



Ministry of Economic Affairs

Dutch contribution to the Global Research Alliance on Agricultural Greenhouse Gases in the period 2016-2019

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

To explore the potential of nature to improve the quality of life (WUR)

Creating an excellent entrepreneurial business climate, by creating the right conditions and giving entrepreneurs room to innovate and grow (EZ)

Summary

The Global Research Alliance on Agricultural Greenhouse Gases (GRA) is focused on reducing the emission of greenhouse gases from agriculture, and operates in the policy field demarcated by the three pillars of food security, climate adaptation and climate mitigation, and has set itself the goal of developing and sharing knowledge. The GRA is a collaborate venture between 46 participating countries, and the number of countries is still growing.

The GRA has access to a worldwide network of researchers collaborating in the various scientific fields relating to climate and agriculture.

The analysis of the environment reveals that worldwide, a number of different (inter)national (research) networks, alliances and organisations are working towards the sustainable development of agriculture, food security and climate change. The Netherlands is delivering an active contribution.

The position occupied by the GRA is to promote collaboration between countries to enable research organisations to cooperate in the field of mitigation of greenhouse gas emissions from agriculture and adaptation for climate change. The GRA operates on the basis of scientific research with new (innovative) knowledge. The most important outcome is the harmonisation and sharing of knowledge. GRA members are involved in preparing knowledge agendas for national governments, the European Commission (EU), FAO and CGIAR.

The GRA is able to help ensure successful harmonisation about which knowledge or information is required in terms of policy, how that knowledge can be made available, and how research can be most efficiently organised. This helps avoid duplication of research and ensures the international sharing and comparison of knowledge.

Close harmonisation and collaboration between the agenda of the GRA and of other networks, alliances and organisations in respect of national and regional policy issues delivers added value on a global, national and regional scale. At the end of the day, this process contributes to the results of the GRA.

Agriculture, climate change and greenhouse gas reduction

The population of the world is growing rapidly, resulting in an increase in the demand for food. As a result, we face an important challenge: now and in the future, ensuring a sufficient supply of safe and healthy food, while still taking into account the (human) environment, nature and animal welfare.

Agriculture is susceptible to the effects of climate change, but given the emission of greenhouse gases is also a contributing factor to climate change. The agricultural sector faces the challenge of producing more and emitting less while remaining within the context of a changing climate.

The Ministries of Economic Affairs, Infrastructure & the Environment, Public Health, Welfare and Sport and Foreign Affairs are responsible for developing (inter)national agriculture, food, environmental, water and climate policy. These Ministries empower organisations, knowledge institutions and industry to make a contribution to a sustainable agribusiness and worldwide food security.

The Ministry of Economic Affairs/Directorate General for Agro & Nature policy is working on a 2-year Programme for the Intensification of Food Security, based on four pillars: climate-smart agriculture, post-harvest losses, genetic resources and oceans. GRA membership by the Netherlands and the implementation of activities reveal the efforts of the Netherlands as part of this programme.

The focus of the Netherlands was aimed at:

- Promoting and contributing to the GRA in and through network meetings
- Strengthening the study groups by facilitating work plans
- Linking in with policy agendas of governments through knowledge exchange with policy makers
- Securing knowledge in the regions with engagement workshops in Poland, Tunisia and Turkey.
- Orientation on research cooperation with the European Commission (DG Agri, Clima and DEVCO)
- Collaborating with alliances (CGIAR) and organisations (CABI)

Since 2011, the Netherlands has been a member of the GRA, and was (vice) president between 2013 and September 2015. The United States will be taking over the presidency from the Netherlands, followed by Mexico in 2016-2017. According to expectations, China will become vice president in 2016.

The secretariat of the GRA is the responsibility of the Ministry of Agriculture in New Zealand.

Het Ministry of Economic Affairs is continuing membership of the GRA with a view to making a contribution to various policy objectives for achieving greenhouse gas reduction, in respect of the GRA subjects Livestock, Inventories & Monitoring and Croplands.

Who and what is the GRA

History

The GRA focuses on reducing the emission of greenhouse gases from agriculture, and operates in the policy field demarcated by the three pillars food, security, climate adaptation and climate mitigation, and has set itself the specific role of developing and sharing knowledge. The GRA is a collaborative venture between participating countries. Countries become members when the Charter is signed by an official representative.

In 2011, the rules of conduct of the GRA were laid down in this Charter. At present, 46 countries (Africa: 3, America: 17, Asia Pacific: 11 and Europe 15) have signed the Charter, and as such are members of the GRA.

The contribution from the GRA consists of specific activities aimed at supporting the policy cycle, research collaboration, the exchange of information and technology and the building of capacity in the participating countries.

