

Croplands Research Group Meeting
Henry B. Gonzalez Convention Center, San Antonio, Texas, USA

20 October 2011

Meeting Report

OVERVIEW

The third meeting of the Croplands Research Group of the Global Research Alliance on Agricultural Greenhouse Gases (“the Alliance”) was held in San Antonio, Texas, USA on 20 October 2011 following the ASA-CSSA-SSSA “Tri Societies” annual meeting.

The Croplands Research Group meeting was chaired by the USA (Dr Steven Shafer and Dr Alan Franzluebbers, USDA).

This report is a summary of the discussions and outcomes from the meeting. The PDFs of presentations are provided separately.

PARTICIPANTS

The meeting was attended by 28 Alliance country representatives and 4 other technical experts. 19 Alliance member countries were represented. No observer countries attended

- **Alliance Members attending:** Argentina, Australia, Brazil, Canada, Chile, Colombia, Denmark, France, Germany, Indonesia, Ireland, Japan, New Zealand, Norway, Spain, Sweden, UK, USA, Uruguay.
- **Alliance Members unable to attend:** China, Finland, Ghana, Malaysia, Mexico, Netherlands, Peru, Philippines, Republic of Korea, Russia, Switzerland, Thailand, Viet Nam.

MEETING OUTCOMES

The meeting achieved the following outcomes:

- An update from the Secretariat covering the Ministerial Summit and Alliance Council meeting in Rome, Charter matters, overview of progress in the other Research Groups, stocktake, and a proposal to make contact lists available on the website.
- Review of activities the Group agreed to undertake at the last meeting at Versailles in March.

- Agreement to invite Brazil to become Co-Chair of the Croplands Research Group alongside the USA.
- Review of activities each member country can contribute towards one or more of the components of the Action Plan and the names of the scientists and researchers who wish to contribute.
- Unveiling of the Croplands Research Group Literature Database, hosted through Kansas State University.
- Announcement of the 2011 Borlaug Fellowships sponsored by USDA to complement the work of the Alliance.
- Confirmation that the July 2012 meeting of the Group will be held in Bari, Italy alongside 4th International Congress of the European Soil Science Societies and a proposal that the Group then meet again at the November 2013 “Tri Societies” Conference in Tampa, Florida.
- Discussion on deliverable outcomes for each component of the Action Plan with the lead countries for each component to contact members with a summary report.

Key actions under this plan include:

- Identify collaboration opportunities with other Research Groups of the Global Research Alliance.
- Identify ways to disseminate information back out to the research community who are collaborating with the Group.
- Identify opportunities for technical workshops and extension activities.
- Undertake a survey of agricultural peatlands and wetlands management practices.
- Development of a net GHG emissions measurement protocol to suit all countries by modifying an existing protocol.
- Development of an inventory database on long term measurement experiments.
- Create a framework of criteria for comparing N₂O and soil carbon models against management practices and climate conditions.

SUMMARY OF DISCUSSIONS

OPENING REMARKS

1 In opening the meeting, Dr Alan Franzluebbers (Agricultural Research Service - USDA) as Chair of the Croplands Research Group welcomed participants and presented the agenda for the day's events. The Group was asked to consider activities that build on member country research activities and align with components of the Croplands Research Group Action Plan.

2 As the Croplands Group is chaired only by the USA, at this time the Chair has put forward a call for a Co-Chair to support them in the activities and work of the Group. Canada proposed that Brazil take up this role in the person of Ladislau Martin (Embrapa). Brazil's role of Co-Chair was approved by the Group, and accepted pending official confirmation from Brazil.

UPDATE FROM THE SECRETARIAT

3 The Secretariat gave a presentation of the activities of the Alliance since the last meeting of the Group in March 2011 (refer separate PDF presentation). This included the Ministerial Summit, Charter signing and first meeting of the Alliance Council that took place June 2011 in Rome.

