

GLOBAL RESEARCH ALLIANCE

ON AGRICULTURAL GREENHOUSE GASES

We bring countries together to find ways to grow more food without growing greenhouse gas emissions.

Agriculture has a vital role to play in the coming decades with the world's population estimated to reach 9.6 billion by 2050. With more mouths to feed but limited natural resources to draw on, the sector must find ways to produce additional food and fibre sustainably, while also contributing to broader development goals.

The Global Research Alliance on Agricultural Greenhouse Gases (GRA) is increasing cooperation and investment in research activities to help reduce the emissions intensity of agricultural production systems and increase their potential for soil carbon sequestration. The goals are to improve their efficiency, productivity, resilience, and adaptive capacity. This contributes in a sustainable way to overall mitigation efforts but also helps meet food security objectives.

Improving the quantification of agricultural greenhouse gas emissions under different management scenarios is also key to understanding best practice. Many countries already have research underway to better understand, measure, and manage agricultural greenhouse gases emissions. By linking up these efforts through the GRA, we can achieve faster progress towards the solutions needed for improving agricultural productivity and reducing its greenhouse gas emissions.



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on Agricultural Greenhouse Gases

The GRA is a tremendous opportunity to be part of an initiative that is bringing together the world's best in agricultural greenhouse gas emissions research and mitigation practices and technologies.

Climate change cannot be tackled by any country or research institution working alone.



4 research groups



Paddy rice



Croplands



Livestock



Integrative

More than
3,000



scientists involved in activities of the GRA

66

technical guidelines, resource materials and databases produced

51

technical training workshops held

17



science networks

*See back page for a list of member countries

27 partner organisations



141 collaborative projects supporting the GRA including six current Flagship Projects

228 fellowships awarded to recipients from 49 countries

The GRA is working together to provide knowledge and build capability for a better future.

The GRA has gone from strength to strength since its launch at COP15 in Copenhagen in 2009. The initial alliance of 28 countries has become truly global, with countries from all regions of the world now coming together to address the question of how best to ensure future food security, whilst minimising agriculture's environmental footprint.

The Research Groups and Networks are led by representatives from a wide range of countries. Plus, the GRA Secretariat, supported by New Zealand, has grown to include staff based in Europe, Africa and Latin America.

As the GRA has grown, it has become increasingly recognised for its knowledge and expertise. Knowledge partnerships have been built with groups such as Pathways to Dairy Net Zero and the Agricultural Innovation Mission for Climate.

The GRA has also been involved in supporting LMIC countries to participate in international and regional research calls such as European Research Area Networks (ERA-NET), the European Joint Programme Cofund on Agricultural Soil Management (EJP SOIL) and the Regional Fund for Agriculture Technology in Latin America (FONTAGRO).

Growing more food without growing emissions has never been a more important goal. The GRA is working at all levels to build capacity and capability to drive towards this target.



Collaborative research projects are at the heart of the GRA's work

They allow scientists to achieve results that would have been impossible working in isolation, for example by sharing data sets, harmonising measurements and methodologies, and pooling resources for analysing large numbers of samples or model inter-comparisons. Specific projects may be identified within Research Groups or Networks or at annual Council meetings, with participating countries then collaborating to source funding for the work. A significant number of projects have been completed to date, with more underway at present.

GRA online resources facilitate new ways of working together

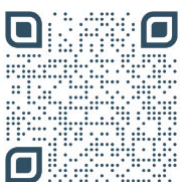
Much of the GRA's work relies on experts working together across boundaries to advance collective knowledge. A range of online resources have been created by researchers linking up to address critical knowledge gaps, analyse and improve data, standardise modelling assumptions, develop common protocols for measurement and find new ways of working together to advance shared priorities. Find examples here: globalresearchalliance.org/research/livestock/collaborative-activities



High-profile publications and technical manuals help to share knowledge

Scientific knowledge needs to be shared widely to lead to policy change, impact and action. The work of the GRA has led to a number of high-profile journal articles, review papers,

good practice manuals and technical methodologies which are being recognised in the scientific community and beyond. Learn more here: globalresearchalliance.org/publication-library



GRA Flagship Projects

GRA Flagship Projects are developing new knowledge to better understand agricultural greenhouse gases, have global relevance and applicability and will generate high scientific impact.

These key priority projects have been identified as uniquely suited to the research expertise and global membership of the GRA. Flagship Projects are specific, time-bound projects that have been approved by the GRA Council. They are led by a community of experts within the GRA membership and there are opportunities for others to get involved. Learn more here: globalresearchalliance.org/flagship-projects



Ensuring long-term mitigation and adaptation co-benefits

Goal: To develop and apply new protocol-based methods for providing national decision-makers with evidence-based knowledge to ensure agricultural mitigation strategies have lasting impact.

Led by: USA



Feed additives to reduce methane

Goal: To accelerate the development and use of feed additives to reduce global enteric methane emissions from livestock.

