

DEEP DEMONSTRATION
**of climate-resilient
food systems in Ireland**

In partnership with



An Roinn Talmhaíochta,
Bia agus Mara
Department of Agriculture,
Food and the Marine



"The solutions developed and tested through the partnership with EIT Climate-KIC will assist our farmers, rural communities and the wider agri-food and bio-based sector to build resilient approaches and solutions to the challenges of climate change and environmental sustainability."



Charlie McConalogue

Minister for Agriculture, Food and the Marine, Ireland

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Partnering to achieve climate-resilient food systems in Ireland

The Deep Demonstration partnership between EIT Climate-KIC and Ireland's Department of Agriculture, Food, and the Marine is supporting the entire Irish land and agri-food value chain to identify and implement sustainable practices, so that farmer communities can thrive and agri-food industries can transition to sustainable business models, all while meeting challenging climate targets.

Decarbonising agriculture and food production is one of the biggest challenges of this century. The agri-food sector contributes 38% of Ireland's overall greenhouse gas emissions. Yet the country has committed to cut 25% emissions in the agri-food sector by 2030, and to achieve a climate-neutral economy by 2050, in line with the EU bloc.

EIT Climate-KIC, Europe's largest climate innovation community, has led systems change and innovation programmes for over a decade. Our partnership is supporting the Irish government to transform the entire agri-food sector and achieve collective, systemic change while retaining economic, social and environmental prosperity.

Since its kick-off in 2022, the partnership has achieved a comprehensive mapping of the system, and identified concrete pathways grouped under seven flagship areas of innovation to overcome challenges for farmer communities and citizens, such as reducing emissions, diversifying incomes, cutting food waste, and shifting to healthy diets.

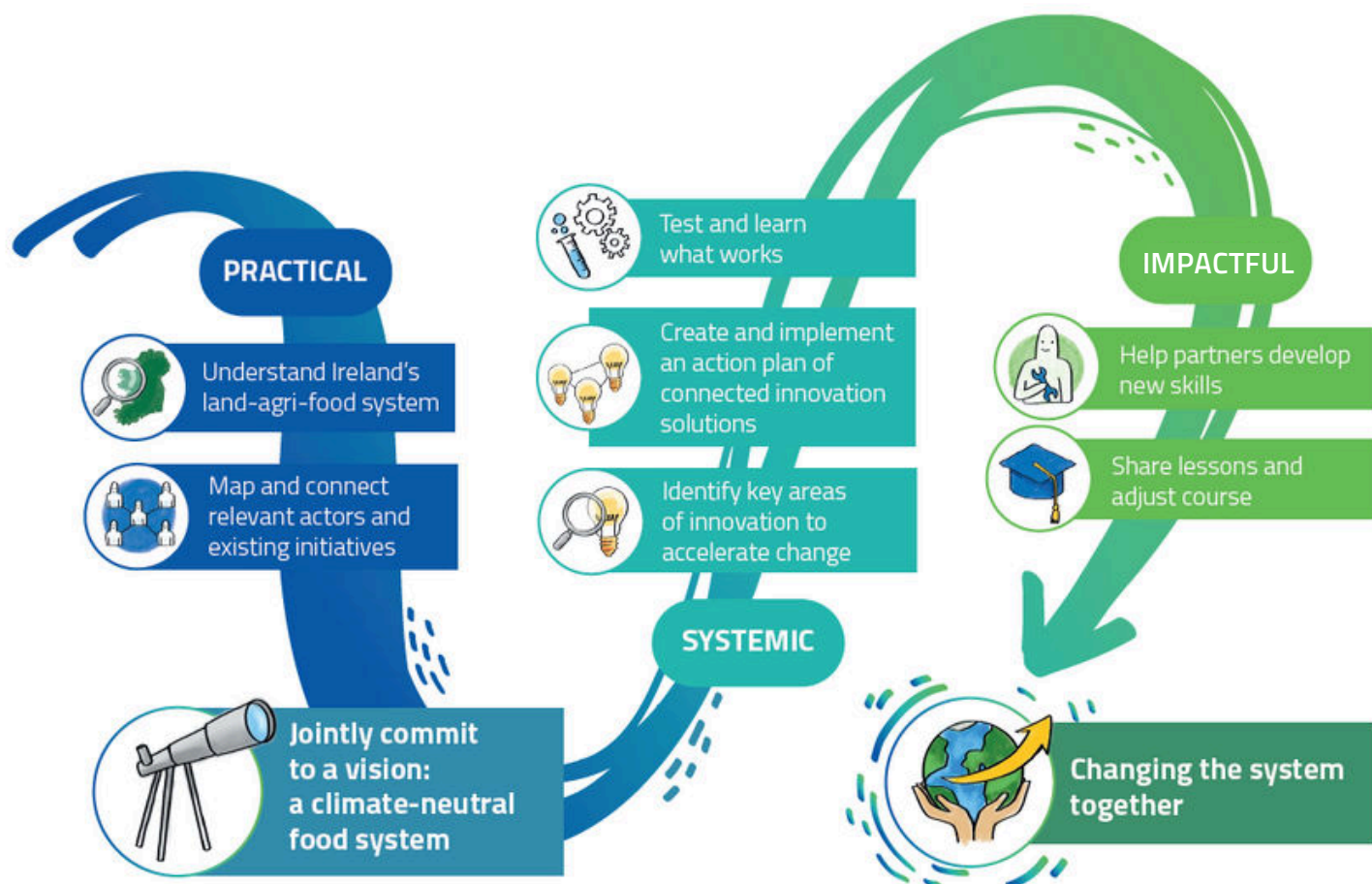
These include both immediate outcomes in dairy farm emission reduction, sustainable beef production, carbon farming and tillage, as well as long-term objectives such as investing in new value chains and alternative proteins, helping entire regions become circular, and charting a new vision for the future of farming.

