user communities embedded within "real life" situations and environments.

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