

# Title: Integrated Systems Research of Agro-ecological Farming Systems

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## Abstract:

The UN's food systems approach aims to deliver food security and nutrition to all in an economically, environmentally and socially sustainable manner, while the EU 'Farm to Fork' and national 'FOOD VISION 2030' strategies emphasise input reduction, agro-ecological approaches, value added creation and organic farming. Despite clear policy goals, growing global demand and financial supports for organic farming, uptake of organics in Ireland is low, with limited research on the performance of organic systems at farm level and barriers to organic food system growth at a wider value chain level.

These research gaps are addressed through a food systems approach incorporating both farm and sectoral level analyses.

## 1. Sectoral level - innovation systems analysis

The organic value chain stretches beyond farm production from 'farm to fork', and sectoral development and innovation is influenced by the interaction of diverse sectoral stakeholders. Qualitative interviews, interactive stakeholders workshops, and international comparative case-studies will explore how innovation currently occurs within emerging organic value chains, comparing them to the conventional food system both domestically and internationally. This will identify the structural changes and policy supports required to promote greater adoption of organic farming and expansion of the organic sector in Ireland.

## 2. Farm level – bio-economic analysis

Ruminant grass-based production systems contribute significantly to the rural economy, in terms of income generation and employment. At the same time, farming is coming under increased scrutiny to improve efficiency and demonstrate its environmental credentials. Environmental impacts, however, vary considerably across farms. Understanding these differences is crucial to developing resilient, sustainable production systems. The development of a farm-level modelling framework will enable the integrated financial and economic analysis of organic (beef) systems, facilitate comparison of cradle-to-farm-gate environmental impact assessment of beef systems and the financial impacts of organic conversion scenarios.

