# FACCE ERA-GAS

## MONITORING & MITIGATION OF GREENHOUSE GASES FROM AGRI- AND SILVI-CULTURE

# HIGHLIGHTS FROM THE 2016 JOINT CALL FOR TRANSNATIONAL PROJECTS

**OCTOBER 2017**



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# Welcome from the Coordinator

The agricultural sector in Europe faces significant challenges in curbing greenhouse gas (GHG) emissions while maintaining food security and sustainability in a changing climate. Projected increases in the world's population and a shift in emerging countries towards higher consumption of resource-intensive food items will put unprecedented pressure on global agriculture. To meet this demand, agriculture will have to produce almost 50% more food, feed and biofuel in 2050 than it did in 2012, according to the FAO. This will require the development of innovative farming and forestry systems that ensure sustainability while increasing productivity.

Developing the knowledge and technologies to tackle these global societal challenges will require a coordinated international approach. In particular, innovative GHG mitigation and monitoring solutions that extend beyond the local context are needed. While the Horizon 2020 Framework Programme is an important source of funding for research and innovation in the EU, most research funding is still controlled nationally. An ERA-NET Cofund is a funding mechanism whereby national money is pooled to fund transnational projects. Cofunding for the action is also provided by the European Commission. ***FACCE ERA-GAS* is the *ERA-NET Cofund for Monitoring and Mitigation of Greenhouse Gases from Agri- and Silvi-culture***. The FACCE ERA-GAS consortium comprises funding agencies and project partners from 19 organisations across 13 European countries. Our aim is to strengthen the transnational coordination of research programmes in the EU and provide added value to research and innovation on GHG monitoring and mitigation. Through this enhanced cooperation and better alignment of national research priorities, FACCE ERA-GAS activities will have the scale and scope necessary to maximise the impact of GHG research activities in Europe.

In March 2016, the FACCE ERA-GAS consortium pooled resources to launch our 2016 call for transnational research projects, co-funded by the European Commission. New Zealand, represented by the Ministry for Primary Industries, also contributed to the call. The total call budget was €14.1M. Following a two-stage peer-review evaluation by international experts, ten projects were selected for funding. These projects involve 71 project partners from 39 different research institutions/SMEs across 13 European countries, New Zealand and the US. Over the next three years, these projects will conduct collaborative research to develop improved GHG mitigation solutions, reporting mechanisms and policy instruments for the agriculture and forestry sectors.

Central to the success of FACCE ERA-GAS is our engagement with external partners and stakeholders. Over the lifetime of our ERA-NET Cofund, we will establish initiatives to engage with global GHG networks and work closely with other ERA-NETs to coordinate efforts in areas of mutual interest. Through targeted communication to key stakeholders across farming, forestry, industry and consumer communities, and effective dissemination of project results to researchers and policymakers, we will ensure that the new knowledge generated is shared and implemented for wider societal benefit. On behalf of the FACCE ERA-GAS consortium, I welcome you to learn more in the following pages about our work and the projects co-funded by FACCE ERA-GAS and the European Commission.

Dr Frank O'Mara
Director of Research at Teagasc, the Irish Agriculture and Food Development Authority

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## Who we are

FACCE ERA-GAS is the ERA-NET Cofund for Monitoring & Mitigation of Greenhouse Gases from Agri- and Silvi-culture. The consortium of FACCE ERA-GAS consists of 19 partner organisations from 13 countries: Denmark, Finland, France, Germany, Ireland, Latvia, the Netherlands, Norway, Poland, Romania, Sweden, Turkey and the United Kingdom. New Zealand also contributed to the 2016 Joint Co-funded Call. Teagasc, the Irish Agriculture and Food Development Authority, coordinates the ERA-NET.

FACCE ERA-GAS was initiated by the Joint Programming Initiative on Agriculture, Food Security and Climate Change (FACCE-JPI) and runs from May 2016 to April 2021.

FACCE ERA-GAS receives funding from the European Union's Horizon 2020 Research & Innovation Programme under Grant Agreement No. 696356.


