

**Croplands Research Group Meeting  
INRA Grignon and Palais de Congress de Versailles, France**

1 - 2 March 2011

# Meeting Report

## OVERVIEW

The second meeting of the Croplands Research Group of the Global Research Alliance on Agricultural Greenhouse Gases (“the Alliance”) was held in INRA’s Grignon Research Centre and Palais de Congress de Versailles, Versailles, France 1-2 March 2011, as part of a week of events comprising the second senior officials meeting of the Alliance.

The two day Alliance meeting was chaired by the USA (Dr Steven Shafer and Dr Alan Franzluebbbers, USDA) as coordinator of the Croplands Research Group. The meeting was attended by Alliance member and observer country representatives.

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 delegates, representing 21 Alliance member countries and two observers. For a full participants list, please refer to Appendix 1.

- **Alliance Members attending:** Argentina, Australia, Canada, Chile, Denmark, Finland, France, Germany, Indonesia, Ireland, Malaysia, Mexico, Norway, Peru, Spain, Sweden, Thailand, United Kingdom, United States, Uruguay, Vietnam
- **Alliance Members unable to attend:** India, Japan, New Zealand
- **Observers attending:** China, Korea
- **Observers unable to attend:** Brazil

## MEETING OUTCOMES

The meeting achieved the following outcomes:

- Review of the Alliance Stocktake and how the Group could make use of this information to identify future activities.
- Review of the activities the Group agreed to undertake at the last meeting.
  - Development of a library website (*in progress*)
  - Development of a Croplands researcher contact list using the stocktake database (*in progress*)
  - Update of the Alliance stocktake (*completed*)
  - Development of an inventory of protocols, guidelines, methods for soil carbon, GHG flux in crops (*early version completed and distributed*)
- A proposal for the Group to meet once a year, 2011 and subsequent odd numbers years will be held alongside the “Tri societies” annual meetings in the USA, even numbered years will be alongside other relevant international scientific meetings.
- Identification of cross-cutting issues that interface with the Croplands Research Group.
- Identification of projects/programmes/unique crop systems of relevance to the Group in participating countries.
- Agreement on the next set of goals that the Group can work towards.

### *Short term:*

- Development of plans for three proposed projects the Group will collaborate on.
- Further analysis of the stocktake.
- Identify funding opportunities.
- Use the Alliance website for group and project communication.
- Propose topics to the cross-cutting team.

### *Long term:*

- Development a searchable database, for literature, results, methods by region and country.
- Catalogue the best mitigation options and recommendations for each country.

Various countries have volunteered to coordinate the Group’s efforts to deliver against these actions. The Group will present an update on progress with the work plan to Ministers at their Summit in Rome in late June, and will meet again in October in the San Antonio, USA in conjunction with the 75<sup>th</sup> annual meeting of the “Tri Societies”.

# SUMMARY OF DISCUSSIONS

## OPENING REMARKS

1 In the opening remarks of the meeting Dr Steve Shafer, Croplands Research Group Coordinator introduced Dr Alan Franzluebbbers (Agricultural Research Service - USDA) to the group as a co-Coordinator involved with organisation of the Group.

2 The Coordinators presented an outline of the two day meeting and the hope that the outcomes would result in a programme of work and some initial projects for the Group. The Group was to consider activities that could be achieved by building on resources and projects already available.

## UPDATE FROM THE SECRETARIAT

3 The Secretariat presented an update of developments since the last meeting of the Group in November 2010 (refer separate PDF presentation). This covered the redesign of the stocktake template and a quick summary of some general data, including 30 country stocktakes returned totalling 1132 projects, of which 448 are categorised as croplands specific research.

4 The Secretariat reviewed the activities of the other two research groups as well as the finalisation of the Charter being discussed by the Governance Working Group. Also mentioned was the change in date for the Ministerial Summit, which will now take place in Rome, late June 2011. Information was presented on the Alliance's continued outreach to other organisations that have complementary goals in the area of agricultural greenhouse gases.

5 The Secretariat informed the Group of progress redeveloping the website, which should be available to all by April 2011. Changes include a more professional appearance for the public facing website, with a regularly updated news section and the ability to subscribe to receive new content. Changes to the Member's Area will allow for better sharing of data between Research Groups and any smaller subgroups they create with the ability for any user to create and subscribe to forums.

## STOCKTAKE DATABASE

6 A short presentation was given on the changes made to the stocktake from the feedback of all Research Groups, and preliminary analysis showing the type of information that can be gathered from the stocktake. Countries were requested to complete the stocktake on an annual basis, but encouraged to amend or upload new information at any time.

