

ALLIANCE COUNCIL MEETING

Online meeting hosted by Australia

Tuesday 23 – Thursday 25 March 2021

OVERVIEW

The tenth Global Research Alliance on Agricultural Greenhouse Gases (GRA) Council meeting was held online using a virtual platform over three days, 23-25 March 2021 hosted by Australia.

The meeting opened with a Ngunnawal welcome to show respect to the indigenous people & their lands and each session commenced with a traditional welcome to country.

This report is a summary of the key discussions and outcomes from the meeting, full recordings of the meeting sessions are available to view: <https://www.gracouncilmeeting2021.org/>.

PARTICIPANTS

The meeting was attended by 127 representatives from 54 countries and other invited guests:

- **GRA Member Countries:** Argentina, Australia, Bangladesh, Brazil, Canada, Chile, China, Costa Rica, Cote d'Ivoire, DR Congo, Denmark, Dominican Republic, Eswatini, Finland, France, Germany, Ghana, Indonesia, Ireland, Italy, Japan, Lithuania, Malawi, Malaysia, Mexico, Mongolia, Netherlands, New Zealand, Nigeria, Norway, Panama, Paraguay, Peru, Philippines, Samoa, Senegal, South Africa, Spain, Sri Lanka, Switzerland, Thailand, Tunisia, Turkey, Uganda, United Kingdom, United States, Uruguay, Viet Nam, Zambia, Zimbabwe.
- **Observer Countries:** Cuba, Fiji, Kiribati, Papua New Guinea.
- **Invited Partners:** AGMIP, CARDI, CGIAR-CCAFS, CCAC, European Commission DG AGRI, FARA.
- Refer to Appendix 1 for a full participants list.

KEY OUTCOMES OF MEETING

The outcomes identified during the meeting will be confirmed through the development of the annual Operational Plan that sits under the GRA Strategic Plan.

Outcomes
Council
Chile accepted as GRA Vice-Chair and host of the 2022 Council meeting.
Final version of the GRA Strategic Plan 2021-25 approved. Annual operational plan to be developed, based on actions identified during the Council meeting.
Members and Partners to share activities/side events they are planning for COP 26 and the UN Food Systems Summit where there may be opportunities to align with GRA objectives.
Proposal to improve cooperation between Agriculture Ministries of GRA members to provide science and data for consideration by policy makers.
Proposal to build a network supporting indigenous scientists/capability across the GRA.
Research Groups
Soil Carbon Sequestration Network to ensure the ongoing alignment with GRA objectives in the development and implementation of the proposed International Research Consortium on soil carbon.
Flagship proposal from AGMIP - MAC-B adaptation and mitigation models
Proposal from GRA Partner CIHEAM to launch a Network on GHG in Mediterranean Agriculture.
Secretariat
Undertake a stocktake to track the progress and impact of GRA action after 10 years and develop how best to communicate this to a range of end users.
Letter to be sent to Centre for Coordination of Agricultural Research and Development for Southern Africa (CCARDESA) inviting them to become a formal Partner.
Online webinars and workshops from GRA and Partner training activities made available.

SUMMARY OF DISCUSSIONS

OPENING REMARKS

1. Following the welcome from Ngunnawal an opening address was given by Jamie Isbister, Australia's Ambassador for the Environment. Mr Isbister highlighted the need for scientists to assist farmers by developing practical approaches to reducing greenhouse gas emissions that overcome the barriers to implementation as well as the transactional costs.
2. As an example, the Australian Government has identified soil carbon as one of five national priority areas of long-term strategic importance to lower emissions. This includes developing better emissions reduction methods to reduce the cost of soil carbon measurement, and improvements in monitoring, reporting and verification.

3. Australia's National Soils Advocate was appointed by the Australian Prime Minister to provide leadership on soil health at a national level and promote Australia's expertise and capabilities in soil science and management to help address the challenges.
4. Outgoing GRA Council Chair Dr Fadry Djufry, Director General of the Indonesian Agency for Agricultural Research and Development, reviewed achievements of the GRA since 2019 Council meeting in Bali, Indonesia and highlighted how 2020 was a difficult year with COVID. Noting that although this has affected the GRA, things are still progressing with research groups meetings continuing virtually, and member countries and partners increasing.
5. Indonesia has been involved in drafting the new strategic plan and hoped it would progress through this Council meeting. In 2019 Indonesia wanted the GRA to become the world's foremost organisation working on research for adaptation and mitigation and indicated that this has been achieved.
6. Indonesia handed over the chair to Australia (Andrew Campbell), highlighted how the two nations have worked together on the GRA working group to develop the new strategic plan.
7. Participants were welcomed to the meeting by the incoming GRA Council Chair, Professor Andrew Campbell CEO of the Australian Centre for International Agricultural Research (ACIAR). Climate change (both adaptation and mitigation) is one of the six strategic objectives in ACIAR's 10-year Strategy. The GRA is an ideal vehicle for us to foster collaboration in scientific research on agricultural emissions and to help our partner countries to meet their own objectives. In particular, Professor Campbell outlined the critical need for effective GHG mitigation options that are profitable and workable for farmers.
8. At a geopolitical level, Australia would like to encourage greater engagement of Pacific island countries with the activities of GRA members and support participation of Pacific research institutions in GRA activities, in order to help their researchers build experience, skills and networks in climate change mitigation.
9. At a strategic level, there are advantages to be gained by looking for synergies or co-benefits between mitigation and adaptation.
10. As Australia takes on the Chair of the Council, the focus will be on the implementation of the new Strategic Plan and assisting to build crucial partnerships for climate change action around the world.