4 As a part of this update, the draft Communication Policy and how the Alliance is linking with Partner organisations was discussed. The Alliance Council will discuss a third draft of the communication policy at its next meeting (Canada, mid-2012), and until this is in place member countries are asked to follow the style guide and use disclaimers when externally communicating their efforts to support the work of the Alliance. Anything presented as being “on behalf of the Alliance” should have Council approval first. The Alliance Council has also developed an initial list of partner organisations who they hope will work with the Alliance to achieve our goals. However, each Group should also consider the partner organisations or individual experts they could invite to work with the Group either in general or on specific projects.

5 The Secretariat gave an update of the activities of the other two Research Groups and the Cross-Cutting Groups. More detail on the work of these Groups may be found on the Alliance website (www.globalresearchalliance.org).

Stocktake Discussion

6 The Secretariat provided an overview of the stocktake data analysis and possible options for how the Alliance may update and use this information in the future. The Secretariat noted that the stocktake was initially developed to inform the work plans of the Research Groups and is due to be updated in January 2012. The Secretariat asked that the Croplands Research Group identify the information that they wish to receive from the exercise before the stocktake template is next sent out to countries for completion. The Group was asked to consider three options for how the stocktake could be updated and improved.

- **Option 1.** Continue with annual updates – but the Group should consider ways to improve the collection of the data and its quality.
- **Option 2.** Change the format of the stocktake – simplify the template to collect scientists’ names and research topics for network building purposes or, alternatively, use surveys and questionnaires to collect information on specific topics instead of the stocktake.
- **Option 3.** Consider the stocktake as an information-gathering exercise that each country completes when they first join the Alliance.

7 Discussion amongst the Group found that any update of the stocktake would need to provide the researchers who contribute the data with more information when it is completed. They need to get something from it themselves if they are required to update annually, and may also need to understand how the data may be used.

8 At this stage the Group has decided that new member countries should be required to complete the stocktake when they first join the Alliance. Information can be updated later from country involvement in the component work plans.

Contact Information on the Website

9 The Secretariat raised the question of placing the contact details (e.g. name, organisation, email address) of the Croplands Group representatives on the public website so that people (e.g. other scientists) could contact their country representatives directly rather than having to go

through the Secretariat. The resulting discussion suggested that the Group would prefer that the Secretariat continue to screen the queries before passing them on to the relevant country contacts. The Group was also concerned that changes to country contact persons would lead to frequent updating of the list by the Secretariat.

ACTION PLAN DISCUSSION

10 The Action Plan of the Croplands Research Group is divided into three component areas of croplands greenhouse gas emissions research that the group agreed to during the second meeting of the Group March 2011 in Versailles, France. These are:

- **Component 1:** Quantifying Net GHG Emissions in Cropland Management Systems – Project lead Chuck Rice (USA), Guy Richard (France).
- **Component 2:** Assessing GHG Emissions in Agricultural Peatlands and Wetlands – Project lead Lillian Øygarden (Norway) Kristiina Regina (Finland).
- **Component 3:** Modeling N₂O emissions and Soil Carbon Stocks – Project lead Sylvain Pellerin (France), Nancy Cavallaro (USA).

11 The member countries were asked to provide specific information about what research, outreach, or educational actions will be taken to implement one or more of the three components from the Action Plan, and to specify the scientists who are interested and available for international collaborations. Each country gave a brief presentation of the components they were interested in participating in and the lead countries for each component summarised the outcomes and actions of the groups as follows:

Component 1: Quantifying Net GHG Emissions in Cropland Management Systems

13 The countries involved in component 1 are: Argentina, Australia, Brazil, Canada, Chile, Colombia, Denmark, France, Germany, Indonesia, Ireland, Japan, New Zealand, Norway, Spain, Sweden, UK, USA, and Uruguay.

14 The discussion was lead by Chuck Rice of the USA. The Quantifying Net GHG Emissions Group has developed their action plan outcomes and has previously provided the Group with protocols for the GRACEnet project used at US research sites. Members were asked to present current activities from their countries that could contribute to these outcomes.

15 Ongoing Activities:

- Global measurement network using consistent protocols.
- Literature review on catch crops / cover crops.
- Literature review on indirect emissions.
- Developing country specific emissions factors.
- Identifying mitigation practices.
- Inventory database of long term experiment sites.