7 During the discussion of results countries were asked to remember that the stocktake has been designed to help structure Alliance efforts, coordinate country programmes and connect researchers. Members noted that an online web-based form might be easier for researchers to complete and could capture information more uniformly. The Secretariat noted that the complete Excel version of the stocktake and the overview analysis would be made available to members on the website.

## **PROTOCOL INVENTORY**

8 An update was given on the development of the inventory listing protocols for sampling and analysis of greenhouse gases. This project is currently making use of the work on the US GRACEnet project of protocol guidelines, provided with permission of Dr Ron Follett. The information provided to participants (in a CD format) divides the protocols into the following chapters:

1. Guidelines for site description and soil
2. Plant sampling guidelines
3. Chamber-based trace gas flux measurements
4. Micrometeorological measurements
5. Guidelines to populate the GRACEnet database template

9 The Group sought to expand the methods to include protocols from other countries, especially given other countries have already begun to collect this information in the same way. This information would be provided at the cross-cutting workshop on Friday for the other Research Group participants to discuss and add to.

## **PUBLICATIONS DATABASE**

10 A presentation was given on the advancement of a web-based literature database on agricultural croplands greenhouse gas emissions to be shared between members. This database would contain published research as well as grey papers, review and synopsis. Members would have the ability to input data themselves and the database will be linked to from the Alliance website.

11 There was a discussion on how the database design can meet the needs of the Group, whether the information held should be professional publications, reviews, synopsis and grey literature only, or if the database should have the capacity to be extended to hold the data (results tables and graphs) alongside the publications. The Group wanted to ensure the information held in the database was not already collated but is a repository of information that adds value to the work of the Group. However, there are added costs with extending the database to functions other than a literature search at this stage. The project leaders will continue development of a pilot site with input from interested countries. Outcomes from the pilot site trial will be discussed at the next meeting.

## **FUTURE MEETING STRUCTURE**

12 The Group discussed and agreed that the Croplands Research Group should meet together once a year. Any interim discussions required by the projects groups could take advantage of the website or other mediums.

13 The Coordinators proposed that for future meetings the Group meets in association with the Crop Science Society of America, Soil Science Society of America, American Society of Agronomy "Tri Societies" annual meeting every odd numbered year. During the other years the group should meet at International Science Conferences outside the USA that participants might be likely to attend.

14 The next meeting will be held at the 75<sup>th</sup> annual conference of the “Tri Societies” in San Antonio Texas, October 2011. Possible options for meetings in the following years are open for input from the Group, however some possible events were proposed:

- 4<sup>th</sup> International Congress of the European Soil Science Societies ‘EuroSoil 2012’ in Bari, Italy, 2-6 July 2012 (<http://www.eurosoil2012.eu/>).
- Tri-Societies meeting in Tampa FL, USA, 3-6 November 2013, (<https://www.acsmeetings.org/meetings>).
- 20<sup>th</sup> World Congress of Soil Science in Jeju, Korea, 8-13 June 2014, (<http://www.people-x.com/homepage/20wcsc/contact.htm>).

## UPDATES ON CROSS-CUTTING ISSUES

### Inventories and measurement issues

15 Canada gave a presentation on its ideas for facilitating the ‘Inventories and Measurement’ cross-cutting issue, with a focus on inventory methodology. They intend to summarise the various methods used in each country for agriculture and Land Use and Land Use Change (LULUC) greenhouse gas inventories by undertaking a stocktake. Planning for a sponsored Alliance workshop is underway so that researchers may share their experiences on inventory methods.

### Soil carbon and nitrogen cycle modelling

16 There was a presentation from France looking at the agenda of Friday’s workshop, to collect and share ideas on the topic of soil carbon and nitrogen cycling. 27 countries will be represented, with a report from each Research Group on what they see as important cross cutting activities and how they see the cross cutting team facilitating projects relating to soil carbon and nitrogen.

## MEMBER COUNTRY PRESENTATIONS

17 Participants were asked to bring to the meeting a proposed project for the Croplands Group to collaborate and develop. The project was to fit into one of three categories:

- A current project already underway in the member country: what are the objectives of the research and what is the cropping system studied. How could this research become a foundation for expanding into a multi-national Alliance research or tech transfer project.
- A current tech transfer or education programme underway in the member country: what are the project’s objectives, the kind of information that is being disseminated, the success that has already been demonstrated and how it could be used as a model in other countries.
- A High- priority or unusual cropping system in the member country that would be suitable for an international research project.

18 Proposals were presented by 18 countries: Argentina, Australia, Canada, Chile, Denmark, Finland, France, Germany, Indonesia, Ireland, Norway, Peru, Spain, Sweden, Thailand, UK, USA, Vietnam. Although not represented at the meeting Japan’s proposal was included in the discussion. All country proposals are attached at the end of this report (Appendix 2). Presentations are provided separately in a PDF.