IDENTIFICATION OF THE NEXT CHAIR

11. Ahead of the Meeting the Secretariat had received a letter from Chile indicating it would be willing to take on the role of GRA Council Vice-Chair and Chair of the GRA Council from 2022. Chile noted that COVID-19 had highlighted the role that agriculture and livestock need to play as a solution to both climate change and food insecurity concerns. This letter was shared with Council Members alongside other documents for the meeting.
12. The Council agreed to support Chile in this role. Mr Pedro Bustos Valdivia, National Director Instituto de Investigaciones Agropecuarias (INIA) accepted this role and presented Chile's priorities for its leadership of the GRA.
13. Chile has updated its nationally determined contributions (NDC) in March 2020 with a strong commitment to carbon neutrality by 2050, reaching an emissions peak by 2030. Chile's most recent

inventory shows that agriculture is the second highest emitting sector at 11% of total emissions. The GRA represents an opportunity to coordinate activities and establish collaborations across key research areas including:

- Implementation of Monitoring, Reporting and Verification (MRV) through case studies demonstrating areas of success.
- Promote mitigation actions to farmers, considering food security and economic benefits.
- Undertake further work on developing regional emissions factors.

14. Chile looks forward to fostering these and other areas of collaboration.

ADOPTION OF THE STRATEGIC PLAN 2021-25

15. An outcome from the 2019 GRA Council meeting in Bali, Indonesia was that Council Members agreed to update the GRA Strategic Plan for the 2021 -2025 period. A working group, consisting of representatives from Australia, Canada, China, Germany, Indonesia, Netherlands, New Zealand, Tunisia and Zimbabwe, developed the initial draft. The developed plan was then shared with the wider Council twice for comments.

16. The GRA Strategic Plan supports the objectives of the GRA Charter. The GRA Charter is the key document which members endorse when they join the GRA. The GRA Charter remains current 10 years after the GRA was established, and the document of the GRA strategic plan helps us to focus our efforts based on the current global situation. Over the next five years we aim to accelerate the efforts and activities of the GRA to meet our collective objectives through a series of actions identified and reviewed annually in an Operational Plan.

17. The four Key Strategies of the GRA Strategic Plan are the pillars of the GRA's work and as agreed at the Bali Council meeting, remain the same as developed for the first Strategic Plan:

1. Further Research Collaboration;
2. Foster Outreach, Knowledge Sharing, and Information Exchange;
3. Build Effective Partnerships; and
4. Leverage Financial and Other Resources.

18. It is the objective that sits under these Key Strategies that were given a great deal of thought by the working group and members, to strengthen the network of the GRA and make the most use of resources to achieve our objectives.

19. The GRA Strategic Plan covers a five-year period. The plan itself does not yet include how we will advance and achieve these actions, this detail sits in Operational Plan. It is key that we develop an Operational Plan together based on the discussions of this meeting to develop actions that will set our work plan for the next year to achieve our Strategic Plan.

GRA ACHIEVEMENTS

20. Hayden Montgomery, GRA Special Representative reviewed the GRA events and achievements since the last GRA Council meeting, including capability building activities and the development of research funding calls that the GRA is participating in.

21. CLIFF-GRADS

- The National University of Ireland, Galway has taken over administration of the CLIFF-GRADS programme and the person appointed to this role will also help with other GRA capability building work.

- Have developed webinars and a discussion platform to continue to engage students
 - Looking for host institutes for the next round of CLIFF-GRADS (round 5) later this year.
22. Intergovernmental Panel on Climate Change (IPCC)
- IPCC scholarships programme has identified an opportunity to link with the GRA CLIFF-GRADS awards.
 - IPCC and the GRA are developing an accessible summary of agriculture improvements of 2019 refinement. This document will be of use to new inventory compilers and others responsible for funding research related to improving national agricultural greenhouse gas inventories.
23. Flagships
- Promote research, identify collaborations across the GRA Research Groups, Networks Partners and Research organisations to advance larger flagship projects. Currently the Soil Carbon Sequestration Network is contributing to the development of an International Research Consortium on soil carbon with the aim of developing Flagship projects.
24. Research Calls
- Research calls and resource mobilisation – GRA relies on contribution of members and partners to support Research – supporting GRA members to contribute to joint call on circularity.
 - Allows for broader participation of GRA members
 - European Joint Programme on soils – upcoming announcement approx. \$12m euros – GRA will participate providing fund for developing country members.
 - The Regional Fund for Agricultural Technology of Latin America (FONTAGRO) is a GRA partner coordinating research funding from members across Latin America and the Caribbean. A number of projects have been funded under this mechanism that relate to the GRA priorities.
25. Webinars and online training
- Call for members to continue sharing information across the GRA. The GRA Secretariat hosted a webinar series for new members “[Progressing Partnerships](#)”, and has supported research publications and Research Group and Network webinars.
 - Online training organised by the International Centre for Advanced Mediterranean Agronomic Studies (CIHEAM) supporting two courses in 2020, one on agriculture/cropping and one on livestock GHG mitigation strategies, supported through the GRA Secretariat to involve participants from GRA member countries. Online training meant that more participants could attend, and we have online resources in French, English and Spanish.
26. Outreach events
- Global Forum on Food and Agriculture (GFFA). GRA hosted an [expert panel](#) to share experiences of national, regional, sectoral, and international networks that help improve the quality of collaboration by building effective networks and quality engagement.
 - Global sector groups are increasingly considering climate change and GHG emissions in their programmes and recently looking at the GRA to provide expert advice. The GRA has been involved in discussions with the Global Dairy platform and the Global Roundtable for Sustainable Beef.
27. Partners
- New Partner request - The Centre for Coordination of Agricultural Research and development for Southern Africa (CCARDESA), has requested the GRA Council to consider it

as a Partner organisation. GRA members were encouraged to invite this partner to support research coordination across this region.