## Our Aim

The aim of FACCE ERA-GAS is to strengthen the transnational coordination of research programmes and provide added value to research and innovation on greenhouse gas (GHG) mitigation in the European Research Area and New Zealand. By coordinating and aligning research efforts, FACCE ERA-GAS aims to develop enabling technologies and innovative solutions to improve inventories, increase the GHG efficiency of food, feed and fuel production and enhance carbon sinks. FACCE ERA-GAS will work closely with other ERA-NETs and reinforce existing collaborations between actors in the research area (e.g. via FACCE-JPI and the Global Research Alliance).

## Activities

FACCE ERA-GAS will undertake a wide range of joint activities:

- Launching a co-funded joint call for transnational research projects
- Launching at least one other joint call without European Union co-funding
- Aligning thematic priorities across member countries
- Establishing and maintaining initiatives to engage with global GHG networks and researchers
- Working closely with other ERA-NETs to coordinate efforts in areas of mutual interest
- Increasing engagement with stakeholder communities.

A plan will also be drawn up for future collaborative actions to ensure that enhanced cooperation will be maintained past the lifetime of the ERA-NET.

# 2016 Joint Call for Research Proposals

FACCE ERA-GAS launched a co-funded joint call for transnational research projects in Europe and New Zealand on 4 March 2016. Financial support for this call was provided by funding agencies from 13 European countries and New Zealand, together with co-funding from the European Commission. Each project consortium had to involve partners from at least three different countries participating in the call.

The scientific scope of the 2016 call for proposals addressed four research themes:

1. Improving national GHG inventories and monitoring, reporting and verification of emissions;
2. Refining and facilitating the implementation of GHG mitigation technologies;
3. State-of-the-art production systems that are profitable and improve food and forest biomass production while reducing GHG emissions;
4. Assessment of policy and economic measures to support emissions reductions across the farm-to-fork and forest-to consumer chain.

## Projects

Ten projects were selected to receive funding in the frame of FACCE ERA-GAS. A total budget of 14.1 M € will support these 3-year research projects, which commence between August and November 2017.

| Title | Acronym | Countries |
|---|---|---|
| Combining remote sensing and 3D forest modelling to improve tropical forests monitoring of GHG emissions | **3DForMod** | **FR, FI, NL** |
| Capturing Effects of Diet on Emissions from Ruminant Systems | **CEDERS** | **NL, UK, DK, SE, DE, IE, FI, NZ** |
| Mobilizing and Monitoring Climate Positive Efforts in Forests and Forestry | **FORCLIMIT** | **NO, NL, US, SE, FI, RO,** |
| Managing and Reporting of Greenhouse Gas Emissions and Carbon Sequestration in Different Landscape Mosaics | **GHG-Manage** | **IE, DE, FR, PL, NL, FR** |
| Improving National forest inventory-based carbon stock change estimates for greenhouse gas inVENTories | **INVENT** | **NO, LV, DK, SE** |
| Mitigating Agricultural Greenhouse Gas Emissions by improved pH management of soils | **MAGGE-pH** | **NO, IE, DK, DE, SE, FI, FR, NZ, UK** |
| Refining direct fed microbials (DFM) and silage inoculants for reduction of methane emissions from ruminants | **METHLAB** | **IE, FR, NL, NZ, IT** |
| Wise use of drained peatlands in a bio-based economy: development of improved assessment practices and sustainable techniques for mitigation of greenhouse gases | **PEATWISE** | **NO, SE, DK, NL, FI, NZ, DE** |
| Improved estimation and mitigation of nitrous oxide emissions and soil carbon storage from crop residues | **ResidueGas** | **DK, SE, NO, UK, DE, FR** |
| Predicting appropriate GHG mitigation strategies based on modelling variables that contribute to ruminant environmental impact. | **RumenPredict** | **UK, NZ, FI, SE, IE, NL, FR** |