The GRA is a knowledge network organisation of researchers, established in 2009 in response to the Conference of Parties (COP) meeting in Copenhagen. Following an initial meeting in Wellington (NZ) in 2010, the initiative was further developed, and the common vision and operating principles of the GRA were elaborated.

The presidency of the voluntary alliance rotates on an annual basis. New Zealand was the first president. In the period 2013- 2015, the Netherlands acquired (vice) presidency of the GRA. During the annual meeting of the GRA (September 2015), the Netherlands will hand over the presidency to the United States Department of Agriculture in Washington DC.

Common vision

The GRA aims to find means of producing more food without this resulting in additional emissions from agriculture. Agriculture contributes to the emission of greenhouse gases. Worldwide, directly and indirectly, agriculture is responsible for 24% of all greenhouse gases. That is why it is so important to combine the knowledge available in these countries.

The GRA aims to develop and maintain collective knowledge in respect of agricultural production and climate influence and climate effects. To achieve this, the GRA collaborates intensively with researchers, research groups and (industrial) networks. The GRA encourages standardisation in the form of methods, techniques and models, data sharing and the establishment of joint knowledge databases. Researchers also provide training and workshops. In this way, the GRA helps researchers and policy makers to acquire more and better knowledge of the relationship between agriculture and climate.

The common vision of the GRA:

- To increase agricultural production with lower emissions
- To improve global cooperation in research. To accelerate and strengthen knowledge development in ways that would not be achieved without the Alliance, with a common research agenda and joint capacity building
- To work with farmers and partners to provide knowledge. To develop relevant mitigation options and to strengthen the resilience of food systems.

Collaboration with farming associations and agricultural organisations has resulted in the identification of possible agricultural methods and techniques that could make farms resilient to climate change while at the same time helping to reduce the emission of greenhouse gases. The greatest challenge lies in supplying and developing the necessary knowledge at the level of the individual entrepreneur. Whether and how the identified methods and techniques can be integrated at an individual farm, and the actual effects of that process, will depend on the local situation and the capacity at an individual farm or chain of farms.

The GRA works with three research groups: Livestock (LRG), Croplands (CRG) and Paddy Rice (PRG) and with the two diagonal groups: Carbon and Nitrogen Cycling (C&N) and Inventories & Monitoring (I&M).



The Netherlands is co-chair of the research groups Livestock and Inventories & Monitoring. Dutch researchers are active within the research groups Livestock, Croplands and Inventories & Monitoring.

The GRA identifies research issues that are relevant to policy agendas that focus on the application of knowledge and cooperation between knowledge partners. This also means that the focus of the networks is shifting from information exchange to more operational research aimed at application, with result and effect.

Issues and questions now being put forward relate to the application of new insights, and to how agribusinesses, farmers' organisations and businesses can be involved in the supply chain with a view to linking together their knowledge and experience, and to prepare and achieve cooperation between research programmes. The main point of focus is on the implementation of research on the one hand, in combination with capacity building through training, on the other.

Over the past few years, the accent within the GRA has been broadened, whereby alongside mitigation, adaptation has been added as an important field of focus. Adaptation to climate change is essential to ensure global food supply, but the mitigation of emissions will also have to be achieved within an agro production system that adapts to the changing climate.

Dutch ambition

In the policy document on Dutch efforts for worldwide food security (2014), the Minister for Foreign Trade and Development Cooperation and the Secretary of State for Economic Affairs explained that the Netherlands is focusing on all aspects of food security. The effects of climate change on food systems and vice versa are to be taken into account in all relevant activities. The sustainable development of livestock farming is and remains a crucial theme that over the coming years will be placed on the international agenda, with increasing urgency. Over the past few years, on an international scale, the Netherlands has played an important role in this process. The Dutch ambition is to make a substantial contribution to the sustainable development of livestock farming in the context of finite natural resources, climate change and threats to the health of man and animals. These efforts will be intensified over the coming years.

Given the ambitions expressed by the Netherlands for the next few years and taking account of the importance of livestock farming and agro sector for the Netherlands, the international nature of Dutch industry, and the Dutch involvement in such initiatives as the Global Agenda for Sustainable Livestock (GASL) and the Global Alliance for Climate Smart Agriculture (GACSA), it is a logical step for the Netherlands to continue focusing its attention within the GRA on the sustainable development of international livestock farming, and to continue to play an active role. Via the network of the GRA, the Netherlands may opt to actively supervise other countries in improving the sustainability of their livestock industry, monitoring systems and croplands. Through training programmes, knowledge exchange and learning on the job, workshops and sessions involving colleagues from policy and knowledge, a further contribution will be made to achieving this ambition.

