

Livestock Research Group Meeting

INRA Clermont-Ferrand and Palais de Congress de Versailles, France

1-2 March 2011

Meeting Report

OVERVIEW

The second meeting of the Livestock Research Group of the Global Research Alliance on Agricultural Greenhouse Gases took place from 1-2 March 2011 over two locations in France (INRA's Clermont-Ferrand Research Centre and the Palais de Congress de Versailles, Versailles). The meeting was part of a week of events comprising the second Senior Officials Meeting of the Alliance (other meetings are reported separately). It was chaired by New Zealand (Dr Harry Clark, New Zealand Agricultural Greenhouse Gas Research Centre) and The Netherlands (Dr Martin Scholten, Wageningen UR) as co-coordinators of the Livestock Research Group.

This report is a summary of the key discussions and outcomes from the meeting. PDFs of the presentations are provided separately, comprising: co-Chairs' summary presentation; update from the Secretariat; Non-ruminant sub-group update; Ruminant sub-group update; Preliminary stocktake analysis; Soil carbon & nitrogen cycling presentation. The Livestock Group should also refer to the meeting reports and presentations from the Research Group Plenary (Wednesday 2 March) and the Senior Officials Meeting (Thursday 3 March).

PARTICIPANTS

The meeting was attended by over 40 delegates, representing 24 Alliance member countries and four observers. For a full participants list, please refer to Appendix 1.

- **Alliance Members attending:** Argentina, Chile, Colombia, Denmark, Finland, France, Germany, Indonesia, Ireland, Japan, Malaysia, Mexico, the Netherlands, New Zealand, Norway, Pakistan, Peru, the Philippines, Switzerland, Thailand, UK, Uruguay, USA, Vietnam
- **Alliance Members unable to attend:** Australia, Canada, Ghana, India, Russia, Spain, Sweden
- **Observers attending:** Brazil, China, European Commission, Republic of Korea
- **Observers unable to attend:** South Africa

MEETING OUTCOMES

The meeting achieved the following outcomes:

- Review of activities since the last Livestock Group meeting in early October 2010 (Banff, Canada).
- Review of analysis of updated stocktake data and identification of areas for further analysis, with lead countries to coordinate this work.
- Agreement on high level principles for publishing work from the Livestock Group, intended as input to the Governance Group in their development of an Alliance-wide communications policy.
- Agreement on a draft work plan for the Group, comprising different groups of activities:

Short term specific actions:

- Further areas for analysis of **stocktake data**.
- Actions on **information and technology transfer**, e.g. development of best practice guides and technical manuals on measurement techniques and methodologies for livestock emissions.
- Actions to **build capability and capacity**, e.g. compilation of information on training courses and fellowship schemes relevant to the Livestock Group.
- Actions on **networks and databases** to help support and advance collaboration in specific research areas, e.g. manure management.
- Actions on **research collaboration**, e.g. developing links with other relevant programmes.
- Actions on **policy support**, e.g. technical synthesis reports.

Longer term and on-going activities:

- Setting an agenda for joint research efforts, networks and priorities (including technology and methodology development)
- Ensuring activities exchange information and learnings between temperate and tropical zones and vice versa
- Benchmarking methods for measurements and models
- Benchmarking the efficiency of mitigation options
- Establishing connections with other research networks and exploring integration with relevant social and economic expertise.

Various countries have volunteered to coordinate these actions under the draft work plan. The Group will present an update on progress with the work plan to Ministers at their inaugural Summit in Rome in late June 2011. The next meeting of the Group will likely be in early November 2011 in conjunction with an international symposium on non-CO₂ gases in Amsterdam, the Netherlands.

SUMMARY OF DISCUSSIONS

OPENING REMARKS

The meeting opened with an overview from the co-Chairs of the Group's origins, outcomes from its first meeting (8-9 October 2010, Canada) and progress since then. Refer to separate PDF presentation.