# 3DForMod

**Combining remote sensing and 3D forest modelling to improve tropical forests monitoring of GHG emissions**

Deforestation and forest degradation is considered the second largest source of global anthropogenic GHG emissions. While there is a pressing need to go beyond satellite-based LULCC survey to accurately monitor carbon stocks in the tropics, there is still no operational integrated framework to achieve this goal. In particular, much uncertainty comes from the difficult evaluation of forest degradation impact, which doesn't entail forest conversion. Our project aims at integrating advances in 3D forest modelling and very-high-resolution remote sensing technology to improve monitoring of forest aboveground biomass, especially in tropical countries that have signed the Paris Agreement. Our final goal is to supply stakeholders and decision-makers with reliable and accessible information on vegetation carbon stocks in forest territories along with simple predictive, GIS-based models on the consequences of forest degradation in terms of GHG emissions. The consortium of partners allows covering all steps that need to be considered to rigorously scale-up aboveground carbon estimates from tree to forest plot and region. We shall combine: advanced Terrestrial Laser Scanning technology to derive massive tree volume data for allometry development without employing destructive harvesting; 3D forest modelling to link remote sensing information to ground data in order to improve capability of high-resolution satellite data to estimate biomass and detect changes and emissions related to forest degradation for regional up-scaling; collaboration with developing country forest monitoring agencies for integrating project results into their national REDD+ monitoring system and related capacity building with international partners. The project mainly builds on existing data and partnership across 3 continents (central Africa, north-Amazonia and south-east Asia) gathered from the three European consortium members.

## Coordinator

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## Project partners

Tampere University of Technology, Finland
Wageningen University, the Netherlands

## Total requested funding

702.000 €

## Project duration

36 months

# CEDERS

### Capturing Effects of Diet on Emissions from Ruminant Systems

Feed management decisions are critical for ruminant production systems and also strongly affect agricultural greenhouse gas (GHG) emissions. Although ruminant management and production conditions differ between countries, a transnational approach is critical for (i) extending knowledge of ruminant dietary effects on GHG emissions and sustainable production, and (ii) improving GHG accounting methodologies. CEDERS (Capturing Effects of Diet on Emissions from Ruminant Systems), a 3-year proposal submitted to FACCE ERA-GAS, aims to align national agricultural GHG inventory and mitigation research across an international consortium of 9 countries (8 partner countries plus New Zealand). Its main objective is to delineate dietary effects on various on-farm GHG sources and their trade-offs, at the farm and national scales. Specific aims are to: (1) develop, expand and refine databases to evaluate dietary mitigation strategies on digestion, excretion, manure composition, and related GHG emissions; (2) fill, by experimentation, high-priority knowledge gaps on dietary effects on ruminant and manure emissions; (3) evaluate, using monitored farm cases in a modelling platform, the consequences of dietary mitigation measures on total farm GHG emissions; (4) improve farm accounting and national inventory methodologies to capture effects of dietary mitigation measures for on-farm GHG emissions; and (5) disseminate the implications of these findings to end-users of GHG accounting. CEDERS's activities will extend to other countries participating in the 'Global Network', 'Network and Database on Feed and Nutrition in Relation to GHG Emissions' and 'Manure Management Network' (both part of the 'Global Research Alliance'), FAO and CIRAD. These relationships will aid CEDERS to fill knowledge gaps for future GHG research priorities and inventory methodologies and reporting, to governments, non-governmental and advisory/extension organisations and the ruminant livestock sector.

## Coordinator

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## Project partners

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Aarhus University, Denmark
Swedish University of Agricultural Sciences, Sweden
Leibniz Institute for Farm Animal Biology (FBN), Germany
Teagasc, Ireland
Natural Resources Institute Finland (LUKE), Finland
AgResearch Ltd., New Zealand