NL results

In the Netherlands, there are three categories of sources of greenhouse gas emissions from the agricultural sector.

Enteric fermentation : CH₄ emissions

Manure management : CH₄ and N₂O emissions

Agricultural soils : N₂O emissions

In the period between 1990 and 2012, total greenhouse gas emissions were reduced by approximately 30 percent, from 22.6 Tg CO₂ eq in 1990 to 15.9 Tg CO₂ eq in 2012. This downturn was largely due to reduced numbers of livestock, the reduction in the application of animal manure, and the decreased use of synthetic fertilisers. These measures and activities did not result in lower production, and in themselves were not in fact focussed on emission reduction.

Agriculture was responsible for 8.3 % of total national emissions in 2012, compared to 10.6 % in 1990.

Dutch contribution to the GRA approach 2016-2019

The Netherlands intends to remain a member of the GRA. For the years 2016-2017, the Netherlands has opted for an approach in which the activities are already described, at execution level. Adaptation will ensure a growing level of attention, as will social innovation and communication. Wageningen University is set to retain a central position in the research programmes of the GRA. Other researchers and research groups are invited to join in.

More active interventions in (inter)national policy agendas are called for. This applies both to the international context and to the Netherlands individually. Active interaction by the relevant departments at the Ministries of Economic Affairs, Domestic Affairs, Infrastructure and the Environment, and Transport, Public Works and Water Management will be needed, if the Netherlands is to make optimum use of the opportunities offered by the GRA network. For the GRA, it is essential to be involved in subject fields of particular relevance to administrators and policy makers. Active links with other global networks and organisations will be elaborated. This means more and improved profiling of the GRA as a knowledge network, with a role in respect of GACSA, CCAFS and GASL, and more active involvement by Dutch industry. For the period 2016-2019, the Netherlands will be focusing its activities on continuing the already implemented approach, and enriching that approach in line with the substantive innovations within the GRA.

Continuation

Dutch knowledge is relevant for the objectives and results of the GRA and the activities of the research groups. To ensure that this knowledge is shared and remains part of the international thinking on agriculture and climate, the Netherlands will remain active in the research groups Livestock and Inventories & Monitoring. We are active participants in the networks of these research groups

and duly inform the Dutch government of the results and outcomes. In respect of livestock, we intend to join forces with a number of countries (to be determined interdepartmentally and in consultation with Dutch industry) for activities that can help to make livestock farming even more sustainable in relation to climate change. The Netherlands will provide workshops and training sessions to ensure the mutual strengthening of research knowledge and policy. The tasks of the research group Inventories & Monitoring will complement this process.

Role of Economic Affairs : financing and contracting, contributing ideas and coordinating policy components

Role of WUR : execution, direction setting

Environmental analysis

Climate Smart Agriculture (CSA)

In many regions, climate change is undermining agricultural production and food systems, and as a consequence is negatively influencing food security. At the same time, over the next few decades, agricultural production will have to be massively expanded in order to respond to the global demand for food. This demand is set to rise due to an increase in world population, but is also set to shift to the production of higher quality products, thanks to improved spending power and a more critical attitude from consumers.

Climate Smart Agriculture (CSA) is an integrated approach for tackling these three challenges in a combined manner: sustainably increasing agricultural production, making food systems and agriculture production resilient to climate change (adaptation) combined with the mitigation of agricultural emissions.

On a global scale, the Netherlands promotes climate-smart agriculture, and has placed the subject on the worldwide agenda. This has resulted in the establishment of the Global Alliance for Climate-Smart Agriculture (GACSA) during the SGUN's climate summit in New York in 2014.

More information: www.fao.org/gacsa

Global Alliance of Climate Smart Agriculture (GACSA)

GACSA is focused on the three objectives of CSA, and membership is open to any committed partners, be they government authorities, international (non-)governmental organisations, research institutions, farmers' organisations, the private sector or social organisations.

At present, the alliance has 95 members.

The aim of GACSA is to encourage partnerships and initiatives in the field of climate-smart agriculture. The success of the alliance is determined by the catalysing role it plays in specific programmes in practice. The Netherlands wishes to play an active role and encourages new partnerships with a view to elaborating, implementing and upscaling expertise and innovative solutions more rapidly and more effectively, on the basis of local needs and conditions.