We are now moving to implement four of these areas, underpinned by over 280 on-the-ground projects, and we are looking for implementing partners from across the value chain.

What is a Deep Demonstration and how does it support climate-resilient food systems in Ireland?

A Deep Demonstration is a collaborative process to identify, test at scale, and implement a range of connected innovative solutions to accelerate systemic change.

In Ireland, we are working with farmers, businesses, policymakers, researchers and citizens to create and implement tailored solutions to food system sustainability challenges, while ensuring we are learning from each other and collectively pushing forward climate action.



About EIT Climate-KIC

EIT Climate-KIC is Europe's leading climate innovation agency and community. We use a systems approach to shape innovation to support cities, regions, countries and industries meet their climate ambitions, acting in the 'messy middle' between commitments and reality.

Together with our partners across the globe, we implement. We open pathways to shift mindsets and behaviours, and enable decision makers and investors to act. We orchestrate large-scale demonstrations that show what is possible when cycles of innovation and learning are deliberately designed to trigger exponential decarbonisation and build resilient communities.

DEEP DEMONSTRATION PARTNERSHIP

Seven flagship innovation areas

Long term

2040
2050

1

Vision 2050:
re-imagine Ireland's
land and agri-food
system

2

Foster innovation
and investment in
new value chains to
diversify the sector

3

Promote circular
bioeconomy models
in regions and
multiple value chains

4

Diversify incomes
through a carbon
farming and nature
credit framework

5

Produce
and certify
climate-neutral
beef

6

Accelerate emission
reduction and
sustainability
in dairy farms

7

Grow
and diversify
the tillage
sector

Short term

2030





Vision 2050: re-imagine Ireland's land and agri-food system

The objective of this flagship is to create a long-term, ambitious vision for Ireland's land and agri-food system, to guide the existing strategy in the right direction, to increase stability of and trust in policy processes, and to attract investment.

We aim to include a broad range of communities and experts (younger generations, citizens and consumers, creative industries and other sectors) to ensure all perspectives and imaginations are captured – because the future of the Irish food system is everyone's business.

Ireland is at a crossroads: it has the potential to become a model for other countries on how to

thrive and create value for the entire agri-food system, while safeguarding its natural assets for future generations.

We need to establish this vision and roadmap now, to set the right direction and to provide continuity and long-term certainty to all those who will be the agents of this transition.

We will achieve this by democratically convening everyone – not only agri-food stakeholders, but also universities, consumers, citizen assemblies and creative sectors across the regions – to chart an inclusive and participatory vision of what the Irish food system will look like in 2050: healthier, resilient, sustainable, and nature-based.