- African Regional Universities Forum for Capacity Building in Agriculture (RUFORUM) is a GRA partner reaching a membership of over 100 agricultural universities in Africa. The GRA has funded 8 Graduate Research Grants, a 2 year Masters scholarship, and have students now starting work in Benin, Kenya, South Africa, Uganda and DR Congo on GRA related research.

ANNOUNCEMENTS FROM MEMBERS AND PARTNERS

28. Day two of the meeting began with announcements from Members and Partners related to events from the last year or upcoming opportunities for the Council to discuss.

International Centre for Advanced Mediterranean Agronomic Studies

29. Two online courses run on agricultural greenhouse gas mitigation in 2020, material from these sessions will be shared soon. The International Centre for Advanced Mediterranean Agronomic Studies (CIHEAM) are planning to organise a further webinar series on livestock emissions.

30. CIHEAM plans to launch a network on GHGs from Mediterranean agricultural systems. The Network would aim to increase regional capacity and facilitate streaming of scientific recommendations into policy. Activities will predominantly involve researchers, but also include NGOS, international organisations and farmers.

Climate Change Agriculture and Food Security

31. Bruce Campbell director of the Climate Change, Agriculture and Food Security (CCAFS) theme of the CGIAR spoke about the very productive collaboration between CCAFS and the GRA over the last few years, now coming to an end as the CCAFS programme comes to an end. CCAFS and the GRA have been adding resources to the [AGMRV website](#) uploading adding nitrogen fertiliser, N2O benchmarks and soil carbon MRV this year. The website already has extensive information on livestock, rice and agro-forestry systems. The [SAMPLES](#) emissions factor data base is regularly updated. In country collaborations with the GRA are ongoing, and collaboration continues to be a strong focus, CCAFS leadership ongoing in the CLIFF-GRADS awards.

32. Working with the UK on the COP26 planning around innovation and want to have strong links to GRA members in that work.

New Zealand

33. New Zealand has made climate change and agriculture a top priority, committed \$50m to support GRA. This funding will go to mitigation research, developing member participation in research, capability programmes and the hosting of the secretariat. Virtual farm tours are occurring this year, will support farmer to farmer discussion. Emphasis on investing in early-career scientists for long-term focus. Commencing indigenous scientific network with Samoa/Māori tour

Netherlands

34. The Netherlands announced the launch of a Network on Circular Food Systems which will be included as an activity of the Integrative Research Group. The Dutch government will provide financial support for the Network leadership and activities for the next 2 years. Wageningen UR will be leading the Network. The Network will bring together policy makers and researchers for a kick-off workshop 22-23 June.

European Commission

35. The European Union (EU) Green Deal aims for Europe to become the first carbon zero continent by 2050. EU is about to adopt a new 95 billion euros Horizon Europe framework programme for research and innovation; 35% of this is earmarked to fund climate related research. Some 9 billion euros will go to food, bioeconomy, natural resources, agriculture and environment.

36. Strategic plan for Horizon Europe has been adopted setting research priorities for next four years, ensure that research will contribute to EU priorities, including climate neutrality and green Europe. Want to restore European biodiversity, manage sustainable resources, make Europe first digitally enabled circular economy. International cooperation is essential for meeting global challenges.

37. Mission on soil health wants to double rate of healthy soil in Europe by 2030. Will have a dedicated budget. European partnerships to be set up, among which one on agro-ecology living laboratories.

Canada

38. Canada has recently announced significant funding for climate resilience programmes that support agriculture and other sectors to promote beneficial environmental management practices. Advancing the development and adoption of mitigation practices and technologies. A new agricultural climate solutions fund will help improve management of agricultural lands, increase carbon sequestration and generate environmental co-benefits. This programme will be supporting the living laboratories initiative – where projects are co-designed with farmers.

39. GRA remains an important part of Canada's approach to address climate change as Co-Chair of Integrative Research Group and active in Livestock Research Group and Croplands Research Group as well as several Networks.

Regional Fund for Agricultural Technology of Latin America

40. The Regional Fund for Agricultural Technology of Latin America (FONTAGRO) have been working with the GRA since 2009, work is now across Latin America looking at how to increase productivity while decreasing emissions. Research is collaborative and participative, want to create ecosystem innovations with public and private partners. Want to engage different partners, current call for proposal is open. An event was held in February 2021 involving seven ministers of agriculture, beginning discussions on how to get better policies from science.

Germany

41. Germany expresses its gratitude to Indonesia for chairing the GRA during the year 2020.

42. Germany continues to support activities of the GRA after Chairing the 2018 Council meeting including by providing support to the GRA Secretariat (Nina Grassnick, Thünen Institute). Germany has also recently taken on the coordination of the Farm to Regional Scale Network to better understand the impacts of mitigation strategies at the farm level.