19 During the ensuing discussion it was decided the presented projects could be grouped into six broad categories, which could then be discussed and developed as projects for the Croplands Group:

- Cropland management and emissions
- Data collection to develop improved regional emissions factors, to inform IPCC
- Develop and Compare Process models for estimating emissions and also decision support
- Agricultural peatlands and wetlands soils management and emissions
- Develop improve measurement techniques
- Climate field school – tech transfer to farmers

## IDENTIFICATION AND DEVELOPMENT OF PROJECTS

20 From the six project categories identified following the country presentations, the Group was then asked to select two to four projects for the Croplands Research Group to begin work on. The Coordinators asked that the projects selected have a group of countries willing to work on them. These first projects should be a starting point for the Croplands Research Group, and as such should highlight the Group's intentions to work cooperatively across countries, and be an achievable step building towards a future goal.

21 The subsequent discussion detailed how the management practices and emissions project could incorporate existing GHG measurement projects by comparing one or two measurements between each site. This would allow for the project to include a range of environments and cropping systems. Although agricultural peatlands soils were proposed as a specific sub-group within this project, the countries interested thought a separate project was needed to identify research already underway and to undertake further research on the management these soils.

22 The Group agreed comparing and recommending soil carbon and nitrogen models for different environments and cropping systems would be a logical project to begin with. Also discussed was a project on improving emissions factors however, the Group decided this work could be covered by both the management techniques and modelling projects above

### Project Identification

23 The following projects were proposed for the Group:

- Emissions in agricultural peatlands and wetlands
- Management techniques and net emissions, this project could lead to a database of results to inform models.
- Croplands should propose a modelling sub-group to work with the Cross cutting issues team, comparing process based carbon and nitrogen models and identifying the best ones to use in different systems.

## PROJECT OUTLINES

24 Once the Group had agreed on the three projects mentioned above, country representatives were asked to divide themselves identifying the one project their country had an interest in developing, and had resources to contribute. This did not mean that the countries had to commit to only one of the three projects – they could be involved with any or all of the projects that they had an interest in. A list of countries involved in each project will be circulated to the Group, and any countries who were not present at the meeting should indicate which projects they are interest in being involved with.

25 The sub-groups of each project then developed a plan for each project. Groups were required to identify a leader for the project, participants to be involved in the project (preferably scientists who could contribute to the project if not the representatives at the meeting), a plan for the project covering the objects outcomes and first steps for the group.

### 1. Net emissions associated with cropland management practices

- Coordinators: Chuck Rice (USA) and Guy Richards (France)
- Participants: All Croplands Research Group countries
- Objectives:
  - Establish a global network of experimental sites (management scenarios to increase carbon and decrease net GHG emissions); GRACEnet could be used as a framework on how this could be structured. Compare normal production, how to sequester carbon, how to reduce net emissions, how to get any additional environmental benefits. Share data with the Croplands model group.
  - Literature review of strategies to increase carbon and decrease net greenhouse gas emissions
  - Determine how to quantify indirect emissions
  - Some may plan to focus on cover crops or others of specific interest; Identified four variables, nitrogen, water, tillage practices, crop management, also grazing and manure
  - Develop database of long term experiments involving carbon and nitrogen
- Timeline: under development

### 2. Emissions in agricultural peatlands and wetlands

- Coordinator: Lillian Oygarden (Norway)
- Participants: Norway, Finland, Sweden, Canada
- Objectives:
  - Identify activities and interests globally and make use of projects ongoing in countries.
  - Develop a peatlands research questionnaire for Alliance members to complete.
  - Initiate more measurements in agricultural peatlands.
  - Build on current models to include capacity for agricultural peatlands and wetlands.

- Promote cultivation practices that reduce the greenhouse gas emissions resulting from the decomposition of peat.
- Initial activities:
  - Apply for funding – know of a source that may have an interest in this work.
  - Initiate site specific projects.
- Goal: how to best manage these soils to reduce Greenhouse gas emissions.
- Timeline: under development.