Discussion

16 The member country presentations on component 1 are available in an electronic form on the Alliance website and a summary report from the lead countries will further detail the proposed activities and timelines for the quantifying net GHG emissions component.

17 The discussion was opened with the proposal that the net GHG emissions protocol that could be used in this component be based on the USA GRACenet protocol as a starting point and modified to suit all countries. The Croplands Group was concerned that this protocol would exclude measurement protocols already developed in other countries which have a similar aim. The Lead countries will arrange a meeting/teleconference of the interested researchers from each country so that a modified protocol can be developed and agreed to.

18 Members of this component were interested in technical workshops that would allow more researchers to learn measurement techniques and protocols, thereby increasing capability in countries that wish to develop country specific emissions factors. The Group will develop a timeline for such technical workshops and educational outreach opportunities.

19 The Group discussed extending the Croplands Research Group to cover agro-forestry activities which is of particular importance to some member countries. This addition to current activities could provide further opportunities for the Group to meet outside of the Croplands Research Group meetings, such as linking with an agro-forestry workshop in Canada and/or an irrigation workshop in Spain in 2012. The Group will look to develop a calendar of upcoming workshops and events that relate to the Group and could be accessed from the Croplands page on the Alliance website.

Component 2: Assessing GHG Emissions in Agricultural Peatlands and Wetlands

20 The countries involved in component 2 are: Canada, Denmark, Finland, Germany, Indonesia, Ireland, Japan, Norway, Sweden, UK, USA.

21 The discussion was lead by Lillian Øygarden of Norway. Since the meeting in March 2011 the Peatlands and Wetlands Group has worked on writing their section of the Action Plan, this was developed between participants in Norway, Sweden, Finland, Malaysia and Canada. The group has drafted a specific questionnaire on the management activities in countries with agricultural peatlands and wetlands which will be sent out to scientists of the countries participating in this component.

- Research will focus on:
 - Quantification of cropping systems and management practices.
 - Identifying the best cultivation practices for these lands.
 - A global network of experiment sites.
- Anticipated Products:
 - Overview and synthesis of ongoing research.
 - Regular reports of the groups activities to be posted on the website.
 - Resources for scientists and policy.

Discussion

22 The member country presentations for component 2 are available in an electronic form on the member area of the Alliance website and a summary report from the lead countries will further detail the proposed activities and timelines for the agricultural peatlands and wetlands component.

23 The discussion on this topic raised a concern of the overlapping interests with the Livestock Research Group when peatlands and wetlands are used for forage crops and grazing lands. In the case of Canada and Ireland most agricultural peatlands and wetlands are used in a livestock system.

The aim of this research is to provide recommendations for the best management of these lands with forage and grazing uses an important consideration. The issue is to be raised with the Livestock Group to ensure the boundaries are clearly defined.

24 The Croplands Group was asked to consider if component 2 should focus on projects and research relating to the restoration of wetlands as well as management of these lands in an agricultural system. The Croplands Research Group agreed that its main interest was in actively cropped lands rather than wetlands as a part of a greater system.

25 There is a meeting of the International Peat Society in Quebec, June 2012. This Society focuses on peatlands in a broader context than agriculture. However it could provide an opportunity for the Croplands Research Group to present the work of the Alliance as well as a chance to build collaborations with other networks. The Croplands Research Group could use this as a chance to meet again outside of the annual meeting. Another possible option is for the component 2 to organise its own conference at an experiment site of a member country.

26 Many countries already have experimental sites looking at different drainage systems and management as well as crops. These sites should be linked in a global network of measurements and scientists. To achieve this network a questionnaire which has already been developed will be circulated to researchers within the participating countries.

Component 3: Modeling N₂O emissions and Soil Carbon Stocks

27 The countries involved in component 3 are: Australia, Canada, France, Germany, Indonesia, Ireland, Japan, New Zealand, Norway, Spain, Sweden, UK, and USA.

28 The discussion was lead by Sylvain Pellerin of France. Members were asked to present the models experts in their country have experience with and the way they are used.