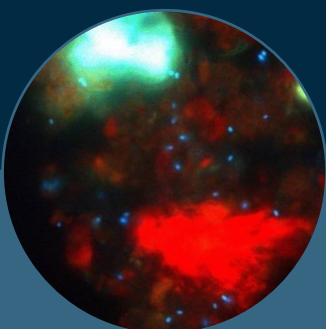
Led by: Spain & the Netherlands



Reducing N₂O emissions and improving accounting

Goal: To encourage global efforts to reduce GHG emissions from nitrogenous fertiliser by enabling its usage to be more accurately reflected in national level GHG accounting.

Led by: Chile



Mining rumen data to reduce methane

Goal: To generate new knowledge on the rumen microbiome which will enable novel interventions to reduce methane emissions from livestock.

Led by: United Kingdom



Satellite monitoring to improve livestock management

Goal: To develop globally applicable tools which improve management of grassland resources and support local initiatives to mitigate and adapt to climate change.

Led by: North America



Economics of cattle GHG mitigation (EMiFa)

Goal: To identify the most cost-effective options for farm level GHG mitigation strategies in different global production systems and provide evidence-based policy recommendations.

Led by: Germany

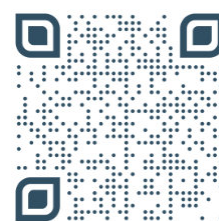


Sharing knowledge and building the capabilities of researchers and technicians to measure, predict and report on greenhouse gas emissions from agricultural systems is a critical area of work for the GRA.

This takes place in a variety of ways including leading technical training workshops, establishing capability building projects, profiling research via webinars and coordinating fellowship and award schemes.

Award schemes enable students, technicians and scientists to undertake 'on-the-job' training and help seed new collaborative ideas. Two programmes are highlighted below.

Learn more here: globalresearchalliance.org/awards-and-fellowships



CLIFF-GRADS

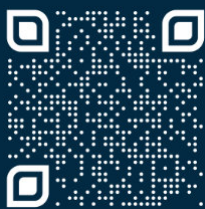
The Climate, Food and Farming, Global Research Alliance Development Scholarship (CLIFF-GRADS) is a joint initiative of the GRA and the CGIAR Mitigate+ programme. Since 2017, 124 PhD students, from 32 developing countries, have received awards to carry out research projects in different countries. 50 institutes from 30 countries have hosted CLIFF-GRADS to date.

GRA-RUFORUM

The GRA has partnered with the Regional Universities Forum for Capacity Building in Agriculture (RUFORUM) in Africa to support Graduate Research Grants for Masters level projects for students studying agricultural GHGs. 8 awards, benefiting 22 students, were awarded in 2020.



The GRA works across borders to drive towards its goals



The GRA Council is responsible for the governance of the organisation, with Research Groups driving the action. The four Research Groups carry out the work plan of the GRA by identifying opportunities, improving knowledge and sharing results. Much of the Research Groups' work relies on experts working across boundaries to advance collective knowledge. To support this goal, each Research Group supports Networks that focus on specific aspects of emissions research.

Additionally, in 2021, the GRA Council established the Indigenous Research Network (IRN), co-led by New Zealand and Samoa. The IRN was created to support indigenous knowledge and researchers and to strengthen indigenous voices in global agricultural issues.

Learn more here: globalresearchalliance.org/community

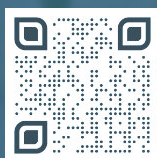
Join the GRA!

Benefits of GRA membership include access to training and fellowships for early career scientists, awards and exchanges for senior scientists, research funds that encourage collaborative projects among member countries and partner organisations, participation in regional and topic specific science networks for researchers to share datasets and encouraging common measurement protocols.

Membership is open to any State represented by their competent authority (e.g. the nominated lead government department or agency). Participation in the GRA is on a voluntary basis, there is no cost to joining or annual membership fee. It is for each member to determine the nature and extent of its participation in any GRA activities.

Contact us:

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GRA member countries

Argentina	France	Peru
Australia	Germany	Philippines
Bangladesh	Ghana	Poland
Belgium	Honduras	Republic of Korea
Benin	Indonesia	Samoa
Bolivia	Ireland	Senegal
Brazil	Italy	South Africa
Cameroon	Japan	Spain
Canada	Kenya	Sri Lanka
Chile	Lithuania	Swaziland
China	Malawi	Sweden
Colombia	Malaysia	Switzerland
Costa Rica	Mexico	Thailand
Cote d'Ivoire	Mongolia	Tunisia
Cuba	Namibia	Turkey
DR Congo	Netherlands	Uganda
Denmark	New Zealand	United Kingdom
Dominican Republic	Nicaragua	United States
Ecudaor	Nigeria	Uruguay
Egypt	Norway	Vietnam
Ethopia	Panama	Zambia
Finland	Paraguay	Zimbabwe