

Livestock Research Group Meeting

Jogjakarta Plaza Hotel, Jogjakarta, Indonesia,
14-15 November 2014

Meeting Report

OVERVIEW

The sixth meeting of the Livestock Research Group (LRG) of the Global Research Alliance on Agricultural Greenhouse Gases (“the GRA”) was held at Jogjakarta Plaza Hotel, Indonesia on Friday 14 and Saturday 15 November. The meeting followed the 16th Asian-Australasian Animal Production Congress. The meeting was co-chaired by New Zealand (Dr Harry Clark, New Zealand Agricultural Greenhouse Gas Research Centre) and the Netherlands (Dr Martin Scholten, Wageningen UR) as the country Co-chairs of the LRG.

This report is a summary of key discussions, action points and outcomes from the meeting. Presentations are provided separately as PDFs on the Alliance Website.

PARTICIPANTS

The meeting was attended by Alliance representatives from 21 member countries, two observer countries and other invited guests:

- **Alliance Members attending:** Argentina, Chile, Colombia, France, Indonesia, Ireland, Italy, Japan, Malaysia, Mexico, The Netherlands, New Zealand, the Philippines, Spain, Sri Lanka, Switzerland, Thailand, United Kingdom, United States of America, Uruguay, Vietnam.
- **Alliance Members unable to attend:** Australia, Belgium, China, Denmark, Germany, Sweden.
- **Observer countries attending:** India and Bangladesh.
- **Invited Guests attending:** Global Agenda on Sustainable Livestock.

Refer to Appendix 1 for the full participants’ list.

MEETING OUTCOMES

The meeting achieved the following outcomes:

Stocktake of work to date:

- The Co-chairs and their support team will undertake a high level review of countries activities. This will be based on information provided by LRG member countries. It will be submitted to the GRA Council to highlight progress, identify barriers to enhanced action, and facilitate the mobilisation of resources to deliver on the goals and expectations of Council.

Research Networks:

- The Co-chairs will continue to develop an integrated approach with the network-coordinators team.
- The Grasslands Research Network (GRN) will prioritise the development of broader, global connections. India will assist with this by facilitating a regional grassland network for South Asia.
- The Manure Management Network (MMN) will revise its governance structure and develop a new focus looking at manure as an asset within the farm system.
- The Animal Health and greenhouse gas (GHG) Emissions Intensity Network (AHN) will progress the idea of holding a workshop in Chile during November 2015.

Research Collaboration:

- The LRG will continue its focus on current flagship collaborative research and implementation projects, which are:
 - The Climate and Clean Air Coalition (CCAC) Manure Kiosk.
 - CCAC/Food and Agriculture Organisation (FAO) Global Livestock Environmental Assessment Model (GLEAM) Enteric Fermentation Regional Mitigation Packages.
- The Co-chairs will facilitate connections of research activities within the scope of the LRG to European Union (EU) funding programmes.
- The Co-chairs will seek to develop a Roadmap for cooperation with Sustainable Agriculture Initiative (SAI), building on the completion of the joint LRG/SAI brochure on mitigation options.

Capability Building:

- Sustain the developed cooperation between the Fontagro Project and the South East Asia Project
- Continue engagement programme for Africa (New Zealand, the Netherlands; others to join?)
- Find opportunities to organize training programmes (technical guidance, methodology).
- Promote talent exchanges.
- Explore possibilities for EU/ Association of South East Asian Nations (ASEAN) programme with support from NZ and Japan.
- Look for opportunities to integrate capability building into broader implementation projects and their links with national development objectives.

Policy:

- The Co-chairs and their support team will develop a document that demonstrates the benefits of improved understanding and management of GHG emissions intensity for achieving national development goals.
- The LRG will intensify its interaction with the FAO Global Agenda for Sustainable Livestock (GASL), via the 'restoring value to grasslands' and the 'Waste-to-Worth' thematic work streams and the MMN and GRN of the LRG.

Communication:

- The Co-chairs will develop a brochure to communicate and highlight the achievements of the LRG over its past 4 years of existence, as part of an Alliance-wide effort to improve and increase communication about the Alliance. This brochure will draw strongly on material and inputs to be provided by LRG member countries.
- The Co-chairs will collect documentation (including photographs and videos) from LRG member countries to illustrate the global diversity of livestock mitigation activities, to be used in the publication of the LRG brochure and other communications initiatives.