43. Germany organised a GRA expert panel at Global Forum on Food and Agriculture on “The power of many: enhancing climate change mitigation through agricultural research networks (in times of pandemics)” and include the GRA in the final communique. https://www.gffa-berlin.de/wp-content/uploads/2015/10/GFFA_2021_Final_Communique_EN.pdf

44. Germany points out the importance of policy briefs developed by GRA to bridge policy and science. The German agricultural minister met with the New Zealand agricultural minister and both agreed on continued collaboration within GRA. Germany proposes the following action step to be included in the GRA operational plan: conducting a stocktake to evaluate GRA work over the last 10 years. Germany takes over co-lead of farm to regional scale integration network.

United Kingdom

45. Climate change is a serious focus for the current government, COP 26 will be hosted in Glasgow, Scotland. A net zero target for 2050 was adopted in 2019, emissions will be cut by at least half by 2030. A 10 point plan to reduce emissions while creating jobs has been established. Agricultural Transition plan has been published due to UK leaving the EU, priorities include improving productivity of agriculture, looking at ways to increase innovation and investment in nature-based solutions.

46. Strategies to reduce emissions from peatlands, improve the role of woodlands and the role of food systems. 90 million pound investment in transforming food production, supporting research and development for farmers to produce high quality food while moving towards net zero. The Foreign and Commonwealth Development Office has announced a global campaign with a focus on innovations across the food system to meet UN goals. Looking at new ways to develop innovation that put people, nature and climate at the heart of decisions.

France

47. France continues to support the GRA through the leadership of the Integrative Research Group and soil carbon sequestration initiatives such as 4/1000. France has a low carbon strategy sharing objectives with the EU climate neutrality by 2050. National priorities include agroecology practices and the development of a new label for low carbon agricultural production which would pay farmers for their efforts to reduce greenhouse gases on-farm.

RESEARCH GROUP REPORTS

48. The Research Group Co-Chairs presented the report of their activities along with their joint recommendations to the Council.

Integrative Research Group

49. Co-Chair Dr Pamela Joose (Agriculture and Agri-Food Canada) presented on the activities of the Integrative Research Group (IRG).

50. The Group last met at Wageningen in March of 2020 just before travel halted for COVID-19, leadership positions have changed/been filled since then. Dr. Joose noted IRG's work with CIRCASA and the Agricultural Model Intercomparison and Improvement Project (AgMIP) under the Soil Carbon & Farm to Regional Scale Network (individual presentations delivered later in the meeting). The Inventories and Nationally Determined Contributions (NDC) Network newsletter "Who's counting?" is now electronic, making it more accessible for non-English speakers. The network has been working with a new GRA partner, the Greenhouse Gas Management Institute (GHGMI), including on capability building efforts for the Fijian agriculture Inventory which aligns with other inventory development work that ACIAR leads, as well as the GHGMI Expert Forum.

51. GHGMI Expert Forum is a valuable platform until a distinct agriculture forum can be set up. GRA supported experts in the network to attend Mediterranean Agronomic Institute of Zaragoza (IAMZ-CIHEAM) courses (https://www.iamz.ciheam.org/en/education/advanced_courses_for_professionals/course_catalogue).

52. The network developed a stock-take tool, to address their first priority identified at their meeting in 2020 to ensure greater alignment across countries about funding inventory capability improvements. It is essentially a spreadsheet of investments and projects used by the NZ Ministry for Primary Industries (MPI), Australian Centre for International Agricultural Research (ACIAR) and the US-EPA. The IRG would like to see other GRA members contribute to this work.

53. In terms of ambitions for 2021 some networks will be continuing to build on the major projects they have initiated. Others would like to extend invitations to join networks which are re-energizing themselves.

54. The new co-chairs of the Farm to Regional Scale Integration Network from agri benchmark (Thünen Institute, Germany) are looking to hold a virtual kick-off meeting on May 25th and May 28th 2021 to introduce themselves and invite GRA members and others to join them to scope activities for the network.

55. The Circular Food Systems Network will focus on enlarging the CFS-network and exploring common ground by defining the focus, objectives, concepts and practices regarding circular food systems, as well as its research agenda, and prepare a review paper. A kick-off workshop is planned for June (date to be decided). GRA members are invited to attend and share ideas and input to the network.

56. The Inventory and Nationally Determined Contributions (I&NDC) Network would also like to explore the potential for an agriculture specific online platform to hold an Inventory & NDC experts forum for GRA.

Paddy Rice Research Group

57. The activities of the Paddy Rice Research Group (PRRG) were presented by Dr Yasukazu Hosen (NIAES, Japan).

58. PRRG Africa sub-group, organising a workshop with regional and national research institutes and students. Africa sub-group meeting occurred in March 2021, participants from 22 African NARS and 17 rice-related programs in Africa. MIRSA-3 meeting continued in 2020 albeit virtually hosted by Japan.

59. Projects underway in Americas and Asia looking at how to improve rice cultivation for stable productivity that produces low GHG emissions and conserves soil, how to increase adoption of AWD by farmers and how to advance regional scaling of SRI and SCIA methodologies.