## Total requested funding

1.830.000 €

## Project duration

36 months

# FORCLIMIT

## Mobilizing and Monitoring Climate Positive Efforts in Forests and Forestry

Forest potential in the climate policy framework remains underutilized and significantly under-mobilized. Questions about the relative uncertainty surrounding the assessment of carbon content in soils and trees have been one problem. The introduction of strategies for encouraging climate friendly efforts on the part of landowners and other users of wood-based products represents another side of the problem. And finally, how forest carbon is accounted, and thus incentivised or not, in national, regional and international frameworks, represents a third problem. We address each of these at depth. We analyse national level strategies emerging in the context of the 2015 Paris Agreement and how these incentivise the role of forests and forest-based resources in the climate policy framework. Further, we analyse national level incentive systems for encouraging carbon friendly actions on the part of forest owners and consumers of harvested wood products. With this knowledge in hand, we consider new technologies and methods for the more accurate estimation of soil and tree carbon, from the national all the way down to the landowner level. Likewise, we investigate potential mitigation scenarios at the national and local level in three case studies (Netherlands, Romania and Sweden), analysing response curves to economic and policy incentives. Finally, we analyse how international and regional climate change mitigation strategies can be better linked to subnational incentive systems. The goal is to promote methodologies that will provide a more accurate accounting of forest carbon, and permit the greater mobilization of forests and forest-based resources in national, regional and international climate policy frameworks.

### Coordinator

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### Project partners

Wageningen University, the Netherlands
U.S. Forest Service, United States of America
Swedish University of Agricultural Sciences, Sweden
Finnish Meteorological Institute, Finland
Faculty of Silviculture and Forest Engineering, Romania

### Total requested funding

1.123.000 €

### Project duration

32 months

# GHG-Manage

**Managing and Reporting of Greenhouse Gas Emissions and Carbon Sequestration in Different Landscape Mosaics**

Different landscape mosaics contribute an as yet poorly quantified contribution to greenhouse gas (GHG) emissions and carbon sequestration, as well as having an uncertain direct warming effect through variations in their surface properties thereby limiting our ability to implement mitigation measures at the farm scale. In this project we aim to assess the GHG characteristics and surface-related warming effects of the most relevant European landscape types and examine the optimum configuration of different land uses and management interventions, including afforestation-related GHG offsetting, to minimise or reduce GHG emissions. We will provide information that can be utilised for on-farm reporting tools, including an economic tool and the Cool Farm Tool (CFT), whilst also using this information to both refine and increase the utility of these approaches, particularly in relation to $CH_4$ and $N_2O$ exchange and for organic soils. Important compensation mechanisms will be quantified and their impact on regional to national scale GHG emissions and soil carbon stocks assessed. Finally, appropriate methodologies to report and verify the effects of landscape scale GHG emission compensation mechanisms, both top-down and bottom-up, will be developed and assessed.

## Coordinator

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## Total requested funding

1.229.000 €

## Project duration

36 months

## Project partners

Helmholtz Centre Potsdam - GFZ German Research Centre for Geosciences, Germany
Institut National de Recherche en Agronomie (INRA), France
Institute of Agrophysics of the Polish Academy of Sciences, Poland
Wageningen University, the Netherlands
Teagasc, Ireland

# INVENT

**Improving National forest inventory-based carbon stock change estimates for greenhouse gas inVENTories (INVENT)**

Forest land in Europe annually sequesters atmospheric carbon comparable to the emissions from the agricultural or industrial process sectors. Despite its importance, the full potential of carbon sequestration on forest land in climate change mitigation strategies is not utilized. In large part, this is due to the high uncertainty of carbon stock change estimates of living biomass and forest mineral soil using current national-level methods. New estimation methods, which increase the spatial resolution of estimates by incorporating existing auxiliary data sources, are required to further mobilize the mitigation potential of forest land in Europe. INVENT will use national forest inventory, spatially-explicit remote sensing, and local forest harvest data to increase the precision and spatial resolution of living biomass estimates. INVENT will use forest and soil inventory data, spatially-explicit remote sensing data, and modeling procedures to increase the accuracy and spatial resolution of forest mineral soil carbon stock change estimates. INVENT will apply the developed methods to quantify the effects of forest mitigation measures at the national and sub-national scales. The derived methods and their application will be demonstrated in national greenhouse gas inventories and in case-studies that strengthen the trans-national exchange of knowledge within the consortium countries of Denmark, Latvia, Norway, and Sweden. The results will demonstrate the general applicability of the derived methods to reduce the uncertainty in living biomass and forest mineral soil carbon estimates in greenhouse gas reporting on forest land.