GACSA has three different Action Groups:

- a. Knowledge Action Group (KAG): broadening, promoting and sharing knowledge; research into and development of technologies, applications and policy-based approaches from and for climate-smart agriculture; encouraging collaborative ventures, improving communication and information dissemination (information provision, training and technical assistance). The KAG is currently headed up by the FAO and CGIAR/CCAFS, and has set itself the goal of laying down a broad-based knowledge agenda;
- b. Investment: increasing the effectiveness of public and private investments that support the three objectives of CSA;
- c. Enabling Environment: integrating climate-smart agriculture in designs, programmes, policy and strategies at the regional, national and local level, taking account of landscapes.

2015 is the launch year for the three Action Groups. The three groups are expected to publish their action plan at the start of 2016.

The GRA will be able to make use of the momentum generated by the GACSA at political and policy level. The Netherlands recognises the importance – and sees the added value – of good-quality cooperation and harmonisation between the two alliances.

Within the GRA (and GACSA), the Netherlands is busy investigating, promoting and facilitating the possibilities of combining these two alliances (harmonisation and cooperation).

More information

www.fao.org/gacsa

www.un.org/climatechange

www.africacsa.org

Food and Agriculture Organisation (FAO)

The Food and Agriculture Organisation of the United Nations (FAO) is a specialist organisation, the core tasks of which include setting standards and disseminating knowledge. The FAO is a system organisation with executive tasks that contribute to improving global food security, but which are also aimed at acquiring and updating knowledge development in the field of food and agriculture. The FAO is essential in any global strategic discussions about food security. In trade-based discussions about innovative and sustainable agriculture, the FAO occupies the position of information provider, and delivers analyses for developing countries. Partly on the basis of the results of the Committee on World Food Security (CFS), such subjects as responsible land use, climate smart agriculture and responsible agricultural investment have acquired high priority within the organisation.

Climate (adaptation and mitigation) are becoming ever more important priorities for the FAO. The FAO is able to supply technical knowledge and knowhow in international forums. The FAO supports the facilitation unit of the Global Alliance for Climate Smart Agriculture and is a leading partner in the knowledge action group.

The Netherlands has a tradition of knowledge development with the FAO, in particular via collaboration with Wageningen University. In 2013, the already established Memorandum of Understanding (MoU) with Wageningen University was renewed. Collaboration with the FAO was recently further strengthened, above all in respect of knowledge exchange via partnerships.

The GRA collaborates closely with the FAO on a number of issues, such as jointly identifying research activities for carbon binding and greenhouse gas emissions from grassland in Europe and Latin



America, the development of relationships with the GRA Soil Carbon & Nitrogen Group on best practices, and the implementation of projects relating to manure management and enteric fermentation.

It goes without saying that there is considerable interchange between the knowledge agenda of the GRA and the project agenda of the FAO.

More information: fao.org

Global Agenda for Sustainable Livestock

The Global Agenda for Sustainable Livestock (GASL) is a multi-stakeholder partnership focused on the sustainable development of the worldwide livestock sector. It is a partnership of public and private sectors, producers, researchers, NGOs, social movements and social organisations.

The Global Agenda is active in three fields: Closing the efficiency gap, the transition from Waste to Worth (for manure) and Restoring Value to grasslands. In the last two policy fields, there are close ties with the knowledge networks of the Livestock Research Group (LRG) of the GRA.

The Manure Kiosk project is a shining example of collaboration and the mutual strengthening of activities achieved between FAO, GASL and the GRA.

GASL is considering shifting the focus to Sustainable Development goals. This could mean that alongside the environmental aspects, greater attention will be focused on the socioeconomic aspects of sustainable livestock farming.

The Netherlands has undertaken to further strengthen and consolidate the relationship between GASL and the GRA, whereby the LRG of the GRA could become the knowledge partner of the GASL in respect of livestock and climate.

More information: www.manurekiosk.org
www.livestockdialogue.org

Godan

Godan is a programme that is working towards achieving open data for the agro sector and the implementation of possibilities offered by ICT applications.

Over the coming period, collaboration between Godan and the GRA is set to be further elaborated.

The Godan network has 137 partners and is facilitated financially by the Ministries of Economic Affairs and Foreign Affairs.

www.godan.info

EU Joint Programming Initiative on Agriculture, Food Security and Climate Change (FACCE-JPI)

The EU joint programming initiative on agriculture, food security

and climate change is put into practice within a strategic agenda based around five research themes. This fact strengthens cooperation between EU researchers, within FACCE-JPI. The strategic agenda of FACCE-JPI is based on five central research themes:

- Sustainable food security in the face of climate change
- Environmentally sustainable growth and intensification of agriculture
- Trade-offs between food supply, biodiversity and ecosystem services
- Adaptation to Climate Change
- Mitigation of Climate Change.

Two proposals have been submitted to the European Commission, relating to the ambitions and objectives of the GRA.