60. Going forward, undertaking stocktake of existing research activities, to know what is already done. Know about the strategies that exist already to reduce GHGs in countries. Want to develop new projects, particularly for Africa. Identify and conduct capability activities to increase regional skills.

Croplands Research Group

61. Co-Chair of the Croplands Research Group (CRG), Dr. Mark Liebig (USDA-ARS, USA) presented work completed by the CRG over the past 12 months.

62. The Agroforestry network developed a practitioners handbook and an online knowledge sharing platform. The Conservation Agriculture network submitted 12 papers to a special issue of Soil Science Society of America Journal, currently undergoing review. The Peatlands Management Network has a new co-lead from Indonesia. Three webinars were delivered to CRG members over the past year, with speakers from Brazil, Japan and Argentina. A CRG newsletter continues with quarterly instalments, with 160 subscribers. The annual meeting was held virtually 9-10 December 2020 and was the best attended meeting since 2013.

63. Going forward, the Agroforestry network will seek to align efforts with EU activities focused on sustainable land use and technologies, with the aim of engaging representatives from countries in South America, Africa, and Europe within the scope of the UNDERTREES project, as well as with other ongoing multi-country efforts.

64. The Integrated Crop-Livestock Systems network will evaluate how integrated systems affect soil carbon stocks and their stability through a meta-analysis of long-term experiments, and present preliminary outcomes at the II World Congress on Crop-Livestock-Forest Integration Systems.

65. Plenary activities discussed during the annual meeting and slated for action in 2021 include:

- The development of a review paper exploring opportunities, constraints, and caveats related to greenhouse gas mitigation practices for cropland,
- The distribution of a literature database survey, being led by Kansas State University, that aims to gather information that will lead to increased access of greenhouse gas related publications for literature reviews and meta-analyses, and
- A scoping exercise to better understand how artificial intelligence and digital technologies are being used for measurement of GHG emissions and/or soil carbon stocks across member countries.

Livestock Research Group

66. Livestock Research Group (LRG) Co-Chair Dr Sinead Waters (Teagasc, Ireland) presented on the activities of the LRG over the last year.

67. 12th annual meeting held virtually in September 2020, 93 participants who identified the need to work more closely with the IRG, as well as an emphasis on carbon sequestration and data collection for inventories. The 2021 meeting will also be held virtually.

68. Continued support of networks, quarterly plan for webinars for networks.

- Animal Selection Genetics Network has progressed with Enteric Fermentation Flagship.
- Animal Health Network published a review on associations between dairy cow health and GHG.
- Rumen Microbial Genetics Network contributed to books, articles and journals, as well as funded collaborative projects.
- Feed and Nutrition Network has new lead, Andre Bannink from the Netherlands. Two papers published in Animal Feed Science & Technology, published symposium review and developed two enteric methane mitigation databases.
- Manure Management Network DataMan Flagship database is publicly available, contains data from 5600 emission factors from 184 studies.

69. Support will continue for the Networks, questions of the network leadership being refreshed every 2-3 years to keep ideas new. Webinars will be planned quarterly to keep engagement and work progressing. Overall the LRG want to facilitate dialogue between GRA scientists to increase membership and involvement within the Networks. Future actions will include encouraging support to capability building, particularly GHG inventory and mitigation research. Main ambitions for the group include:

- Increased collaboration with key organisations
- Establishment of a roster of countries and organisations that can share GHG inventory, MRV and NDC expertise
- Completed and published paper on livestock and sustainable agri-food system futures
- Work with FAO & Global Dairy Platform to develop roadmap to net zero production
- Implement Tier 2 inventory development and research support in East Africa & ASEAN
- Undertake strategic literature reviews and horizon scans

Joint Recommendations

70. Adoption of new ways of working, things have continued and virtual interactions are now trusted (beneficial for GRA communities). Support should be in place for co-chairs, if a country cannot support then maybe they should reconsider their role. Strong support for flagships provided there is adequate resourcing.

RESEARCH PRESENTATIONS

CIRCASA- International Research Consortium

71. CIRCASA aimed to develop international research cooperation and knowledge exchange in carbon sequestration, ran for 3 years. Helped to form a sound base for an international research consortium. Currently working to design a research consortium through a strategic agenda that has been adopted by stakeholders (dialogue with stakeholders has occurred via 10 regional meetings) Research priorities in four pillars:

- Frontiers research, unlocking the potential of soil carbon
- Soil carbon stock change MRV international standard
- Agro-ecological/technological innovations
- Enabling environment and knowledge co-creation

72. Open Collaborative Platform will create an open data repository with geospatial and modelling data An [International Research Consortium](#) (IRC) will bring together collaborative knowledge, capability building, co-ordination and governance. The consortium will consist of representatives from the research community, private and public sectors. A proposed structure is below:

1. Executive Committee, supported by Secretariat and Advisory Board
2. Scientific Committee
3. Working Groups (the four pillars)
4. Regional networks

73. The IRC could become a GRA flagship and would support the Integrative Research Group. GRA members could support and participate. Work is continuing to develop the consortium.