- The Co-chairs will compile and circulate a general “introduction to GRA/LRG”-PowerPoint presentation to LRG members, to facilitate communication
- The Co-chairs and their support team will develop a webpage of examples from LRG member countries that showcase current activities that reduce the emissions intensity of livestock production, along with any barriers to their implementation and enabling factors to support upscaling of activities

SUMMARY OF DISCUSSIONS

OPENING REMARKS

1. The sixth meeting of the LRG was opened by *Dr Bess Tiesnamurti, from the Indonesian Agency for Agricultural Research and Development (IAARD)*, as the meeting host. Dr Tiesnamurti welcomed participants to Indonesia.
2. The co-chairs set out their expectations from the LRG meeting, by setting the goal to develop a work plan that is inclusive of members needs and expectations while recognizing different levels of resources and capability available.
3. The Co-chairs noted a significant shift in approach since the FAO report “Livestock’s long shadow” in 2006, in which livestock was characterised mainly as a problem for climate change. Now the focus is much more on solutions, recognising the important contribution that improving the efficiency of livestock production can make. The Co-chairs also highlighted the importance of the work of the LRG research networks. This is where scientists have the opportunity to collaborate on new ambitions that make a difference while improving the global understanding of the issues.
4. The LRG also needs to realise that striving towards solutions is not enough, and it needs to strive to implement solutions by working with partners from international policy, industry, and farmer organisations.
5. Africa is a region where the GRA has not been very active, but should be part of our actions. The LRG needs to have an open eye on how to engage African countries and organisations even before they are members.
6. The current flagship activities of the LRG are:
 - Manure management
 - Enteric fermentation
 - Capability building
 - Research networks
 - Communications

UPDATE FROM THE SECRETARIAT

7. The Secretariat was unable to attend the meeting. The LRG Co-chairs therefore provided the Secretariat update to participants on developments in the Alliance since the last LRG meeting in June 2013. This concentrated on outcomes of the Council meeting in The Hague, June 16-19 2014 and an overview of the activities underway in other Research and Cross-Cutting Groups of the Alliance.

Key outcomes of the Council meeting of relevance to the LRG included:

8. Build on the achievements of the GRA and promote activities in which the GRA has added value.

- Alignment with other global platforms and initiatives: including identifying new Partners.
- Expanding membership and outreach beyond Members.
- How to strengthen cooperation with Partner organisations.
- Identifying synergies between adaptation and mitigation.
- Increasing impact at the policy level and transfer of knowledge to farmers.

STOCK TAKE OF WORK TO DATE

9. *Andy Reisinger* introduced the key findings from recent Intergovernmental Panel on Climate Change (IPCC) assessment reports. He illustrated the widespread evidence of climate change and the impact on agriculture but comparable absence of documented impacts on livestock. He also provided an overview of options to reduce the emissions intensity of livestock production, drawing on the IPCC assessment and recent reports by the FAO. He concluded by pointing to the important contribution from increased efficiency to meeting global mitigation goals in the context of food security, but also the important additional role that research to expand this mitigation potential could play especially to support ambitious global mitigation targets. The work of the LRG addresses both those aspects.

10. *Neil Frazer* updated meeting participants on the work of the *Global Agenda for Sustainable Livestock (GASL)* and its potential linkages with the LRG. The GASL sees the relationship with the GRA as very important to its work. The GRA develop the solutions, techniques and technologies and the GASL through its governance structure and work pillars can assist to implement these on the ground and start the dialogue with policy.

Country Activities: Roundtable discussion

11. Members provided an update on activities in support of the goals and objectives of the Alliance and the LRG that are taking place in their country, and new research funding that has been made available to support the work of the Alliance.

12. The discussion after the country round table focused on the issue of resource mobilisation, and the importance of linking the work of the LRG with broader policy objectives at national levels, both in the GRA Council and also in individual countries. It was agreed by the LRG members that a high level review of countries activities to date, including successes and barriers to enhanced action, would demonstrate the benefit of undertaking collaborative research and implementation to deliver on the broader policy goals of countries. The review would seek to facilitate a dialogue between scientists and policy on issues of resourcing and research translation. The review will be compiled by the LRG Co-chairs based on information from LRG member countries and circulated for review in early 2015. After completion, it will be sent to Council representatives by the LRG co-chairs. Countries were requested to update, if necessary and relevant for this review, their country presentations and send those to the Co-chair support team by the end of December 2014.