- 2 Of the actions agreed at the Banff meeting, the following had since been achieved:
 - (a) Complete stocktake update: DONE
 - (b) Establish sub-groups with coordinators: DONE
 - (c) Set up a database of contacts for the Livestock Group, using the existing LEARN (Livestock Emissions Abatement Research Network) database as the basis: UNDERWAY
 - (d) Discuss cross-cutting issues affecting the Livestock Group and how these should be handled: FOR DISCUSSION IN FRANCE
 - (e) Use national networks to communicate the work of the Livestock Group around the world: TO BE DONE
 - (f) Identify topic areas for immediate action in the sub-groups: FOR DISCUSSION IN FRANCE

3 The co-Chairs commented on the membership of the Group – being now every country of the Alliance, including its newest member, Thailand. They went on to outline their hopes for the meeting in France as being to agree further arrangements for the Livestock Group, including specific areas of work, as well as preparing for the report back to Ministers at their Summit in June 2011.

UPDATE FROM THE SECRETARIAT

4 The Secretariat updated participants on Alliance developments since the last meeting of the Livestock Group (refer separate PDF presentation). This covered new members, developments in the other Research Groups and the Governance Group (including the draft Charter's progress), plans for the Ministerial Summit in June, ongoing outreach to key non-government organisations (e.g. CGIAR, FAO, EU Joint Programming Initiative, World Bank) and upcoming changes to the Alliance website.

5 On the website redevelopment, the Secretariat advised that there would be a new look public website for the Alliance from April/May 2011. This would include a more user-friendly news service and the ability to subscribe to receive updates from the site. The intention is that the Research Groups actively contribute information to their pages of this public site, facilitated by the Secretariat. There would also be a new look members area for the website. This would include:

- An altered password approval process, putting the onus on each country's Senior Official to approve website access for individual country representatives.
- Community spaces for each of the Research Groups, and the ability for anyone to set up new community spaces for individual projects or activities.
- Easier format and storage facility for uploading documents.
- The ability to subscribe to receive updates from different community forums within the members area, i.e. when someone posts a new message or adds a document to a discussion.

6 When the new site is available, the Secretariat will email instructions to Alliance members on how to access the new members area and use the functionality available.

REVIEW OF SUB-GROUP ACTIVITIES

7 At the last meeting of the Livestock Group it was agreed to create two sub-groups to help focus efforts. The Netherlands and Vietnam agreed to lead a sub-group on non-ruminant livestock and New Zealand and Uruguay to lead a sub-group on ruminant livestock. It was noted that there are still a few countries to confirm their participation in either/both sub-groups.

Non-ruminant sub-group

8 The Netherlands described the process to date to coordinate the non-ruminant sub group (refer to separate PDF presentation). The sub-group has a clear emphasis on manure management, with 96% of emissions from non-ruminants coming from this source. Early ideas for future research collaboration included describing the manure chain and better understanding the impacts of manure management and the factors that really influence emissions, e.g. the animal, manure characteristics, environmental conditions, soil and crop properties etc. A literature review of mitigation options would be important, as well as developing a better knowledge of the practical application of these options. The Netherlands planned to circulate these ideas to the sub-group as a position paper by mid-April, with a view to having something ready to present to Ministers in June. The co-coordinators of the sub-group also noted they were keen to see more participation from the fast growing non-ruminant producing countries (e.g. India, Russia, Brazil, China).

Ruminant sub-group

9 At the Banff meeting, several initial activities for the ruminant sub-group were identified and New Zealand agreed to lead their coordination. An update on progress was provided to the Group in France (refer separate PDF presentation). The activities centred around the development of best practice guidance and information on various measurement techniques and methodologies concerning ruminant livestock emissions, as well as the establishment of networks of experts on mitigation research via animal genetics and genomics. There was a discussion on whether the ruminant sub-group intended to look at available mitigation options as well and it was agreed that the sub-group would move to consider this.

STOCKTAKE ANALYSIS

10 New Zealand presented a high-level analysis of the updated stocktake data (refer separate PDF presentation). The ensuing discussion acknowledged the limitations of the stocktake but confirmed its value as a “living resource” that begins to indicate the level of activity and effort on livestock emissions underway worldwide.