Mitigation and Adaptation Co-Benefits

74. Cynthia Rosenzweig presented on behalf of the [Agricultural Model Intercomparison and Improvement Project](#) (AGMIP) the proposal for a Flagship looking at mitigation and adaptation co-benefits (MAC-B). A joint session between GRA and AGMIP was held at the October 2020 AGMIP workshop to develop the MAC-B project. The project will modelling the outcomes of interventions such as soil carbon sequestration or crop- livestock systems to understand benefits to both adaptation and mitigation outcomes. Several potential pilot regions were identified:

- Viet Nam, sustainable rice intensification.
- Bangladesh, rice production and farmer livelihoods.
- Peru, Alternate wetting and Drying practices in rice production.
- Dominican Republic, Caribbean -central American farming systems.
- Zimbabwe, mixed crop-livestock systems.

75. The three year MAC-B project aims to increase in-country capacity to co-develop information products and includes continuing training and experiences. The cost of assessment for

each country would be approx. US \$100,000 with additional US \$100,000 for the project team and workshop costs. The project would also look to leverage funding from other donors.

76. Next step would be to identify funding for 1-2 project regions in collaboration with GRA Researchers and Networks to identify existing datasets.

Feed and Nutrition Network

77. The FNN aims to summarize and evaluate data on mitigating GHG emissions of ruminants by nutritional means as well as identify gaps in research, develop recommendations and publish collaborative work. Reviewing methodological aspects is a key part of what the network does, as well as sharing data for collaborative research. Two key projects have recently been completed following a database assembly, meta-analysis, experimental work and evaluation. These are Global Network and CEDERS. Enteric Methane flagship first paper has been submitted. 12 papers have been produced in direct association with the FNN, majority have been published (2 collaborative papers at least a year).

78. Future plans include extending membership, picking up relevant topics as they arise and finalizing databases and the meta-analyses of these. A database and meta-analysis will be constructed for the South-East-Asia project. The two aforementioned projects will be finalised in 2021, due to the completion of these there is a need for a new funded project going into 2021.

MITIGATION PRIORITIES

79. Members were asked to identify key priority areas for investment to address climate change mitigation and the role of the GRA providing examples from their countries.

80. **Brazil** are happy to see the Research groups recognising the importance of adaptation in agriculture. The GRA can provide an important role to help countries with their NDCs and provide the science base for these commitments. It is important to foster policy developments as part of the GRA discussions and identify ways to promote mitigation within the Paris agreement and discussions of the Koronivia programme. Within GRA framework, the greatest benefits will be gained by ensuring all climate regions are considered equally.

81. **Samoa's** NDC does not include reference to agricultural actions although 38% of GHGs come from livestock. Samoa last reported on its emissions 10 years ago, so joining the GRA will help to build national capability to complete this reporting. Samoa hope to improve this capability through GRA scholarship opportunities and involving researchers in relevant Research Groups. Another constraint to address is lack of capacity, equipment and technology to monitor to develop GHG inventories.

82. The **UK** is interested in the role of innovation and transforming agriculture to meet the net-zero agenda. Upcoming work will identify some key innovations that can support this agenda, and include the farmer experience of adopting innovations. Within the GRA community there would be an opportunity to identifying innovations across countries, as a Network or Flagship resourced by the UK. The strength of the GRA has always been to boost linkage between good agriculture practices, productivity, and the reduction of GHG emissions. There may be a role to strengthen IRG activities, strengthen the background focused in innovation across systems and role of nature-based solution and environmentally focused interventions.

83. **Ireland** has an interest in moving research outcomes towards uptake by farmers and cooperatives. The focus on nature-based solutions and the co-benefits of climate actions in ecosystem services and impact to different aspects within the production systems (soil, biodiversity) will be very beneficial to GRA.

84. Ireland is moving from sector-based research program to system-based approach, investing on infrastructure around national agriculture soil carbon observatory. It would be positive to develop synergies for cross cutting action between various GRA Research Groups and develop new networks that look at co-benefits of things like agroecology or carbon farming, as well as ecosystems services, biodiversity and how they contribute to agricultural reducing of its environmental and climate footprint is very significant for looking in how to move forward in the next 10 years of the GRA.

85. Agriculture is a key sector for **Costa Rica's** economy. There are different policy instruments (NDC, NAMAS, climate policy, carbon neutrality strategy) and different ongoing studies that needs to be congruent and consistent. Priorities for Costa Rica are: improving of activity data, homologated and updated methodologies, agreed base lines, improving of country specific emission factors. It would be great to exchange knowledge and learn lessons from other GRA members

86. The **US** identified the main research needs as:

- Efficient use of Fertilizers and nutrient management to minimise the environmental impact in soils and atmosphere;
- Management of ruminant livestock, especially their diet in order to minimize methane emissions;
- Research plant genetics not only to ensure drought or and heat tolerance for resilience but to look in things like biomass production, quality, and stability for soil carbon;
- Manure management systems that are more sustainable and emit less GHGs;
- Precision data and tools for GHG inventories and also for local, regional and national level quantification of benefits of the practices that can reduce GHG emissions.

87. The legacy and power of the GRA is in helping to strategize and facilitate international research collaborations that maximize existing national level research investment through voluntary cooperation with other GRA partners. And by doing this together we will be all able to reach our goals of reduce GHG emissions that mitigate climate change and help land managers and producers provide the food and goods that are needed for a growing population.

REPORTING EMISSIONS INTENSITY OF PRODUCTION SYSTEMS

88. To develop actions supporting the GRA Strategic objective on communication and engagement the Council were divided into four breakout groups. Each group focussed on the same set of questions relating to the objective *"The GRA will communicate progress in achieving its objectives of increased cooperation and investment in research activities and reduced emissions intensity of agricultural production systems."*

89. The groups were asked to consider how the GRA should do this considering:

- How should we define emissions intensity?
- The scope of GHG's to include?
- How to measure?
- How to communicate?
- When to communicate?
- How could this be advanced?
- Who would be involved?