Objectives



Create a long-term vision to guide future strategies



Generate stability for investors and increase trust in policy processes



Create a framework fostering innovation while building on existing strengths



Integrate the creativity of younger generations and the cultural sector

Where's the innovation?

We will involve a broad range of voices from the Irish society (including farmers, industry, researchers, citizens, young people, creatives) to define and create a future common vision of what a sustainable land and agri-food system will look like in 2050.

Timeline and key activities

2024

2025

Activation and planning

Build the flagship delivery team and identify the key activities to engage the Irish society in developing possible future scenarios

Implementation

Arrange and host focus groups, develop a range of scenarios, involve the cultural sector to develop creative artefacts to illustrate vision and journey





Foster innovation and investment in new value chains to diversify the sector

The objective of this flagship is to identify new, strategic areas for the land and agri-food sector to grow, in line with the 2050 vision of a climate neutral and resilient system. The innovative value chains identified will position Ireland as a forward-thinking country with a fertile environment for new businesses, attracting foreign investment.

Diversifying the land and agri-food system will increase resilience to supply chain shocks and climate risks. This will help the sector grow and create new jobs and skills, by integrating innovative value chains and products while building on Ireland's existing natural assets and capabilities.

Any new value chain must from its inception be designed to be climate neutral and provide additional value to existing sub-sectors, to ensure they're not competing, but rather reaping the benefits of emerging trends and technologies currently not applied.

To ensure this, each of the sub-sectors identified will be in line with the 2050 vision formulated in Flagship 1. We will closely work with the finance, policy and education sector to develop detailed market analyses and recommendations for new policies and skills.

Objectives



Identify 2-3 key strategic areas of growth, in line with the 2050 vision



Generate detailed market analysis of each area to assess their viability



Support their development across policy, investment and skills



Attract foreign direct investment

Where's the innovation?

We will identify new, strategic sub-sectors to grow and diversify the land and agri-food system, to ensure Ireland stays at the forefront of emerging trends and technologies and creates fertile ground for new, well-paying jobs, skills and economic opportunities.

Timeline and key activities

Activation

Identify 2-3 key high-potential areas in line with the 2050 vision

Planning

Conduct market analyses for each of the areas identified to assess viability and long-term potential

Implementation

Develop supporting plans and capability needs for each strategic area, create investment briefings, identify potential partners





Promote circular bioeconomy models in regions and multiple value chains

This flagship seeks to promote circular bioeconomy solutions that are holistic and integrated by design, while putting rural and coastal communities, regions and cities at the heart of this transition.

Underpinning this work is widespread engagement with local groups to raise awareness and pride in regional excellence and create solutions that work for all.

Regions will be encouraged to review their operating models, energy networks, waste streams and food production to identify opportunities to shift from linear to more circular approaches.

This could be linked to side streams and waste streams from primary producers and processors, as well as food waste from consumers and food service operators.

Projects under this flagship will also support and incentivise collaboration across value chains to identify industrial symbiosis opportunities and high-potential activities such as biomass production on land or in water.

It will also promote specific expertise and infrastructure based on 'smart specialisation', or the unique opportunities for development and growth that each region has, in line with the 2050 vision.

Objectives



Understanding the unique value and opportunities of circular bioeconomy in regions



Develop innovation strategies and policies in line with regional resources and growth areas



Leverage sustainable bioeconomy resources to reduce current dependencies



Pilot and demonstrate circular bioeconomy solutions in regions

Where's the innovation?

We will help develop regional innovation strategies for circular bioeconomy that valorise the unique resources and growth opportunities of each region, while identifying common barriers to implementation and promoting cross-regional collaboration to replicate and scale solutions.

Timeline and key activities

2024

Activation and planning

Identify priority areas and opportunities linked to each region, in line with Ireland's overall circular bioeconomy strategy; develop implementation plans with regions; help identify funding

Implementation

Work across the regions to help implement bioeconomy solutions; develop investment portfolios and capability needs to support the regions; identify skill gaps and develop training programmes; secure funding

2025

Partners:



An Roinn Talmhaíochta,
Bia agus Mara
Department of Agriculture,
Food and the Marine



An Roinn Comhshaoil,
Aeráide agus Cumarsáide
Department of the Environment,
Climate and Communications





Diversify incomes through a carbon farming and nature credit framework

This flagship focuses on the transition to a more equitable system where farmers are rewarded for their activities that help sequester carbon, enhance water and air quality, and overall increase biodiversity. Core to this is the development of a national carbon farming and nature credits framework that drives adoption of sustainable farm practices, at scale.