11 The Secretariat confirmed its intention to introduce an annual update of stocktake data, although countries are of course welcome to update their stocktakes more frequently than this. The next annual update exercise would begin in late 2011, with a deadline of January 2012.

12 The Group agreed that it would be helpful to amend the stocktake template for the next update to include an extra column that allows for more data on a project to be captured, e.g. its name, a link to any progress reports or publications. The Group also agreed that it would be helpful if the stocktake could capture more information on the research needs and priorities of individual countries.

13 The remainder of the discussion on the stocktake was focused on identifying areas of the data for further analysis. This is reflected in the draft work plan outlined in Appendix 2. In agreeing these areas, the Group acknowledged the need for any “product” of the stocktake analysis to carry a clear caveat as to the limitations of the stocktake data so as to prevent any misinterpretation or misuse of information.

LIVESTOCK RESEARCH GROUP COMMUNICATION

14 The publication of work from the Livestock Group was discussed. Some participants saw value in multi-author journal publications for drawing global attention to the contribution of the Livestock Group. However, others saw risks in this particularly if the publication was based on stocktake data, e.g. potential for misinterpretation, challenges with getting agreement from all countries that provided data etc. Three types of publications were identified:

- (a) Authored by individuals and submitted to journals;
- (b) Authored by individuals but effort made to submit a draft to Livestock Group members for review and comment, and that this process would be acknowledged in any resulting publication; or
- (c) Authored and owned by the Livestock Group or Alliance as a whole.

15 The Secretariat confirmed that the stocktake data would not be made public on the Alliance website, only high-level summaries of it as agreed by the Research Group and with appropriate caveats as per the earlier discussions. The Secretariat also confirmed that it would not be “publishing” on behalf of the Alliance (other than agreed information to the website), as the Alliance does not have a central mechanism or peer review process for doing this.

16 The Group agreed that there is a clear will to make information available about its work – whether this is by formal publication or other means, e.g. the Alliance website. However, the Group acknowledged that this is a matter that needs good practice guidance and for the whole Alliance, not just the Livestock Group. This is required so that all Research Groups are operating consistently with a central communications policy. In the first instance, this guidance should ensure:

- Acknowledgement of input from all relevant Alliance members
- Safeguarding of data usage
- Adequate consultation of relevant Alliance members before data is used for something that would be published

17 The Secretariat noted that the Governance Group had identified a need for an Alliance-wide communications policy and suggested that the Livestock Group’s request be fed into that process.

WORK PLAN – AREAS OF ACTIVITY FOR THE GROUP

18 To help the Group identify early activities for a work plan, the co-Chairs asked countries to indicate what they thought their Ministers might want to hear from the Livestock Group at the Ministerial Summit in Rome in late June 2011. In the ensuing roundtable, participants thought that their Ministers would want to know:

- How their country can contribute to the Livestock Group, and how countries would benefit in return.

- How the Group is going to help increase the productivity of livestock at the same time as reducing emissions, e.g. placing climate action in the context of food security, food safety etc.
- The added value of the Group in terms of encouraging greater international collaboration and in building capability and capacity.
- How the Group can help reduce uncertainties (e.g. better estimates for removal opportunities) and ensure greater consistency across countries (e.g. standardised methodologies).
- How the Group will help identify practical mitigation options at the farm level, both in the short and longer term.
- How the Group would connect to other, related initiatives and organisations, and potentially access funding from these.

19 This list of potential Ministerial expectations then set the scene for a discussion on a work plan for the Group, from now until June and beyond.

20 The co-Chairs presented a possible way to structure the Group's activities, according to two key areas of effort:

- Developing a common understanding between Group members:** for example through stocktake analysis, information and technology transfer activities e.g. best practice guidance, and capability development e.g. fellowship awards.
- Concerted research efforts:** for example establishing expert networks and data sharing arrangements, collaboration projects, and work to support policy development, e.g. synthesis reports.

21 The Group discussed the different kinds of activities that it could seek to achieve in these areas, which countries might be able to lead particular projects, and how this might all fit together to form a work plan for the Group – both in the short term and the longer term. (Refer to the PDF presentation of the co-Chairs' summary for details). It was agreed that some of these activities should aim to be completed before the end of June 2011, or at least to have substantial progress made, in order to be able to be presented at the Ministerial Summit. Longer-term activities may not start until later in the year or even 2012 and would require further discussion of the Group before commencing.