Discussion

90. The four breakout groups had a wide-ranging discussion with a key point being made by members that the value of the GRA is about impact it has within countries research systems and building connections between science and policy. The aim of the session was to consider what the

GRA has achieved in the last 10 years and how collectively we might answer this and move the GRA forward to meet our longer-term objective to reduce agricultural greenhouse gases.

91. The summary of each of the group discussions was presented by the facilitator during the meeting, the list of items noted during the discussion will support the next steps to developing the strategic objective.

92. In general, the Council saw the GRA as a valuable collaboration to share the science and advance collective knowledge in this space. Any performance measures should focus on these advances to promote and enhance knowledge sharing. The focus should be around coordination, the way agricultural research, innovation and knowledge systems are organised and how the GRA may have changed the shape of this for our member countries is important to consider as we design the stocktake activity. The inclusion of case studies would greatly support this.

GRA ENGAGEMENT: COP 26 AND UN FOOD SYSTEMS SUMMIT

93. Two major international climate and agriculture events are taking place later this year. The UN Food Systems Summit and UNFCCC COP 26 provides an opportunity to work together and communicate the achievements of the GRA. The Council was asked to provide any information on activities they have planned for these two events, and where there might be an opportunity to promote the work of the GRA or make use of the wider GRA membership.

94. Countries and Partners outlined their contributions to these activities during the meeting, and any additional activities can be sent to the Secretariat. The Secretariat will develop a list of activities and circulate this for additions after the meeting.

STRATEGIC PLAN: REVIEW AND UPDATE OF PRIORITY ACTIONS

95. The newly adopted Strategic Plan is supported by an annual Operation Plan, made up of priority actions identified during the meeting. These actions should be implemented in the next year, and will be reviewed for completion at the next Council meeting. A list of potential actions was developed at the Council meeting and will be finalised over the next few weeks, including identifying actors that will undertake each of these activities.

96. Priority actions identified focused on:

- continuing to develop online resources and materials;
- communication of GRA activities showcasing achievements and improved communications to policy makers;
- continued alignment of research funding and support for wider GRA participation in research activities;
- identification of new Flagship activities;
- opportunities to include the GRA in upcoming international events e.g. COP 26, Food systems summit; and
- Identification of new Partners of the GRA.

APPENDIX 1: PARTICIPANTS LIST

Members	
Argentina	Andres Said, Ministry of Agriculture Patricia Ricci, INTA Marcelo Beltran, INTA
Australia	Andrew Campbell, ACIAR Daniel Walker, ACIAR Lee Nelson, ACIAR Veronica Doerr, ACIAR Stuart Watt, Department of Agriculture, Water and the Environment Sue Bestow, Department of the Prime Minister and Cabinet Robyn Johnston, ACIAR Belinda Nielsen, ACIAR Howard Hall, ACIAR Penny Wensley, ACIAR Bernie Rowe, ACIAR Irene Kernot, ACIAR Jane Alver, ACIAR Maria Ludwina, ACIAR-Indonesia Fitri Apriliyani, ACIAR-Indonesia Mirah Nuryati, ACIAR-Indonesia Nam Anh Tran, ACIAR-Viet Nam
Bangladesh	Nathu Sarker, Bangladesh Livestock Research Institute
Brazil	Gustavo Barbosa Mozer, EMBRAPA
Canada	Javier Gracia-Garza, Agriculture and Agri-food Canada Pamela Joosse, Agriculture and Agri-food Canada Robert Turnock, Agriculture and Agri-food Canada
Chile	Pedro Bustos, INIA Marta Alfaro, INIA
China	Yu'e Li, Chinese Academy of Agricultural Sciences Xiaobo Qin, Chinese Academy of Agricultural Sciences
DR Congo	Adelard Mutombo Kazadi, Ministry of Environment and Sustainable Development
Costa Rica	Karla Mena Soto, Ministry of Agriculture and Livestock Giovanna Valverde Stark, Ministry of Foreign Affairs and Worship
Côte d'Ivoire	Abdoulaye Cisse, Ministère de L'enseignement Supérieur et de la Recherche Scientifique
Denmark	Bjarne Thomsen, The Danish Agricultural Agency Marie Dam, The Danish Agricultural Agency
Dominican Republic	Luis de los Santos, Dominican Institute of Agricultural and Forestry Research
Eswatini	Khetsiwe Nonhlanhla Khumalo, MTEA Leslie Mapako, Ministry of Agriculture
Finland	Veli-Pekka Reskola, Ministry of Agriculture and Forestry