Carbon farming traditionally involves practices like agroforestry, cover cropping, and rotational grazing to sequester carbon dioxide and improve soil health. However, what our partnership will develop in Ireland is much more comprehensive and will include carbon removals (through trees, hedgerows, and soil), emission reductions from various sources (soils,

fertilisers, slurry and manure, fossil fuel use), and biodiversity and water quality indicators.

This initiative will bring together the many organisations and initiatives currently working on different aspects of carbon farming, to develop and test a national framework. This framework, a key enabling element in Ireland's Climate Action Plan 2024, will establish objectives and core principles that will guide the development of a mechanism paying farmers and landowners for ecosystem services.

Once the national framework is approved, a large-scale implementation phase will be launched to test and refine the concept. This phase will not only demonstrate the viability of the framework to potential investors but will also allow for adjustments before it is scaled up nationwide.

Objectives



Develop a carbon farming and nature credits framework that drives the adoption of sustainable management practices at primary producer level



Ensure the national framework is aligned with EU and international best practice

Where's the innovation?

We will help develop Ireland's first-ever national carbon farming framework, and attract new investment to diversify value and income streams based on ecosystem services in addition to production. We will do so by pulling together ongoing efforts and schemes on decarbonisation, water quality and farm biodiversity practices, to provide a baseline for monitoring and payments.

Timeline and key activities

2024 2025

Activation

Define what carbon farming and nature credits include; identify measures to be phased out and innovation challenges

Planning

Draft framework; create testing plans; define how to baseline on different farm and land use systems

Implementation

Test the framework at scale, including digital tools and data collection; identify new measures for inclusion and policy recommendations; refine the framework

Partners:



An Roinn Talmhaíochta,
Bia agus Mara
Department of Agriculture,
Food and the Marine



An Roinn Comhshaoil,
Aeráide agus Cumarsáide
Department of the Environment,
Climate and Communications

BORD BIA
IRISH FOOD BOARD





Produce and certify climate-neutral beef

This flagship aims at defining what a sustainable beef enterprise is, across social, environmental and economic indicators, with the goal of developing an evidence-based, certified model for climate-neutral beef production.

Cattle farming is the dominant agricultural system in Ireland, but it faces low profitability compared to other farming methods. Unlike dairy farming, beef production in Ireland is usually less intensive and generates lower overall emissions. While there's a belief that a significant number of beef farms could achieve carbon neutrality with a few measures, solid evidence supporting this is currently lacking.

This flagship will build on existing research to understand the sustainability baseline of beef

systems, with the goal of evaluating the potential for increased economic returns through the production (and eventual certification) of climate-neutral beef.

We will test various options available through Teagasc's Signpost Farm's Programme as well as the Sustainable Beef and Lamb Assurance Schemes and emerging sustainability price incentive schemes in the meat sector. The flagship will also explore the possibility of farmers being rewarded for providing ecosystem services, with consideration given to market prices, in alignment with Flagship 4.

By collaborating with industry partners to develop a certified climate-neutral beef production system, we aim to gather insights that will shed light on the future of Irish beef, helping farmers and processors envision a sustainable and economically viable path forward.

Objectives



Agree on a holistic definition of a sustainable and climate-neutral beef enterprise



Assess the potential market premium, if any, for sustainably produced beef



Test the feasibility of producing and certifying sustainable beef at scale on different farms

Where's the innovation?

By building strong collaborations within the beef value chain and amplifying existing sustainability initiatives, we will develop a shared definition for climate-neutral beef production, adaptable to different types of producers. In addition, we will identify the value of a potential market premium for climate-neutral beef.

Timeline and key activities

Activation

Define sustainable beef production across farm systems; identify initiatives and gaps

Planning

Test the framework across systems; assess market potential for a premium and value chain impacts

Implementation

Test the framework at scale; define capability needs for farmers; assess market potential for ecosystem services payments and other income diversification options





Accelerate emission reduction and sustainability in dairy farms

This flagship aims at facilitating the transition towards a more sustainable dairy industry, adapting to a 'new normal'. It will do so by co-developing a model for sustainable dairy production in Ireland and testing combinations of policy, technology and value chain implications, by implementing it on the ground with dairy farmers.