22 Appendix 2 converts this discussion into a draft work plan for the Livestock Group, based on the activities identified. Lead countries were invited to indicate the likely timing of their activity, with the Secretariat providing for this as part of the meeting follow-up. Countries that were unable to attend the Livestock Research Group meeting but that would like to contribute to any of the activities underway would be invited to notify the co-Chairs as soon as possible.

CROSS-CUTTING ISSUES

23 France presented the work to coordinate the cross-cutting issue of Soil Carbon & Nitrogen Cycling (refer separate PDF presentation), ahead of the scientific workshop on Friday 4 March. Clear links were established to the Livestock Group's work in terms of C&N cycling issues in grassland soils. It was noted that the soil C&N group could seek to deliver the Research Groups with improved and

simplified models that can help address farm scale issues; as well, they could assist with advice and evaluation on the different available modelling tools and exchange of data.

24 As well as the cross-cutting issue of soil C&N cycling, the Group identified several other issues of interest:

- **Improvement of national inventories, including linking to the IPCC:** there is a need for capacity building in countries to ensure the data used in national inventories can inform IPCC work, as well as training for common methodologies and tools and improving activity data.
- **Carbon footprint analysis / Life Cycle Assessment (LCA) issues:** This issue needs an Alliance wide discussion given the extent of work on carbon footprinting/LCA underway in other forums e.g. ISO work to develop standardised methodologies.
- **Methods for basic measurements and emissions factors:** This issue needs addressing across all the Groups so should be taken to the cross-cutting coordinating countries.

25 The Group also identified several “interfacing issues”, i.e. issues that touch upon the work of other Groups but that are not necessarily “cross-cutting”. These included:

- **The need for Alliance-wide guidelines for publications:** referred to the Governance Group.
- **Manure application in croplands and rice fields:** to be addressed by the non-ruminants sub group.
- **Application of ‘rest products’ from and between livestock production in croplands and rice fields:** referred to cross-cutting coordinators.

26 It was agreed that all cross-cutting and inter-facing issues discussed in the Livestock Group meeting (e.g. paragraphs 24-26 above) would be raised at the Research Group Plenary meeting, taking place the afternoon of 2 March and then again at the Senior Officials Meeting on Thursday 3 March. There are separate reports for these meetings, but the following conclusions from them will be of interest to the Livestock Group:

Cross-cutting issues

- France and Australia will continue to coordinate **soil C&N cycling issues** across the Groups.
- Canada will coordinate work to help improve **national inventory issues** across the Groups.
- Alliance Senior Officials are aware that **carbon footprinting/LCA issues** are a matter of interest to the Groups but want further discussion on this before any work commences. The Netherlands has offered to help start this.

Inter-facing issues

- All Groups have identified the **development of protocols and guidelines for measurement methods** as a priority for early action. Sharing information about these activities via the members area of the Alliance website will help address any overlaps or duplication of effort. Canada and Australia have also volunteered to help coordinate this.

- **Taking a systems approach**, i.e. integrating Alliance activities within agricultural systems, will be important for all the work of the Research Groups. This is something to keep in mind for the medium term.

CLOSING REMARKS

27 The Netherlands suggested that the Group might next meet in early November 2011 in conjunction with an existing international conference in Amsterdam, the 'Sixth International Symposium on Non-CO2 Greenhouse Gases (NCGG-6)'. The Group agreed with this suggestion, noting the need to allow time at this meeting for the two sub-groups to meet. The proposed November meeting should focus on reviewing efforts between now and then, as well as discussing longer-term activities (refer to the draft work plan in Appendix 2).

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 would attempt to condense the activity list into a draft work plan. The Secretariat also reiterated the changes that were being made to the Alliance website, noting that this should help the Livestock Group progress its work in the coming months.

