



Smart and Circular
Agriculture towards
Sustainability **2022**

BOOK OF ABSTRACTS

Smart and Circular Agriculture towards Sustainability

Porto, 21-22 July 2022

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Sustainable
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Research Centre

GREENUPORTO

U. PORTO

FACULDADE DE CIÊNCIAS
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Foreword

Present and future challenges faced by agriculture were grouped by OECD in a dynamic triplet that relies on science, education, technology. The most promising approach to make food production systems more efficient, mitigating agriculture footprint and increasing productivity and farmer's income, is digitalization. This is understood as the integration of artificial intelligence, big data, robotics, unmanned aviation systems, sensors, information, and communication solutions, all connected and managed by the Internet of Things (IOT). Scientific research also embraces several other challenges such as: improving food nutritious quality, recovering soils and their biodiversity, protecting crop biodiversity, and increasing crop resilience to climate change as well as to new pest and diseases. In parallel with these issues, education needs to prepare a new generation of farmers able to adopt technologies, which in turn can make agriculture more attractive to younger people, reconciling them with agriculture-related jobs and with rural areas. In summary, only through positive interactions between technology, science, and education, shaped in effective and innovative policies, the UN sustainable development goals may be achieved. This conference aims to address topics related with this virtual triangle, by inviting all actors from the academy, industry, and agriculture sector, to present their main achievements and points of view, contributing for fruitful discussions.

Topic 1 – Research, Innovation & Training in Agriculture 4.0

The world population is set to reach 9.6 billion by 2050. This overwhelming fact, along with the increased frequency of extreme weather conditions resulting from climate change, and the environmental impact caused by intensive farming, highlight the urgency of agriculture optimization. Fortunately, the Industry 4.0 revolution is rapidly transforming all major industrial sectors, including the agricultural domain. Precision farming systems, based on IoT technologies, are attempting to address emerging food security and environmental protection concerns. The agricultural IoT infrastructure transformation is enabling crop producers (from big agricultural corporations down to small family farms) to receive status information from interconnect farms, crops, crop/field, equipment, storage, and livestock. The market has shown a rapid increased in Agriculture IoT systems and their infrastructures, and corporations are interested in investing and promoting their growth. However, these systems that have and will enter the market are currently maintained by people with no educational background specific to the needs of this market. Thus, multidisciplinary graduation and post-graduation courses may be necessary to overcome these difficulties.



P12 - LOCAL SEASONAL FOODS: A REVISION ON HOW THEY IMPACT ON SUSTAINABLE CONSUMPTION

Alexandre Maia Vargas^{1,2*}, Ana Pinto de Moura³, Rosires Deliza⁴ and Luís Miguel Cunha¹

¹ GreenUPorto—Sustainable Agrifood Production Research Centre/Inov4Agro, Departamento de Geociências, Ambiente e Ordenamento do Território (DGAOT), Faculty of Sciences, University of Porto, Porto, Portugal;

² Department of Gastronomy, IESB—Instituto de Educação Superior de Brasília, Brasília, Brazil

³ GreenUPorto—Sustainable Agrifood Production Research Centre/INOVA4Agro, Departamento de Ciência e Tecnologia (DceT), Porto, Portugal

⁴ EMBRAPA Agroindústria de Alimentos, Rio de Janeiro Brazil

*presenting author email: alexandremvargas@gmail.com

There is an increasing concern for consumer food sustainability issues along the food chain. As a result, there is an increasing demand for local and seasonal food. The aim of this research was to understand the role of local seasonal foods in enhancing sustainability. To this end, a systematic review of the literature was conducted pertaining to the effects of eating local seasonal food on sustainable consumption, using Scopus and Web of Science databases, in line with the recommendations from the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Our findings suggest that the concept of local seasonality provides relevant information to the study of sustainable consumption. After screening over 6,500 documents, 116 studies were analyzed in detail. It is not possible to assume that local food will have a smaller impact than global food simply as it was produced close to consumption. On the other hand, it is not possible to ensure that global food is more sustainable than a local one, considering only a smaller carbon footprint. As an alternative to binary thinking, where “local” and “global”, “local seasonality” and “in season” are distinct from each other, we recommend a systemic view of the food system. This may permit a more complex analysis where food actors may be locally oriented and globally connected. Adopting a holistic concept of “local food” or embracing a “local seasonal food” concept can force methodological approaches that address all the pillars of sustainability, allowing more concrete results for sustainable consumption.

Keywords: seasonal, local food, food chain, consumer behavior, sustainability