## Coordinator

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## Project partners

Latvian State Forest Research Institute (SILAVA), Latvia
University of Copenhagen (UCPH), Denmark
Swedish University of Agricultural Sciences, Sweden

## Total requested funding

1.027.000 €

## Project duration

36 months

# MAGGE-pH

## Mitigating Agricultural Greenhouse Gas Emissions by improved pH management of soils

Climate forcing by crop production is dominated by $N_2O$ emissions. Although emissions can be marginally reduced by "good agronomic practice", we need more targeted approaches to make progress. For that, MAGGE-pH concentrates on the microbial processes responsible for production and consumption of $N_2O$ in soils. Our point of departure is the emerging understanding of how soil pH perversively controls the $N_2O$ /($N_2O$+$N_2$) product ratio of denitrification. Since denitrification is the dominant source of $N_2O$, this indicates that $N_2O$ emissions from cultivated soils can be reduced substantially by increasing the pH of moderately acidic soils beyond that needed to secure adequate crop growth. This necessitates policy instruments to secure effective implementation, and MAGGE-pH will deliver socio-economic analyses to identify such instruments. The evidence for the pH effect on $N_2O$ emissions stems almost exclusively from laboratory experiments. Now we need stringent testing of different liming strategies under realistic field conditions. This will be the core activity in MAGGE-pH and generate emission factors for a range of N fertilizers / manure / urine / biochar applications explicit for soil pH. We will also explore the use of non-calcareous rock powders as a replacement for traditional limes (carbonates). This is highly relevant, because $CO_2$ emissions from carbonates can negate their potential GHG reducing effect. MAGGE-pH will also explore novel approaches to manage soil pH via fertilizers and manure, in order to reduce both $N_2O$ emission and $NH_3$ volatilization. Thus, the project adds some "blue sky" research to the core objectives and puts it to the critical evaluation by a broad European consortium consisting of researchers, fertilizer companies and practitioners.

### Coordinator

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### Total requested funding

2.269.000 €

### Project duration

36 months

### Project partners

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Thuenen Institute, Germany
Swedish University of Agricultural Sciences, Sweden
University of Helsinki, Finland
Institut National de Recherche en Agronomie (INRA), France
University of Otago, New Zealand
Natural Environment Research Council, United Kingdom

# METHLAB

**Refining direct fed microbials (DFM) and silage inoculants for reduction of methane emissions from ruminants**

This proposal is focused on implementing the use of lactic acid bacteria (LAB) as an approach to reduce methane emissions from ruminant livestock. The goal will be to refine current on-farm LAB technologies such as direct-fed microbial supplements and/or silage inoculants, currently used to increase production and improve health of animals, with a methane-reducing benefit. Selected METHLAB strains will be tested in ruminants (cows and sheep) to confirm efficacy of methane reductions in vivo. LAB offer a safe, practical and natural way to influence the rumen microbial community for methane mitigation, creating a more sustainable, emission-efficient food production system.
LAB are natural inhabitants of the gastrointestinal tract of ruminants but are also well established as industrial micro-organisms, economically produced in large quantities for incorporation into feed products, making them ideally suited as a microbial technology. The partners in this proposal are from Global Research Alliance (GRA) member countries that share the goal of reducing methane emission intensity across ruminant classes in a manner that maintains agricultural production and sustains environmental integrity. METHLAB brings together a global network of multidisciplinary researchers to enhance impact and advance the knowledge transfer of LAB on-farm technologies to address the reduction of enteric methane emissions in ruminant (specifically cattle and sheep) production systems. Using superior microbial inoculants (which we will identify in the project), we aim to improve the quality of ruminant feeds which will lead to a reduction in methane and enhanced livestock production. METHLAB will thus lead to environmental and societal benefits with the potential to deliver green jobs and increase competitiveness in the agri-food sector.