29 The co-Chairs confirmed that the Livestock Group would report back to Ministers at the June Summit on the Group's vision, its intended benefits, its activities and the help needed from countries. In closing the meeting, the co-Chairs thanked all participants for their time in France. They said that this had been a very productive meeting of the Livestock Group, enabling a number of important issues to be progressed. They noted that commitment to the Group's success was very high and it had a great spirit, setting us up well for moving into the working phase.

APPENDIX 1: Participants List

Country	Attendees
Alliance Member Countries	
Argentina	Laura Finster, INTA; Guillermo Berra, INTA (lfinster@cnia.inta.gov.ar)
Australia	Unable to attend
Canada	Unable to attend
Chile	Marta Alfaro, INIA (malfaro@inia.cl)
Colombia	Miguel Ayarza, CORPOICA (mayazam@gmail.com); Olga Lucia Mayorga (lmayorga@corpoica.org.co)
Denmark	Peter Lund, Aarhus University (peter.lund@agrsci.dk)
Finland	Marketta Rinne, MTT Agrifood Research (marketta.rinne@mtt.fi)
France	Jean-François Soussana, INRA (dsenv@paris.inra.fr); Diego Morgavi, INRA (morgavi@clermont.inra.fr); Philippe Lecomte, CIRAD (philippe.lecomte@cirad.fr)
Germany	Karl-Heinz Südekum, University of Bonn (ksue@itw.uni-bonne.de)
Ghana	Unable to attend
India	Unable to attend
Indonesia	Amlius Thalib, Indonesian Centre for Animal Science Research (am_thalib@yahoo.com)
Ireland	Padraig O'Kiely, TEAGASC (padraig.okiely@teagasc.ie)
Japan	Takashi Osada, National Agriculture and Food Research Organisation (osada@affrc.go.jp)
Malaysia	Mohd Saufi Bastami, MARDI (msaufi@mardi.gov.my)
Mexico	Luis Ortega-Reyes, Ministry of Agriculture (SAGARPA) (luis.ortega@sagarpa.gob.mx); Sergio Gomez Rosales, INIFAP (gomez.sergio@inifap.gob.mx); Mario A Cobos Peralta, Colegio De Postgraduados (cobos@colpos.mx)
Netherlands	Martin Scholten, Wageningen UR (martin.scholten@wur.nl); Jac Meijs, Wageningen UR (jac.meijs@wur.nl); Paul Vriesekoop, Wageningen UR (paul.vriesekoop@wur.nl)
New Zealand	Harry Clark, NZ Agricultural Greenhouse Gas Research Centre (harry.clark@nzagrc.org.nz); Andy Reisinger NZ Agricultural Greenhouse Gas Research Centre (andy.reisinger@nzagrc.org.nz)
Norway	Odd Magne Harstad, Norwegian University of Life Sciences (odd.harstad@umb.no)
Pakistan	Dr Muhammad Akram, Ministry of Livestock & Dairy Development (muhammadakram422@yahoo.com)
Peru	Cesar Osorio, INIA (cosorio@inia.gob.pe)
Philippines	Efren Nuestro, Bureau of Animal Industry (ec_nuestro@yahoo.com)
Russia	Unable to attend
Spain	Unable to attend
Sweden	Unable to attend
Switzerland	Michael Kreuzer, ETH Zurich (michael.kreuzer@inw.agrl.ethz.ch)
Thailand	Arux Chaiyakul, Department of Livestock Development (aruxch@yahoo.com)
UK	Pinder Gill, DEFRA (pinder.gill@defra.gsi.gov.uk)
USA	Nancy Cavallaro, USDA (ncavallaro@nifa.usda.gov)
Uruguay	Veronica Ciganda, INIA (vciganda@inia.org.uy)
Vietnam	La Van Kinh, Institute of Agricultural Sciences for Southern Vietnam (lakin@hcm.fpt.vn)
Observers	
Brazil	Claudio Carvalho, EMBRAPA (chgeral@cpatu.embrapa.br); Rene Pocard, EMBRAPA (pocard@cirad.fr)
China	Dong Hongmin, Chinese Academy of Agricultural Science (donghm@ieda.org.cn)
European Commission	Jean-Charles Cavitte, DG Research (jean-charles.cavitte@ec.europa.eu)
Korea	Kyu-Hyun Park, National Institute of Animal Science (kpark74@korea.kr)
South Africa	Unable to attend
Secretariat: Laura Hogg, NZ Ministry of Agriculture and Forestry (laura.hogg@maf.govt.nz)	