29 Ongoing Activities:

- Create a synthesis of the main models used and the best conditions for each.
- Promote linkages with the Soil C/N Cycling Cross-Cutting Group.
- List publications and reviews that use and describe N₂O emission models and soil carbon storage models.

Discussion

30 The member country presentations for component 3 are available in an electronic form on the Global Research Alliance website and a summary report from the lead countries will further detail the proposed activities and timelines for modelling C and N emissions component.

31 The Croplands Group agreed that this component primarily needs to review emissions models in a way that accounts for different agricultural management systems and compares and interprets the data from a range of experiments to explore mitigation options.

32 It was mentioned that reviews of emission models already exist, so what this project needs to do is synthesise this information for non-modellers to gain an overview of models and their purposes. A similar project to this was undertaken 10-15 years ago. The component could identify the models used in this project and see if the same ones are being considered for this effort.

33 It was initially proposed that only field level N₂O emission models should be reviewed in this project. However, the Croplands Group felt that to be worthwhile, integrated models accounting for

both carbon and N₂O should be considered as many countries already combine these emissions in one model.

34 Component 3 aims to develop a framework of criteria against which each model will be characterised. A specific model can then be easily selected based on its ability to cover a type of soil or management conditions.

GENERAL DISCUSSION

Literature Database

35 The Group was shown the Croplands Research Group literature database by Chuck Rice (USA, Kansas State University). The database is generously hosted and funded by the library at Kansas State University and allows members to share their reference library of published literature on croplands greenhouse gas emissions research with the Group. The database has been trialled by the USA and Australia and is now open to members of the Croplands Research Group for updating. To upload new references in a reference file format please contact Kansas State University library; the link is provided here (<http://www.lib.k-state.edu/gracroplands/>). To upload new references in a reference file format please email our contacts (Livia Olsen livia@k-state.edu, Tara Baillargeon tjb@k-state.edu) at Kansas State University library.

Borlaug Fellowships

36 An update on the current (2010 and 2011) USDA Global Research Alliance Borlaug Fellowships was provided to the Group. Members were reminded that the 2012 fellowships are open for applications from eligible Alliance member countries. The Fellowships are administered by the United States Department of Agriculture, Foreign Agricultural Service (FAS), (http://www.fas.usda.gov/icd/borlaug/Special_Programs/GRA/GRA%20Main.asp).

Future Meetings

37 The Group also considered ways to connect its work with other Groups of the Alliance. The Soil Carbon and Nitrogen Cycling Cross-Cutting Group are planning a meeting at 'EuroSoil' July 2012 which is also the time scheduled for the fourth meeting of the Croplands Research Group. It may be possible for a combined meeting to share the work plans of these Groups and identify any overlapping areas of work. Following the 'EuroSoil' event, Ireland has scheduled a workshop on nitrogen, the opportunity for a Croplands Research Group session is to be investigated.

38 At this stage it is proposed that the fifth meeting of the Croplands Research Group take place alongside the November 2013 ASA-CSSA-SSSA "Tri Societies" annual meeting in Tampa, Florida, USA.

CONCLUSIONS

39 The next step for the Croplands Research Group is to implement the activities from the Action Plan. Leaders for the components of the Action Plan are to provide a summary report of member countries implementation projects by **9 December 2011** including a timeline of the next steps. It is important that at least one or two activities of each component be completed before the next meeting of the Alliance Council in mid- 2012. The lead countries of each component should also consider a method for communicating the results of their groups work out to the wider research community.

40 As noted above the next meeting of the Group will be held alongside the 4th International Congress of the European Soil Science Societies 'EuroSoil 2012' in Bari, Italy, 2-6 July 2012 (<http://www.eurosoil2012.eu/>). A session within the conference has been reserved for members of the Croplands Research Group titled 'W6.1 Agricultural Greenhouse Gases; Underlying mechanisms and management'. To participate in this session, abstracts must be submitted by 10 November 2011.

