



FACCE-JPI is the **Joint Programming Initiative on “Agriculture, Food security and Climate change”**. It brings together 21 European and associated countries to coordinate their research capacities to address the vital challenge of ensuring sufficient production of food, as well as feed, fibres and bio-fuels, in the context of demographic growth and a changing climate.

The Multi-partner Call on Agricultural Greenhouse Gas Research, initiated by FACCE-JPI with the American National Institute of Food and Agriculture of the USDA, New Zealand's Ministry for Primary Industries and Agriculture and Agri-Food, Canada aims to bring together excellent research consortia to enhance international collaboration in the face of the global issue of climate change mitigation.

In the frame of this call, the following project has been recommended for funding:

### Basic Data

<b>Title</b>	<b>Increasing Adoption of Mitigation Options to Minimise Agricultural GHG Emissions</b>
<b>Acronym</b>	<b>I.N.C.O.M.E</b>
<b>Theme</b>	Quantification of the costs and benefits and of the impacts for food production and for the environment of GHG mitigation options
<b>Topic</b>	Greenhouse gas emissions in the agriculture sector arising from agricultural soils including crops and grasslands, domestic livestock and waste management systems
<b>Duration</b>	01.02.2014 – 31.01.2017
<b>Total cost (in €)</b>	194 000€
<b>Requested funding (in €)</b>	194 000€

### Coordinator

<b>Organisation Name</b>	<b>LANDCARE</b>
<b>Country</b>	<b>New Zealand</b>
<b>First Name</b>	Nicholas
<b>Lastname</b>	Cradock-Henry
<b>E-Mail</b>	CradockHenryN@landcareresearch.co.nz
<b>Phone</b>	+64 3 321 9901

### Partners

<b>Organisation Name</b>	<b>INRA</b>
<b>Country</b>	France
<b>Organisation Name</b>	<b>SRUC</b>
<b>Country</b>	UK

Organisation Name

Teagasc

Country

Ireland

## Summary

### ***This research will:***

- ***Identify & validate 'low cost' mitigation options***
- ***Clarify barriers preventing low-cost mitigation adoption***
- ***Deliver new findings to support farmer decision making***
- ***Develop & test novel communication/extension strategies***
- ***Communicate research findings through various media***

The reduction of greenhouse gas (GHG) emissions from dairying and other types of pastoral farming is a significant challenge, requiring engaged, collaborative, and participatory action research to identify the barriers to practise change and adoption at the farm-level. There is currently little evidence to explain the limited adoption of 'low cost' options by farmers. This research seeks to identify the barriers to the implementation of low-cost GHG mitigations and explain why apparent win-win mitigation options are not being adopted. Using multiple methods including workshops, literature reviews and desktop analysis, expert consultation, and verification through modelling, evidence-based low-cost GHG mitigation strategies and available management practices will be reviewed, with particular emphasis on the cost-effective measures identified in existing marginal abatement cost curve (MACC) studies. In order to empirically evaluate and further explore the claims of 'low cost', a subset of mitigation options able to be applied in the varied national contexts of the study will be selected using agreed criteria to further examine their claims of 'low cost' within the socio-cultural, economic and environmental contexts of each country. The team will utilise a mix of qualitative and quantitative methods including: micro-econometric analysis, farmer psychometric testing, and farm system and bio-physical modelling. A diagnostic framework to identify barriers & enablers to farmer adoption of selected options will be developed in each country. Using a participatory and collaborative 'bottom-up' approach, a deliberation matrix will also be developed for use in stakeholder discussion groups to examine their understanding, assumptions, expectations, & perceptions related to each option. A typology of barriers will be developed via these processes.

The typology will inform farmer interview schedules to further identify how & to what extent these barriers influence farmer decision-making and to identify barrier solutions. Selected dairy farmers in each country will then be surveyed to quantify current adoption levels of mitigation options and identified adoption barriers. Action research via farmer video diaries will provide additional real time insights into farmer decision making processes. Finally, farmer and stakeholder feedback will be used to inform farm systems modelling and on-farm GHG trials, mitigation options will test possible barrier solutions to inform possible knowledge transfer (KT) mechanisms. Findings will also enable other scientists to critique the construction/accuracy of MACCs.

As a whole, this project will develop a range of novel knowledge transfer methods to inform policy & improve on-farm adoption through a whole systems approach as well as publish new insights into mitigation options, science communication & farm level extension methods.