APPENDIX 2: Draft Work Plan for the Livestock Research Group: 2011-2012

A series of short term (i.e. during 2011) and longer-term (i.e. from 2012 onwards) activities for the Livestock Group emerged from its meeting in France, 1-2 March. These are presented as a draft work plan for the Group's consideration and comment. Lead countries are shown in bold and are invited to indicate their anticipated date for completion of the activity.

Short-term activities

The following table summarises the short-term activities identified. Note that this includes some activities already underway through other forums, e.g. the FONTAGRO project (CC1) and the EU Joint Programming Initiative etc (RC2). Countries suggested these activities be listed in the table as they already involve a number of members of the Livestock Group and so are important ones for the Group to connect to.

ID	Short term activities	Lead and/or participating countries	Anticipated date for completion
S	Actions on the Stocktake		
S1	Continued basic analysis of stocktake results, building on the analysis presented in the March meeting	New Zealand, Switzerland, supported by all countries providing annual stocktake updates	Ongoing but June release date for first summary
S2	Gaps analysis to identify whether current research efforts matches research needs (e.g. why research is less in some areas than others, despite contribution to emissions – buffalo, sheep, goats), and also to identify options for capability building and development.	France and USA	<i>Lead countries to complete</i>
S3	Linked to S2, global (spatial) mapping of research efforts compared to other data e.g. livestock emissions / animal populations / (regional) diversity in production systems / economic value	Chile and Uruguay	<i>First draft 30/05/2011 (no systems or economic analysis)</i>
S4	Identifying key factors (e.g. feed, housing) and their relationship to emissions to identify options for mitigation (and their interaction with adaptation)	New Zealand and the Netherlands	<i>Lead countries to complete</i>
S5	Using the stocktake to begin to identify specific capability needs in developing countries (linked to S2 and RC3 but taking a bottom-up approach)	Mexico	<i>Lead countries to complete</i>
S6	Using stocktake data to join up manure management issues and methodologies across both ruminants and non-ruminants sub-groups	Netherlands	<i>Lead countries to complete</i>
S7	Further analysis to better understand the differences in project size and duration, e.g. 50% of projects only have funding for 1-2 years	UK	<i>Lead countries to complete</i>
IT	Actions on Information and Technology Transfer		
IT1	Co-authoring of a best practice guide to CH4 measurements using SF6 tracer technique for distribution to all Alliance members	Argentina, Australia, Brazil, Canada, France, Ireland, New	<i>Lead countries to complete</i>