RESEARCH NETWORKS AND DATABASES

13. Meeting participants were provided with an update of activities in the various research networks. In introducing the session, the LRG Co-Chairs noted that the network coordinators had met for dinner prior to the start of the LRG meeting. This had been a very constructive exchange of

ideas and lessons learnt. They would seek to further support interactions between the networks, given their overlapping and synergistic roles in reducing emissions intensity of livestock systems.

Grasslands Research Network

14. The report from the *Grasslands Research Network (GRN)* was presented by *Veronica Ciganda (INIA, Uruguay)*. The work of the network is divided into six regions. Representatives from five of the six regions met in Madrid (May 2014), to discuss the feasibility of undertaking a global stock take of grasslands and rangelands research.

15. Latin America has made progress on its stock take which involves four countries (Brazil, Chile, Uruguay and Costa Rica). Forty six research projects are on-going with information about carbon sequestration and GHG quantification. A workshop will be held in Latin America in March 2015 funded by INIA where Uruguay will discuss the results of the stock take and next steps for this region.

16. Work planning for the GRN for the following year will include:

- Engaging more GRA countries in the GRN.
- Enlargement of the Stocktake to show regional/global analysis of GHG on grasslands.
- Building relationships with other networks and global activities to identify areas where the GRN can make the biggest contribution (which may vary between regions).

Feed and Nutrition Network

17. The report from the *Feed and Nutrition Network (FNN)* was presented by *David Yanez Ruiz from Spain*. The FNN network members are interested in studying nutrition based interventions to mitigate GHG emissions. The main objectives of the FNN are summarizing and evaluating the available data on mitigating GHG from ruminants by nutritional means; identifying gaps in knowledge, avoid duplication in research and focus on priorities issues; and developing sound recommendations for stakeholders on CH₄ mitigation by nutritional means.

18. The FNN has held three meetings and has members from 23 different countries. In the short and medium term, the FNN wants to:

- Obtain deep insight on state of the art technology in the field by publishing papers and developing best practice guidelines.
- Identify gaps of knowledge and avoid duplication.
- Provide robust information on the efficacy of different practices to reduce the emissions intensity of livestock systems in different regions of the world

19. The Network received funding through the FACCE JPI for the project titled “GLOBAL NETWORK for the development and maintenance of nutrition-related strategies for mitigation of methane and nitrous oxide emissions from ruminant livestock”. The Objectives of the project are:

- Collate information in a CH₄ and N Database: FEED and ANIMAL (FAO database) – individual data
- Consider genetic and microbial factors to variation in CH₄ emissions
- To validate markers
- To develop Standard Operational Protocols for in vitro and in vivo measurements
- To identify and recommend mitigation technologies

Manure Management Network

20. The report from the *Manure Management Network (MMN)* was presented by *Julio Mosquera from Wageningen UR*. The main focus of the group over the past years has been on developing the first phase of the CCAC-funded manure kiosk project which is run through the MMN in collaboration with the GASL. The CCAC manure kiosk project was considered as a key example of how the expertise in the LRG can partner with other organisations that focus on implementation to achieve effective, science based benefits to farmers.

21. The MMN has widespread collaboration; Livestock and Manure Management Component (CCAC) (Manure Kiosk); GASL: Action Area "Waste to Worth"; Livestock Environmental Assessment Programme (LEAP): developing Guidelines for calculating environmental impacts; Waste 7: cooperation in Europe, with other countries outside Europe (China, Australia, and others).

22. The MMN considers that focusing on manure as a source of emissions does not lead to joint projects and cooperation. Therefore the group would like to shift the scope of the group to consider Manure Management as a way to increase and retain nutrients in the system. The new focus for the group would be on nutrient and energy recovery; reduced inputs (resources); and reduced emissions.

23. Work planning for the coming year for the MMN will include:

- The development of a practical mitigation options/user guide and best practice guide for GHG emissions from manure;
- The consolidation and expansion of the CCAC Manure Knowledge Kiosk;
- Improved communications across the group, and revise its governance structure to ensure balanced representation and inputs from different regions

Rumen Microbial Genomics Network

24. *Bill Kelly from AgResearch, New Zealand* presented the *Rumen Microbial Genomics Network (RMG)* update on behalf of the Network coordinators.

25. RMG network members are currently collaborating in two key network projects that draw on the sharing of data and expertise across Alliance member countries. The Hungate1000 is a project to sequence 1000 rumen micro-organisms, and the Global Rumen Census is a project to identify differences in rumen microbial populations. Both these projects are key examples of achieving research results that would not have been possible by countries acting in isolation. They can inform the development of many mitigation strategies that rely on better understanding of the rumen microbial landscape. Both projects come to an end in 2014-2015.