APPENDIX 1: Participants List

Country	Attendees
Alliance Member Countries	
Argentina	Miguel A. Taboada: INIA (mtaboada@cnia.inta.gov.ar)
Australia	Bill Slattery: Department of Climate Change (bill.slattery@climatechange.gov.au) Peter Grace: Queensland University of Technology (pr.grace@qut.edu.au)
Brazil	Ladislau Martin: Embrapa, Brazil (ladislau.martin@ars.usda.gov)
Canada	Denis Angers: Agriculture and Agri-Food Canada (denis.angers@agr.gc.ca)
Chile	José María Peralta A.: INIA Dirección Nacional (jperalta@inia.cl)
China	<i>Unable to attend</i>
Colombia	Nestor M. Riano H.: The Columbian Coffee Growers Federation nestorm.riano@cafedecolumbia.com)
Denmark	Soren O. Petersen: Department of Agroecology, Aarhus University (soren.o.petersen@agrsci.dk) Lars J. Munkholm: Aarhus University (lars.munkholm@agrsci.dk)
Finland	<i>Unable to attend</i>
France	Sylvain Pellerin: INRA, Centre de Bordeaux-Aquitaine (pellerin@bordeaux.inra.fr)
Germany	Heinz Flessa: vTI-Institute of Agricultural Climate Research (heinz.flessa@vti.bund.de)
Ghana	<i>Unable to attend</i>
Indonesia	Deciyanto Seotopo: IAARD(deciyantots@yahoo.com) Fahmuddin Agus: Indonesian Soil Research Institute (fahmuddin@agus@yahoo.com)
Ireland	John Spink: Teagasc Crops, Environment and Land Use Programme (john.spink@teagasc.ie)
Japan	Ayaka W. Kishimoto-Mo: National Institute for Agro-Environmental Sciences (mow@affrc.go.jp)
Malaysia	<i>Unable to attend</i>
Mexico	<i>Unable to attend</i>
Netherlands	<i>Unable to attend</i>
New Zealand	Mike Beare: The New Zealand Institute for Plant & Food Research Limited (mike.beare@plantandfood.co.nz) Louis Schipper: University of Waikato (schipper@waikato.ac.nz)
Norway	Lillian Oygarden : Bioforsk Norwegian Institute of Agricultural and Environmental Research (lillian.oygarden@bioforsk.no) Signe Kynding Borgen: Norwegian University of Life Sciences, Department of Plant and Environmental Sciences (signe.borgen@umb.no)
Peru	<i>Unable to attend</i>
Philippines	<i>Unable to attend</i>
Republic of Korea	<i>Unable to attend</i>
Russia	<i>Unable to attend</i>
Spain	Alberto Sanz-Cobena: Technical University of Madrid, College of Ag (a.sanz@upm.es) Diego Abalos: Technical University of Madrid, College of Ag (diego.abalos@upm.es)
Sweden	Thomas Katterer: SLU, Department of Soil and Environment (thomas.katterer@slu.se)
Switzerland	<i>Unable to attend</i>
Thailand	<i>Unable to attend</i>
UK	Mike Roper: Agriculture and Climate Change R&D Programme Defra (mike.roper@defra.gsi.gov.uk)
USA	Alan J. Franzluebbbers: USDA-ARS (alan.franzluebbbers@ars.usda.gov) Steven Shafer: USDA-ARS(steven.shafer@ars.usda.gov) Chuck Rice: Department of Agronomy, Kansas State University (crice@ksu.edu) Nancy Cavallaro: USDA-NIFA (ncavallaro@nifa.usda.gov)
Uruguay	Jorge Sawchik: INIA (jsawchik@inia.org.uy)
Viet Nam	<i>Unable to attend</i>

Other Participants

Catherine Stewart: USDA-ARS (catherine.stewart@usda.ars.gov)

Steve Del Grosso: USDA-ARS (delgro@nrel.colostate.edu)

Sheilah Nolan: Alberta Agriculture and Rural Development (Sheilah.nolan@gov.ab.ca)

Noel Gurwick: Union of Concerned Scientists –USA (NGurwick@ucsua.org)

Secretariat: Deborah Knox, New Zealand Ministry of Agriculture and Forestry (deborah.knox@maf.govt.nz)