The proposals in question are:

- Monitoring and Mitigation of Agricultural and Forestry Greenhouse Gases (GHG). This proposal was drawn up taking account of knowledge provided by the GRA.
- Sustainable animal (livestock) production, brought about thanks to involvement of the LRG of the GRA.

If the EC honours these proposals, 2 European Research Area Networks (ERA) will set to work on the programmes.

The scientific knowledge of the GRA combined with contributions from other GRA member countries, will continue to strengthen the focus of the EU research programmes such as FACCE-JPI.

More information: www.faccejpi.com

Climate Change, Agriculture and Food Security (CCAFS-CGIAR Consortium)

Within the CGIAR consortium, the research programme Climate Change, Agriculture and Food Security (CCAFS) is the key programme focused on agriculture and climate change.

The proposals within this programme are based around four so-called Flagships, focusing on:

- climate-smart production practices;
- climate information systems and security;
- low-emission developments;
- focus on food systems through climate change.

The Ministry of Economic Affairs and the Ministry of the Interior have indicated their wish to encourage cooperation with Dutch knowledge institutions and industry in the field of climate information systems, sustainable production chains, water, food and climate-smart production practices.

CCAFS is one of the programmes financed by the Netherlands (Ministry of the Interior), but to date, cooperation with Dutch researchers has remained limited. The Ministry of Economic Affairs and the Ministry of the Interior are preparing a strategic partnership with the CGIAR, in which greater leeway for cooperation will be provided, with Dutch knowledge institutions, industry and social organisations.

CCAFS is actively seeking further cooperation with the GRA, in order to gain access to the organisation's scientific network. Attention is focused on the harmonisation of emission measurements, methods and techniques, the interpretation of data and the sharing of data in global databases.

More information: www.cgiar.org
www.ccafs.cgiar.org

Intergovernmental Panel on Climate Change (IPCC)

The Intergovernmental Panel on Climate Change (IPCC) has the task of assimilating all relevant scientific information relating to climate change. This task is undertaken by three working groups.

The first working group focuses on the climate system, the second is investigating the consequences of climate change and how to deal with them, while the third working group aims to specifically examine the sources of emissions and how they can be reduced. The results of the IPCC reviews are used by the UNFCCC in its decision making processes. This provides the climate convention with a solid scientific basis. The IPCC itself carries out no research, but collates the results published in scientific journals (peer reviewed material) which it then brings to the political arena in more understandable (non-prescriptive) terms.

Research such as that undertaken by researchers brought together within the GRA is essential in feeding this process with relevant, high-quality research material. Various members within the GRA network are co-authors of the IPCC reports, in particular from working group three.

More information: www.ipcc.ch

Dutch agricultural sector

The Dutch agricultural sector is skilled in efficient production and supply chain optimisation. Knowledge from this sector is extremely useful for the efficient organisation of supply chains on an international level, and ensuring optimum production with low emission intensity.

For the GRA research groups Livestock, Croplands and Inventories & Monitoring, it is essential that studies undertaken in collaboration with private parties be continued and extended.

More information: www.tki-agrifood.nl
www.topsectortu.nl/tki-uitgangsmaterialen

Sustainable Agriculture Initiative

The SAI platform (Sustainable Agriculture Initiative) is an active partner of the GRA. Many (Dutch) companies are affiliated with the SAI, where they have joined forces to make agriculture more sustainable. Together with the SAI, the GRA recently produced an overview of technologies that can be deployed for achieving further reduction of greenhouse gas emissions in agribusinesses. This overview demonstrates that a 40% reduction can be achieved in livestock farming alone. For each of these technologies, an indica-

tion is given of how they can be put into use now, and what further developments are needed before they can actually be fully implemented.

More information: saiplatform.org

United Nations Framework Convention on Climate Change (UNFCCC)

The United Nations Framework Convention on Climate Change (UNFCCC) is a framework convention aimed at climate change. It is a political network of countries that is working towards achieving the following objective:

'The ultimate objective of this Convention and any related legal instruments that the Conference of the Parties may adopt is to achieve stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system in accordance with the relevant provisions of the Convention. Such a level should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner' (UN, 1992).

The scientific network of the GRA within which the aim is to harmonise measurements and analyses is relevant for the implementation and interpretation of the Convention.

More information: www.unfccc.int

World Bank

The work of the GRA ties in well with the objectives of the 2013-2015 action plan of the World Bank. At programme, project and system level, the World Bank collaborates with the GRA in a number of policy fields. The aim is to draw up a combined working programme on climate-smart agriculture and greenhouse gas reduction.

More information: www.worldbank.org

More information

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