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

Title	**Robust models for assessing the effectiveness of technologies and managements to reduce N2O emissions from grazed pastures**
Acronym	**Models4Pastures**
Theme	Study of mitigation options at the field, animal and manure management scales with quantification of their technical potential for a range of agricultural systems and regions
Topic	Greenhouse gas emissions in the agriculture sector arising from agricultural soils including crops and grasslands, domestic livestock and waste management systems
Duration	01.01.2014 – 31.12.2016
Total cost (in €)	623 671€
Requested funding (in €)	483 010€

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Organisation Name	**Department of Agri-food Production and Environmental Sciences**
Country	Italy

Organisation Name	**ETH Zürich**
Country	Switzerland

Organisation Name	**University of Reading**
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Summary

Models4Pastures will test, improve, and then use, simulation models to provide robust assessments of the impact of N_2O mitigation options in grassland systems across a large geographic and climatic range. Our models and assessments will take into account the effects of the mitigation option, and its follow-on consequences (e.g. changes in grazing intensity) for other gases to understand the net ecosystem effect, food production and variability of production, and the effects on the ability of the soil to sustain production. This work will be done in the company of current and proposed FACCE-JPI projects and other international activities.

We will use model inter-comparisons and development to provide improved tools for climate change research. In our case we will concentrate on exploring N_2O mitigation options for grassland systems and the flow-on impacts of those mitigations on the ability of the soil to sustain production and on the needs for changed inputs or management of the grasslands. The inclusion of New Zealand and European teams provides a wide range of datasets, including a new dataset collected at high temporal resolution and covering different climatic conditions and management practices, and a range of models that have different formulation (assumptions and parameters) and approaches. This is the ideal situation to explore the most effective model features and develop models that are robust across a range of situations that is as wide as possible. The suite of diverse models also forms an ideal ensemble with which to approach the study of mitigation options. We expect that this combined approach (challenging/improving existing models and ensemble modelling) will result in modelling tools that can be used with confidence by scientists and mitigation assessments that policymakers can be assured are robust. Because many of the scientists in our project are also involved in other modelling inter-comparison initiatives we expect our findings will be rapidly and effectively disseminated to end users who will initially be other scientists wishing to explore potential mitigation options and their consequences.