### 3. Models for carbon and nitrogen emissions:

(Interface with the Cross-cutting team)

- Coordinator: Sylvain Pellerin (France)
- Participants: France, Australia, Vietnam, USA
- Objectives:
  - Inventory of process models.
  - Gather reviews about the comparison of relevant models and upload key papers to website.
  - Characterisation of models for minimum dataset required and advise best sampling protocols.
  - Identify and make use of long-term data sets to validate the models: do we know where they are and are we using them.
  - Evaluate simple models for accuracy, for inventory purposes and for process understanding.
- Timeline: under development

## **IDENTIFICATION OF CROPLANDS CROSS –CUTTING ISSUES**

26 The Group discussed the possibility of overlaps in their projects with the work underway by the cross-cutting issues team. To avoid duplication with the cross-cutting issues and the Paddy Rice and Livestock Research Groups the groups needed to stay in close communication. Several “Inter-facing” issues have also been identified by the Croplands Group, such as manure management and livestock grazing, which will require facilitation across Research Groups. Australia as a coordinator of the cross-cutting team gave an update of croplands issues of interest to the cross-cutting team:

- Long term monitoring and measurement programmes such as Europe’s Integrated Carbon Observation System (ICOS).
- Developing the best measurement protocols and field measurement methods.
- Aligning methods with IPCC standards.
- Data sharing on emissions factors.



- Sharing information on managing high organic matter soils across Research Groups.
- Comparison of models and measurement techniques.
- Other livestock and croplands intersections such as manure management or livestock grazing.

## **CLOSING REMARKS**

27 In concluding this meeting the coordinator presented a summary of the activities discussed by the Group as would be presented at the Senior Officials Meeting the following day, and the work that will be reviewed at the next meeting of the Group in October 2011.

28 The Secretariat confirmed that a draft summary report of the meeting would be circulated for countries' comments in due course. This would summarise key points raised and outcomes agreed, and electronic copies of the Country project proposals.

29 In closing the meeting, the co-Coordiators thanked all participants for their time in France, attending a very productive meeting of the Croplands Research Group.

# APPENDIX 1: Participants List

Country	Attendees
<b>Alliance Member Countries</b>	
Argentina	<b>Miguel A. Taboada:</b> National Institute of Agriculture Technology, INTA ( <a href="mailto:mtaboada@cnia.inta.gov.ar">mtaboada@cnia.inta.gov.ar</a> )
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Canada	<b>Denis Angers:</b> Agriculture and Agri-Food Canada ( <a href="mailto:denis.angers@agr.gc.ca">denis.angers@agr.gc.ca</a> )
Chile	<b>Jose Maria Peralta:</b> National Institute of Agricultural Research, INIA ( <a href="mailto:jperalta@inia.cl">jperalta@inia.cl</a> )
Colombia	Unable to attend
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Finland	<b>Kristiina Regina:</b> Agrifood Research Finland ( <a href="mailto:kristiina.regina@mtt.fi">kristiina.regina@mtt.fi</a> )
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Germany	<b>Heinz Flessa:</b> VTI Institute of Agricultural Climate Research ( <a href="mailto:heinz.flessa@vti.bund.de">heinz.flessa@vti.bund.de</a> )
Ghana	Unable to attend
India	Unable to attend
Indonesia	<b>I. Nyoman Widiarta:</b> Indonesian Center for Food Crops Research and Development ( <a href="mailto:manwidiarta@yahoo.com">manwidiarta@yahoo.com</a> )
Ireland	<b>John Spink:</b> Teagasc ( <a href="mailto:john.spink@teagasc.ie">john.spink@teagasc.ie</a> )
Japan	Unable to attend
Malaysia	<b>Mohamad Zabawi Abdul Ghani:</b> MARDI ( <a href="mailto:bawi@mardi.gov.my">bawi@mardi.gov.my</a> )
Mexico	<b>Juan De Dios Benavides:</b> INIFAP ( <a href="mailto:benavides.juandedios@inifap.gob.mx">benavides.juandedios@inifap.gob.mx</a> )
Netherlands	Unable to attend
New Zealand	Unable to attend
Norway	<b>Lillian Oygarden:</b> Norwegian Institute for Agricultural and Environment Research, Bioforsk, ( <a href="mailto:Lillian.oygarden@bioforsk.no">Lillian.oygarden@bioforsk.no</a> )
Pakistan	Not participating in the Croplands Group
Peru	<b>Beatriz Sales Davila:</b> INIA ( <a href="mailto:bsales@inia.gob.pe">bsales@inia.gob.pe</a> )
Philippines	Unable to attend
Russia	Unable to attend
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European Commission	Unable to attend
Korea	<b>Seul Bi Lee:</b> National Academy of Agricultural Science ( <a href="mailto:seulvi23@korea.kr">seulvi23@korea.kr</a> )
South Africa	Unable to attend
<b>Secretariat:</b> Deborah Knox, New Zealand Ministry of Agriculture and Forestry ( <a href="mailto:deborah.knox@maf.govt.nz">deborah.knox@maf.govt.nz</a> )	

## **APPENDIX 2: Country Project Proposals**

See Separate PDF.