



Optimising Agricultural Land Use Choices in Ireland Using a Spatial Decision-Support Framework

Walsh Scholars Reference Number: 2026044

University: Maynooth University

Funding: Teagasc

Research Institution: Teagasc

Location: Teagasc Ashtown, Dublin 15

Proposed Start Date: September 2026

Project Summary

Farm owners require locally relevant and timely data to support management decisions. However, optimal land-use decision-making is complex, shaped by socio-cultural factors as well as environmental constraints, including both physical conditions and policy or regulatory requirements. Spatial analysis using geographical information system (GIS) technology provides an effective, integrative research approach to address this complexity. A key strength of GIS lies in its ability to combine research outputs across a wide range of spatial scales and, through spatial modelling, generate national-level data at the scales required by policymakers.

This PhD project addresses the current deficit in farm enterprise planning capacity by applying robust, scientific spatial analysis to evaluate potential enterprise choices under changing regulatory and environmental conditions for farm practice. The research will provide core inputs to a biophysically based assessment of potential farm-level land-use options in Ireland, with a specific focus on field and horticultural crops.

The goal of the project is to update capability mapping for these crop types by incorporating the best available soil and climate data alongside yield potential mapping. Combined with yield gap analysis, this work will provide a strong evidence base to support decision-making by Irish farmers and their advisors, while also informing evidence-based policy development at national level.

Supervision

The project will be supervised by Dr Réamonn Fealy (Teagasc), a senior researcher with expertise in spatial analysis, GIS development, and spatial modelling for agricultural, environmental, and policy challenges. Co-supervision will be provided by Professor Rowan Fealy (Maynooth University), whose research focuses on regional climate analysis, climate modelling, and land-atmosphere interactions, with a strong emphasis on Ireland. A supervisory panel of national experts will provide complementary input across spatial analysis, land use, and environmental assessment. Together, the supervisory team combines applied GIS and land-use modelling with advanced climate analysis, providing a strong and well-aligned framework for this research.

Research Environment

You will be registered at Maynooth University and based at the Teagasc Ashtown Research Centre, the national hub for spatial analysis and geospatial research within Teagasc, for the duration for your studies.

The project benefits from access to advanced spatial datasets, modelling infrastructure, and interdisciplinary expertise spanning geography, environmental science, agriculture, and policy analysis. As a Walsh Scholar, you will be part of a vibrant national and international research community, with opportunities for collaboration across Teagasc, Maynooth University, and external research partners.

Career and Training Opportunities

The Teagasc Walsh Scholars Programme provides a structured four-year training and development framework designed to support both academic excellence and long-term career readiness. Scholars develop advanced scientific and analytical expertise alongside transferable skills in communication, project



management, and stakeholder engagement through expert-led training, workshops, tailored professional development, and the completion of required taught modules within their registered university programme.

Opportunities are provided to present research at national and international conferences, supporting professional networking and active engagement with the wider research community. Dedicated final-year career supports focus on preparing scholars for impactful roles across research, industry, advisory services, and policy, in Ireland and internationally.

Through the Teagasc International Training Awards, scholars may undertake an international research placement of up to 12 weeks aligned with their PhD project. Outstanding achievement may also be recognised through the Walsh Scholars of the Year and Gold Medal Awards

Candidate Profile and Eligibility

Applicants should ideally:

- Hold a First or Second Class Honours degree (2.1 or equivalent) or a Master's degree in geography, environmental science, GIS, data science, or a related discipline
- Demonstrate experience in spatial analysis, data handling, and quantitative or modelling approaches
- Show the ability to apply multidisciplinary methods to hypothesis-driven research
- Possess excellent written and verbal communication skills and the ability to work effectively as part of a team
- Be willing to travel and engage with farmers, landowners, advisors, and other stakeholders
- Hold a full, clean driving licence valid in Ireland (advantageous)
- Meet Maynooth University postgraduate entry requirements, including English language requirements where applicable

Funding Details

This is a fully funded four-year PhD funded by Teagasc, including:

- €25,000 annual stipend
- University fees covered up to €6,000 per annum

How to Apply

Applicants should complete the [online application form](#) by **5:00pm on Wednesday, 18 March 2026**.

Applications must include a **curriculum vitae** and a **1–2 page statement of motivation**, submitted as part of the online application.

Interviews

Shortlisted candidates will be invited to interview in early to mid-April 2026. Online interviews can be accommodated.

Further Information

Informal enquiries are welcome and may be directed to: Dr Reamonn Fealy –reamonn.fealy@teagasc.ie

Further information on the Walsh Scholars Programme is available at:

<https://www.teagasc.ie/about/research-innovation/the-walsh-scholars-programme/about-the-programme/>