Although dairy accounts for less than 18% of farms, it contributed approximately 43% of agriculture's total emissions in 2019, and in 2022 accounted for 59% of aggregate farm incomes. There is currently no agreement on what 'sustainable dairy production' actually means, and what the future implications of this might be for the sector.

The Sustainable Dairy Assurance Scheme already incorporates proven on-farm sustainability measures to reduce emissions. This flagship will build on this and other existing work to develop and test evidence-based emission reduction solutions at large scale. At least 200 dairy farms will be directly involved in concrete activities.

The outcomes will inform national and EU policy, and potentially contribute to the design of the 2027 update of the Common Agricultural Policy.

The flagship also plans to understand and address the barriers to adoption of existing sustainability measures with different farm typologies, and gain further support among farmers and processors.

Objectives



Agree on a definition of fully sustainable dairy production



Test solutions with farmers and businesses from a range of production systems



Identify, test and validate levers and (dis)incentives across policy, technology and value chain



Use the evidence generated to inform policy at national and EU level

Where's the innovation?

We will help define and agree a holistic model for sustainable dairy production and test these conditions on different farm typologies. This will allow the Irish dairy sector to better understand the long-term implications and overcome barriers to implementation.

Timeline and key activities

2024

2025

Activation

Define sustainable dairy production across different systems; identify initiatives and gaps

Planning

Assess market potential for a sustainable dairy premium; identify partners for the 150-200 pilot farms

Implementation

Scale up lessons from pilot farms; define capability needs; assess market potential for ecosystem services payments and other income diversification options

Partners:



An Roinn Talmhaíochta,
Bia agus Mara
Department of Agriculture,
Food and the Marine



Environmental
Defense
Fund



Metabolic



COMMONLAND



Grow and diversify the tillage sector

This flagship aims at expanding the tillage sector to take advantage of its low emissions, relative profitability, and potential for increasing the agri-food system's diversification and resilience. It will build collaborations within the sector and with other industries to address low investment, increase trust, and identify opportunities for new, high-value crops and products.

The tillage sector has the lowest emission contribution in the land and agri-food sector, and it has the potential to reduce this even further by adopting diverse crops and farm management practices. At the same time, it is the second most profitable sector after dairy production.

In addition, there is a need to substitute import of products with a relatively high carbon footprint and increase resilience in supply chains by expanding crop cultivation in Ireland. There is also huge potential for the tillage sector to support the expansion of Ireland's bioeconomy by growing and processing non-traditional crops, including as a measure to reduce emissions from farmed peatlands.

The sector has a target to increase the area under tillage to 400,000 hectares by 2030. This will require collaboration both within the sector and across other sectors to develop circular farming models and to make land available for expansion. This flagship will build on the work of the Food Vision Tillage Group.

Objectives



Expand the area of tillage and horticulture in Ireland to 400,000 hectares by 2030



Further reduce the environmental footprint of tillage and horticulture



Build collaborations within the sector and across others to ensure resilient and circular supply chains

Where's the innovation?

We will expand a high-potential yet traditionally undervalued sector through innovative and regenerative farming practices, stronger value chain collaborations, and new opportunities for high-value, low-emission crops and products.

Timeline and key activities

Activation

Agree on priority areas with the Food Vision Tillage group; identify innovative farming approaches, new crops, and producers; assess potential for scale up

Planning

Identify opportunities in the bioeconomy; address barriers in access to land; build value chain collaborations on specific products

Implementation

Expand area under 'regenerative' practices; test market viability of new crops, products, and processing facilities



"Over the past two years, the interest and response to our systems innovation approach and partnership with the Department of Agriculture, Food and the Marine has been remarkable.

We want to harness this momentum by demonstrating and scaling a solid portfolio of interventions that will accelerate systemic progress and ensure that Ireland leads the world.

We invite interested investors and funding partners who want to make a difference at the intersection of farming, innovation, policy and finance to join us in this journey and learn from each other."



Kirsten Dunlop

CEO, EIT Climate-KIC



Learn more about the Deep Demonstration partnership:

 www.climate-kic.org/SustainableFoodIreland

Would you like to get involved? Contact us:

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