		Zealand, USA	
IT2	Co-authoring of a best practice guide to using chambers to measure N2O emissions from soils for distribution to all Alliance members	Argentina, Australia, Canada, Chile, Denmark, Japan, New Zealand , UK, Uruguay, USA	<i>Lead countries to complete</i>
IT3	Co-authoring a technical manual on alternative designs for low cost CH4 respiration chambers for distribution to all Alliance members	Australia, Belgium, Brazil, Canada, Denmark, Ireland, New Zealand , Spain, UK	<i>Lead countries to complete</i>
IT4	Co-authoring a best practice guide to measuring soil carbon content of agricultural soils	May already be led by Croplands Group?	
IT5	Catalogue of high level information on existing technologies for mitigation – conducted as an addendum to the stocktake exercise (could be done at same time as CC5 and RC3)	New Zealand / Secretariat with input from all countries	April?
CC	Actions to build Capability and Capacity		
CC1	FONTAGRO project underway to reduce in Latin America to reduce the uncertainty in national GHG beef cattle inventories, test mitigation options and strengthen research capacities	Argentina, Chile, Colombia, Dominican Republic, Uruguay	<i>Lead countries to complete</i>
CC2	Newly launched ‘Global Research Alliance Senior Scientist (GRASS) Awards’ to build capacity and mutually beneficial partnerships between New Zealand and other Alliance member countries	New Zealand , all Alliance members	Open-ended application process
CC3	LEARN (Livestock Emissions Abatement Research Network) Trainee and Post Doctoral Fellowships to build capacity and capability in developing countries through training in New Zealand research institutions	New Zealand , all developing countries	Open-ended application process
CC4	Global Research Alliance Borlaug Fellowships to build capacity and capability in developing countries through training in USDA institutions and/or US universities	USA , all Alliance developing country members	Ongoing
CC5	Compilation of information on other relevant training and fellowship opportunities for the Livestock Group, made available via the website (information gathering could be done at the same time as IT5 and RC3)	New Zealand / Secretariat with input from all countries	April?
ND	Actions on Networks and Databases		
ND1	Establishment of a Rumen Microbial Genomics Network	Australia, Argentina, Canada, France, Ireland, Japan, New Zealand , UK, USA	Has commenced and will be ongoing
ND2	Development of a global database of rumen microbial community structures	Argentina, Australia, Brazil, Canada, Chile, Colombia, Dominican Republic, France, India, Ireland, Mexico, New Zealand , Peru, Uruguay, EU members involved in Animal Change	Has commenced and will be ongoing
ND3	Establishment of an animal genetics and genomics data sharing network	Australia, Canada, Ireland, Netherlands, New Zealand , USA	Has commenced. Workshop planned in NZ in May
ND4	Identification of regional “Flux Networks” to	France, USA to seek	<i>Lead countries to</i>

	encourage a global network	information from other countries	<i>complete</i>
ND5	Establishment of a Manure Management Network	Non-ruminant sub group	<i>Lead countries to complete</i>
ND6	Establishment of a network on feed and nutrition in relation to greenhouse gas emissions, similar to the networks in ND1 and ND3	Switzerland, the Netherlands , with all interested countries	<i>Lead countries to complete</i>
RC	Actions on Research Collaboration		
RC1	Rapid-low cost automated enteric CH4 measurement	Australia, Canada, New Zealand , USA	<i>Lead countries to complete</i>
RC2	Linking with the EU Joint Programming Initiative on Food Security, Agriculture and Climate Change	France and other EU Alliance members	<i>Lead countries to complete</i>
RC3	Identification of further specific options and opportunities for joint research within the Livestock Group (could be done at same time as IT5 and CC5)	All countries via the sub-groups	April?
RC4	Extension of the AnimalCHANGE network wider than the actual project partners	France and project partners	<i>Lead countries to complete</i>
PS	Actions on Policy Support		
PS1	Support to IPCC 5 th Assessment Report – compilation of published and ‘grey’ literature on mitigation of enteric CH4 emissions from ruminant livestock	New Zealand with all other Alliance countries	November 2011
PS2	Technical Synthesis report on manure management options	Netherlands with other Alliance countries	June 2011
PS3	Technical Synthesis report on feed and nutrition options	Netherlands with other Alliance countries	June 2011
PS4	General identification of critical factors related to GHG emissions, options for mitigation, and the impacts of those options	All countries, led by the Netherlands and New Zealand	Ongoing

Longer-term activities

As well as the above shorter term activities, the Group began collecting ideas for longer-term ambitions. These included:

- Maintenance and regular updating of stocktake data
- Linking to relevant programmes and initiatives underway in other organisations, e.g. CGIAR ‘Climate Change and Food Security’ (CCAFS) programme, and FAO ‘Mitigation of Climate Change in Agriculture’ (MICCA) project.
- Setting an agenda for joint research efforts, networks and priorities (technology and methodology development)
- Exchanging information, technologies and methodologies from temperate to tropical zones and vice versa
- Benchmarking methods for measuring fluxes from animals, manure, farm systems and grasslands
- Benchmarking the efficiency of mitigation options and developing a forecast scenario study to help support policy development (linked to PS4 above)
- Assessing the links to Life Cycle Analysis work underway in other forums and the possibility of a platform of experts from the Livestock Group
- Exploring the integration with social and economic science expertise, including farmer awareness and involvement