

Agrinatura Position on Research and Innovation in Food Systems, a contribution to the dialogues preparing the UN Food Systems Summit

Our food systems face severe, urgent and persistent challenges, such as malnutrition and obesity and nutrition-related diseases, environmental degradation, emission of greenhouse gases, resource scarcity, biodiversity loss, climate hazards and many more. The complex interrelations and interdependencies between (intensive) agricultural practices, environmental degradation and climate change, and the global scale of commercial food value chains cause additional problems, such as increased social and economic vulnerabilities and inequities, livelihood stresses for farmers, disconnection between rural and urban areas, water and food-related conflicts, and ultimately (forced) migration. Thus, food systems have frequently been reported to be fragile or broken and need to be transformed to be more sustainable, resilient and inclusive.

The Momentum for change is now! An enabling environment for innovative agriculture is opened by the European Green Deal, and by international initiatives, such as the UN-Food System Summit, the UN Decade of Action on Nutrition (2016-2025), the decade on family farming (2019-28), and the last decade for the realization of the SDGs. The forthcoming Food Systems Summit, planned for autumn 2021, will highlight food systems in dialogue activities aiming to ensure a wide collection of perspectives and develop action tracks in order to address the most urgent questions. Agrinatura believes that this global debate is important and needs to include the role of research and higher education.

The need for food systems transformation

Public and private actors alike talk more and more about food systems, which is a holistic concept encompassing all activities from farm to fork, as well as related elements (environment, people, processes, institutions) that provide the context and drivers for these activities, and ultimately the outcomes of the food system (e.g. food and nutrition security as well as socio-economic and environmental outcomes). The term was developed as a research approach but has been quickly adopted by several stakeholders due to the power to encourage transformative processes and the potential of tackling several interlinked issues such as agricultural productivity, human health, natural resource management and food and nutrition security.

What are Food Systems?

The food system includes the related resources, the inputs, production, transport, processing and manufacturing industries, retailing, and consumption of food as well as its impacts on environment, health, and society.

As regards our understanding of food systems, we believe that diversification should be a leading principle in agriculture transformation. The more complex and diversified a food system is, the more resilient it is to external shocks and stresses. Diversification of varieties, crops, production systems, processes, markets, diets, etc. is the only overarching strategy that can lead towards sustainable food systems.

However, in the discussion the term food systems transformation is sometimes not clear, as it takes on different meanings depending on the person that pronounces it. The food system summit can play an important role leading to a common understanding and promoting the right action to tackle the pressing problems. For this task research can help.

The role of science and education

Scientists around the world can establish a common reference framework avoiding that food systems and food system transformation become empty concepts. This transition is a complex task that can only be implemented by context-specific and multi-actor solutions. A comprehensive framework for change needs to be developed and agreed upon, addressing the social dimension of food systems, describing transformation processes and system interactions. Scientists can help to study the processes and define system boundaries, indicators and metrics so that the framework can be applied in different contexts. We need to analyse together with public and private actors, farmers and consumers how all can contribute to change the system, and jointly develop pathways for transformation.

Agrinatura as a network of universities and research organisations believes that there are many research and education needs for the transition of food systems. Researchers must move beyond producing scientific evidence and 1) contribute to dialogue on entry points for change; 2) get involved in multi-stakeholder arrangements to support innovation and learning within food systems; and 3) participate in foresight studies to analyse scenarios and help navigate plausible futures¹. In order to achieve this, our research and education systems need to enable researchers and graduates to acquire the proper skills for more integrated research and critical thinking that is moved outside of university settings.

We call on the national and international funders of research to put a high emphasis on Food Systems research, in particular in the area of transdisciplinary research, meaning research with a participatory approach in partnership with all stakeholders in the development of sustainable innovations. Only these participatory approaches, which link academia with the rest of society (farmers, consumers, entrepreneurs, policymakers...) can support the effective transformation of food systems.

These approaches also need to be included in the curricula (at various levels) to train our future experts, entrepreneurs, practitioners and decision makers in systems thinking, multi-stakeholder collaborative approaches, and adaptive management in order to strengthen the innovation capacity within the food systems.

Expectations for the Food System Summit

The sustainable transformation of food systems should be fair, meaning that we need to address the problems of the poorest people on the planet, starting with global food security, and trying to reduce inequality in all regions of the world. Poverty will be a major driver of future crises. In order to deal with the multiple crises our food systems are facing, we believe that the transition of food systems toward more sustainable and equitable models is a prerequisite for a better future for our planet and humanity. We believe that the framework of the SDGs should be continued for assessing food systems transformations.

With reference to Agrinatura's experience to raise capacity for innovation in agriculture (CDAIS project, 2015-19), we call on the Food Systems Summit to include research, innovation development and education in the action tracks and the national and international commitments. Knowledge is the key lever for the food systems transformation; this requires not only scientific knowledge but also the multi-faceted knowledge of other actors, such as policy makers, private sector, consumers or

¹ Statement based on the 4th International Conference on Global Food Security, which was held on-line December 4-9, 2020, organised by Montpellier University of Excellence (MUSE), Wageningen University & Research and Elsevier <http://www.agropolis.org/pdf/news/GFS-statement.pdf>

agricultural communities. However, knowledge also needs to be translated into action and new habits to make transformation happen. We can draw on existing experiences on how to do this; for example, an applied value chain approach has been successfully investigated over thirty commodities in the VCA4D project (2016-21).

For these reasons, Agrinatura calls on the Food Systems Summit to put the focus on strengthening the innovation capacities of societies. This means that policy ambitions, stakeholder collaboration, investment flows, education and research enable local to global communities to jointly learn and adapt their food systems for the common good. We emphasize that knowledge is key for the transformation of food systems, everywhere on the globe.

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Agrinatura is a network of 36 European life-science universities and research organisations with a common interest in supporting agricultural development in a sustainable manner in order to improve people's lives. Agrinatura seeks to nurture scientific excellence through joint research, educational and training programs, and projects that contribute to the achievement of the Sustainable Development Goals. More information is found at <https://agrinatura-eu.eu>