France	Valerie Dermaux, Ministère de l'agriculture et de l'alimentation Jean-Francois Soussana, INRAE
Germany	Wolfgang Zornbach, Federal Ministry of Food and Agriculture Claudia Heidecke, Thünen Institute
Ghana	Edward Yeboah, Council for Scientific and Industrial Research
Indonesia	Muhammad Prama Yufdy, Indonesian Agency for Agricultural Research and Development Mohammad Ikhsan Shiddieqy, Indonesian Agency for Agriculture Research and Development Bess Tiesnamurti, Indonesian Centre for Animal Research and Development Fahmuddin Agus, Indonesian Soil Research Institute Edi Husen, Indonesian Soil Research Institute
Ireland	Richard Howell, Department of Agriculture, Food and the Marine John Harrison, Department of Agriculture, Food and the Marine Sinead Waters, Teagasc
Japan	Masa Iwanaga, JIRCAS Shintaro Kobayashi, Ministry of Agriculture, Forestry and Fisheries Yasukazu Hosen, NARO
Lithuania	Vygantas Katkevicius, Ministry of Agriculture Zigmas Medingis, Ministry of Agriculture
Malawi	Hannah Kasongo-Siame, Environmental Affairs Department
Malaysia	Mohamad Zabawi bin Abdul Ghani, Malaysia Agriculture Research and Development Institute
Mexico	Juan Bernardo Orozco Sanchez, Secretariat of Agriculture and Rural Development Sol Ortiz, Secretariat of Agriculture and Rural Development
Mongolia	Gerelmaa Shaariibuu, Climate Change Research and Cooperation Centre Khongor Tsogt, Climate Change Research and Cooperation Centre
Netherlands	Sjoerd Croqué, Ministry of Agriculture, Nature and Food Quality
New Zealand	Julie Collins, Ministry for Primary Industries Phil Houlding, Ministry for Primary Industries Harry Clark, NZAGRC Trish Ranstead, Ministry for Primary Industries William Aitkenhead, Ministry for Primary Industries Chanjief Chandrakumar, Ministry for Primary Industries Ackim Mwape, NZAGRC Jessica Somerton, NZAGRC Sandy Zhang, Ministry for Primary Industries
Nigeria	Garba Hamidu Sharubutu, Agricultural Research Council of Nigeria
Norway	Gudrun Langthaler, Research Council of Norway
Panama	Jose Mejía Gutierrez, Panama Agricultural Innovation Institute
Paraguay	Marcelo González, Ministry of Agriculture and Livestock
Philippines	Saturnina Halos, Department Of Agriculture Ricardo Orge, Philippine Rice Research Institute
Samoa	Tilafono David Hunter, Ministry of Agriculture and Fisheries

Senegal	Ghislain Kanfany, Institut Sénégalais de Recherches Agricoles
South Africa	Dumisani Mthembu, Department of Science and Technology
Spain	Esther Esteban Rodrigo, Instituto Nacional De Investigación Y Tecnología Agraria Y Alimentaria Maria Rosa Mosquera-Losada, University of Santiago De Compostela
Switzerland	Michaël Sapin, Federal Office for Agriculture of Switzerland
Thailand	Sairak Chailanggar, Ministry of Agriculture and Cooperatives
Tunisia	Haikel Hechlef, Ministry of Agriculture, Hydraulic Resources and Fisheries
Turkey	Aykut Ordukaya, Ministry of Agriculture and Forestry Inci Tekeli, Ministry of Agriculture and Forestry
Uganda	Stephen Muwaya, Ministry of Agriculture, Animal Industry and Fisheries
United Kingdom	Luke Spadavecchia, DEFRA Richard Dewhurst, SRUC
United States	MarlenEve, US Department of Agriculture – Agricultural Research Service Mark Liebig, US Department of Agriculture - Agricultural Research Service Jaime Adams, US Department of Agriculture – Office of the Chief Scientist Laura Schreeg, US Department of Agriculture – Office of the Chief Scientist
Uruguay	Cecilia Jones, Ministry of Livestock, Agriculture and Fisheries
Vietnam	Le Hoang Anh, Ministry of Agriculture and Rural Development Mai Van Trinh, Vietnam Academy of Agricultural Sciences
Zambia	Kabemba Mwambilwa, Ministry Fisheries and Livestock
Zimbabwe	Dumisani Kutywayo, Ministry of Lands, Agriculture, Fisheries, Water and Rural Resettlement
Partners	
AGMIP	Cynthia Rosenzweig, NASA GISS Roberto Valdivia, Oregon State University
CABI	Jonathan Casey, Climate Change Manager
CARDI	Barton Clarke, Executive Director Ansari Hosein
CCAC	James Morris, UNEP
CGIAR -CCAFS	Bruce Campbell, Director
CIHEAM	Antonio Lopez-Francos, Mediterranean Agronomic Institute of Zaragoza
European Commission, DG AGRI	Nathalie Sauze-Vandevyver, Director Kerstin Rosenow, Head of Unit Jean-Charles Cavitte, Research Policy Officer
FACCE-JPI	Heather McKhann, Coordinator
FARA	Alioune Fall, Chair of the Board of Directors Yemi Akinbamijo, Executive Director
FONATGRO	Eugenia Saini, Executive Secretary
Observer Countries	
Cuba	Rosemary Lopez, Institute of Meteorology
Fiji	Deepitika Chand, Ministry of Economy Aradhana Singh, Ministry of Economy
Kiribati	Teaaro Otiuea, Ministry of Environment, Lands & Agricultural Development

Papua New Guinea	Doreen Iga, National Agricultural Research Institute
GRA Secretariat	
Hayden Montgomery, GRA Special Representative	
Deborah Knox, New Zealand	
Mikaere Berryman-Kamp, New Zealand	
Hazelle Tomlin, New Zealand	
Nina Grassnick, Thünen Institute, Germany	
Nicolas Costa, Ministry of Livestock, Agriculture and Fisheries	