## Coordinator

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## Project partners

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Institut National de Recherche en Agronomie (INRA), France
Animal Nutrition Group, Wageningen University,
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AgResearch Ltd, New Zealand
SACCO S.R.L, Italy

## Total requested funding

1.036.000 €

## Project duration

36 months

# PEATWISE

**Wise use of drained peatlands in a bio-based economy: development of improved assessment practices and sustainable techniques for mitigation of greenhouse gases**

Drained peatlands are important contributors to GHG emissions. For sound land management policies and decision making, an improved scientific knowledge base of GHG fluxes and transparent and verifiable methods for measuring and accounting for emissions reductions is needed. PEATWISE will build on past experience and interdisciplinary research to quantify emission factors from different land uses and production systems such as agriculture, silviculture, and paludiculture. PEATWISE will develop and refine sustainable soil and water management technologies for managed peatlands to reduce GHG emissions and maintain biomass production in different land use systems. A combination of on-going long term studies carried out in different regions and studies refining or testing new innovative ideas will be used. A general water table-GHG relationship will be developed which enables land-users and land and water authorities to quantify the effects of water management mitigation technologies. Paludiculture, involving production of flooding tolerant species which can be used for biorefinery, biomaterials and bioenergy, is another mitigation option that will be tested. Soil management technologies will be tested in field trials. PEATWISE will work with stakeholders such as farmers, policy makers and industry. Incentivising management options that reduce emissions from the use of peatlands will be essential to policy that integrates land use change in the 2030 GHG mitigation framework. Collaborations between European and New Zealand researchers will provide opportunities for knowledge transfer across a wider peatland context than has been achieved before. PEATWISE will analyse existing incentive based policy instruments for different ecosystem services in each case study country to develop a coherent strategy that allows complementarity and bundling of governmental and private sector incentive funding schemes.

## Coordinator

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## Total requested funding

1.939.000 €

## Project duration

36 months

## Project partners

Swedish University of Agricultural Sciences, Sweden
Aarhus University, Denmark
Radboud University Nijmegen, the Netherlands
University of Eastern Finland, Finland
University of Oulu, Finland
University Of Waikato, New Zealand
Leibniz Centre for Agricultural Landscape Research (ZALF), Germany

# ResidueGas

## Improved estimation and mitigation of nitrous oxide emissions and soil carbon storage from crop residues

Crop residues provide large inputs of carbon (C) and nitrogen (N) to soils and contribute to the net GHG balance of soils in different ways. They are included as a key component in national emissions inventories for nitrous oxide ($N_2O$) from agriculture. Residues are also a major contributor to sustaining or enhancing soil organic carbon (SOC) and N contents and thus soil fertility. Depending on the amount of C and N in crop residues and their contributions to $N_2O$ emissions or to the SOC balance residues might increase or decrease the GHG footprint of agroecosystems. Studies have shown that $N_2O$ emissions from N in crop residues vary considerably depending on residue quality, residue management and soils. This is currently not reflected in emissions inventories or likely not sufficiently in simulation models. This makes current emission inventories uncertain and in many cases biased. Lack of knowledge and precise model estimation of $N_2O$ emissions and SOC storage from crop residues limits the design of improved crop management systems for net GHG emissions reductions. ResidueGas will document an improved methodology to quantify $N_2O$ emissions from agricultural crop residues management, including standards for estimating the amount of N in residues and improved emission factors for crop residue that include effects of residue quality, management, soils and climate on emissions. ResidueGas will further identify and communicate best practice for crop residue management strategies with respect to their net greenhouse gas effect in terms of $N_2O$ emissions and SOC storage. The transnational team in ResidueGas has the necessary breadth of high-level expertise to undertake the task, covering knowledge on relevant cropping systems, measurements of GHG emissions ($N_2O$ and SOC) at both field and lab scales, access to existing data on crop residues and emissions, expertise in biogeochemical modelling of GHG emissions and knowledge on GHG inventory reporting at farm and national scale.

