SUSTAINFARM – EUROPEAN PROJECT FOR INNOVATIVE AND SUSTAINABLE INTENSIFICATION OF INTEGRATED FOOD AND NON-FOOD SYSTEMS

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Introduction

With the world population estimated to reach 9 billion by 2050, we face the challenge of increasing food, fodder and energy production by 70%, to meet demand, in the face of climate change and its impact on theenvironment. The increased productivity (quantity and quality) needs to occur in a changing climatic environment. Innovative integrated food and non-food production systems are one of the solutions to realize the Pan-European goal of a bio-based circular economy. Integrated systems have multiple benefits due to complementarity in spatial and temporal demand. The diversity of benefits and trade-offs will be investigated in the identified integrated systems with local and regional relevance for environmental, agronomic, techno-economic and social performance.

Project background

SustainFARM looks at integrated food and non-food systems (IFNS): systems where trees, crops and livestock are integrated in different ways at different scales (plot-field-farm). They include traditional systems, where the main focus is food production but incidental natural vegetation (e.g. hedges) or crop residues/by-products can be harvested to produce an additional product, and innovative systems, where food production is fully integrated with specific production of biomass for non-food use (i.e. agroforestry).

Objectives

The main objective of SustainFarm is to enhance agronomic, environmental and economic performance of integrated food and non-food production systems (integrated systems) by optimizing productivity and valorizing woody components, residual wastes and co-products.

The specific objectives are: a) to analyse, identify gaps and design innovative integrated systems for optimum productivity, b) assess environmental, techno-economic and social factors for adoption and c) valorization of the woody components, residual waste and co-products into high value bio-energy carriers and bio-products.

The case-study sites

Integrated food and non-food production systems representative of diverse pedo-climatic contexts and socio-economic settings in Europe and there are 5 categories of integrated systems viz: 1.Combined food and energy production system (Denmark, Poland), 2. Multipurpose olive tree production systems (Italy), 3.Silvo-pastoral agroforestry systems (United Kingdom, Romania, Poland), 4. Silvo-arable agro-forestry system (United Kingdom) and 5.Cereal-based integrated food and bio-energy production system (Spain).

Expected results

a) On-farm assessment of productivity measures in 5 locally relevant innovative integrated systems, b) innovative technical pathways for maximum value addition of woody components and residual waste and co-products and c) decision support tool for environmental and socio-economic evaluation of integrated systems for informed decision making by farmers, advisory services and policy makers.