## Coordinator

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## Project partners

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Norwegian University of Life Sciences (NMBU), Norway
Norwegian Centre for Organic Agriculture (NORSØK), Norway
Scotland's Rural College, United Kingdom
Karlsruhe Institute of Technology, Germany
RSK ADAS Ltd, United Kingdom
Institut National de Recherche en Agronomie (INRA), France

## Total requested funding

1.376.000 €

## Project duration

36 months

# RumenPredict

**Predicting appropriate GHG mitigation strategies based on modelling variables that contribute to ruminant environmental impact**

Ruminant production is responsible for ~ 9% of anthropogenic $CO_2$ emission and 37% of $CH_4$ emissions. Release of methane results in 6-12% less energy being available to the animal. Ruminants also contribute towards $N_2O$ within the environment, a persistent gas in the atmosphere which has 296 times more warming potential than $CO_2$. RumenPredict brings together members of the international Rumen Microbial Genomics network (led by IBERS, AU), of which the Hungate 1000 (focussed on sequencing 1000 rumen microbes) and the Rumen Census (focussed on evaluating effects of diet, host genetics and geographical location on the rumen microbiome) are projects within. RumenPredict brings together key members of the RMG network to generate the necessary data to link rumen microbiome information to host genetics and phenotype and develop feed based mitigation strategies. This will enhance innovative capacity and allow integration of new knowledge with that previously generated to devise geographic and animal-specific solutions to reduce the environmental impact of livestock ruminants. The project members have access to recent data/tools resulting from an array of projects, and RumenPredict will build upon and enhance the integration of knowledge generated from these projects whilst providing innovation through further testing and validation of key hypotheses resulting from the previously obtained data. RumenPredict will provide a platform for predicting how host genetics, feed additives or microbiome may affect emission phenotypes and develop genetic/diet/prediction technologies further for implementation to improve nitrogen use efficiency whilst decreasing environmental impact of ruminants.

## Coordinator

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## Total requested funding

1.592.000 €

## Project duration

36 months

## Project partners

Natural Resources Institute Finland, Finland
AgResearch Ltd., New Zealand
Swedish University of Agricultural Sciences, Sweden
Teagasc, Ireland
Irish Cattle Breeding Federation, Ireland
University College Dublin, Ireland
Wageningen University, the Netherlands
Institut National de Recherche en Agronomie (INRA), France

# Consortium

The FACCE ERA-GAS consortium consists of 19 partner organisations from 13 countries.
The consortium is led by Teagasc, Ireland.

| *Country* | *Organisation* |
|---|---|
| DK | INNOVATIONSFONDEN (IFD) |
| FI | MINISTRY OF AGRICULTURE AND FORESTRY MMM) |
| FR | AGENCE NATIONALE DE LA RECHERCHE (ANR) |
| DE | FORSCHUNGSZENTRUM JÜLICH |
| DE | FEDERAL OFFICE OF AGRICULTURE AND FOOD (BLE) |
| DE | FEDERAL MINISTRY OF FOOD AND AGRICULTURE (BMEL) |
| DE | FACHAGENTUR NACHWACHSENDE ROHSTOFFE E.V. (FNR) |
| IE | TEAGASC - AGRICULTURE AND FOOD DEVELOPMENT AUTHORITY |
| IE | DEPARTMENT OF AGRICULTURE, FOOD AND THE MARINE (DAFM) |
| LV | STATE EDUCATION DEVELOPMENT AGENCY (VIAA) |
| NL | MINISTRY OF ECONOMIC AFFAIRS (EZ) |
| NL | NETHERLANDS ORGANISATION FOR SCIENTIFIC RESEARCH (NWO) |
| NL | WAGENINGEN UNIVERSITY & RESEARCH (WUR) |
| NO | RESEARCH COUNCIL OF NORWAY |
| PL | NATIONAL CENTRE FOR RESEARCH AND DEVELOPMENT |
| RO | EXECUTIVE AGENCY FOR HIGHER EDUCATION, RESEARCH, DEVELOPMENT AND INNOVATION FUNDING (UEFISCDI) |
| SE | THE SWEDISH RESEARCH COUNCIL FORMAS |
| TR | MINISTRY OF FOOD, AGRICULTURE AND LIVESTOCK (GDAR) |
| UK | DEPARTMENT FOR ENVIRONMENT, FOOD & RURAL AFFAIRS (DEFRA) |

**Title:**
ERA-NET Cofund for Monitoring & Mitigation of Greenhouse gases from Agri- and Silvi-culture

**Acronym:**
FACCE ERA-GAS

**Starting date:**
1 May 2016

**Duration:**
5 years

**Grant reference:**
696356

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## More information on the FACCE ERA-GAS website

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