26. The Network will look to build on these two projects to develop future activities in the coming 12 months.

Animal Selection, Genetics and Genomics Network

27. *Yvette de Haas from Wageningen UR* presented the *Animal Selection Genetics and Genomics Network (ASGGN)* update on behalf of the Network coordinators.

28. There are currently three working groups of the ASGGN. 1) the Methane Phenotype working group. 2) the International Committee for Animal Recording (ICAR) Greenhouse Gases working group. 3) the Adaptation/Mitigation synergies working group.

29. The Methane Phenotype working group was established in 2012. It has discovered that methane emissions are both heritable and repeatable. Also that there are many different measurement systems and there is a need for correlations between measurement methods on same animals. This group has since published a White paper (on website); a review article in the journal

Animal (under revision) “Genetic possibilities to reduce enteric methane emissions from ruminants” by Pickering, Oddy, Basarab, Cammack, Hayes, Hegarty, Lassen, McEwan, Miller, Pinares-Patiño, De Haas; and an invited review in *Journal of Dairy Science* (in preparation) “Phenotypes to genetically reduce GHG emissions in dairying”.

30. The ICAR Greenhouse Gases working group was formed in 2013. The group intends to build “Consensus on ... protocols to harmonise the sharing and comparison of international data ... a protocol to measure methane from breath analyses ... animal identification ... standardised trait definitions including proxy traits”. Work for the group during the next 12 months will focus on setting standards for trait specification by developing an ICAR approved database, which is built on global collaboration not ad-hoc meta-analysis.

31. The Adaptation/Mitigation synergies working group was formed in 2014 after the Dublin ASGGN meeting. While the group is in its infancy, it aims to study livestock systems in developing countries where low quality diets, heat stress, extreme environments, disease and parasitism are issues. Animal selection, genetics and genomics can strengthen resilience while also delivering emissions intensity reductions in these countries.

32. For the next 12 months the ASGGN will concentrate on

- Finalising reviews in peer reviewed journals
- Establishing the ICAR database with data
- Performing meta-analysis on comparing and combining international CH₄ data
- Preparing a White paper on adaptation strategies to present at the next meeting, which will be in the margins of the Greenhouse Gases in Animal Agriculture conference (GGAA), Feb 2016.

Animal Health and Greenhouse Gas Emissions Intensity Network

33. *The Animal Health and GHG Emissions Intensity Network (Animal Health)* update was provided by *Professor Ilias Kyriazakis*, as the Network co-coordinator. The Network aims to improve interactions between greenhouse gas and animal health researchers and identify common priority issues. This includes links with more traditional animal health and agricultural rural development programmes. The Network is developing relationships with other organisations such as the Global Network for animal disease research (STAR-IDAZ).

34. The objectives for the network are to:

- Share information on current and planned research and funding activities.
- Maintain and enhance capacity in this field of research.
- Encourage and facilitate a joined-up approach.
- Establish common agreement on priority issues and explore funding opportunities.
- Pursue synergies with stakeholders and other relevant initiatives.

35. The network held its first global workshop in Dublin in March 2014, and its first regional workshop in November 2014 in Ethiopia. The workshop coincided with the 40th Birthday Celebrations for International Livestock Research Institute and also the STAR-IDAZ regional meeting. Those present at the meeting discussed the option for the Network to focus (in Africa) on higher value dairy systems where there are significant inefficiencies present and opportunities and incentives to improve production efficiency by improving the understanding of health measures amongst farmers.

36. Over the next 12 months, the network will focus on undertaking the following:

- Develop a scoping study on targeting animal health interventions to reduce GHG emissions intensities and seek funding for relevant work.
- Develop a short scoping document on benefits of the Network to different industries.
- Identify a 3rd Network Co-ordinator (GRA member country, different world region).
- Continue to develop and pursue the Network priorities.

37. In summing up the discussion from the Research Networks the co-chairs commended the integrative approach amongst the networks. However they also noted there is still work to be done to attract more countries to actively participate in the networks (particularly ASGGN, GRN and AHN), balance the interest from science and farmers, and recognize that global diversities exist and need to be embraced for the networks to succeed. The co-chairs recommended that the:

- ASGGN encourage a wider participation from missing countries to ensure it covers the whole spectrum of animals and systems.
- RMGN consider its next activities and focus after the conclusion of current projects to help inform practice.
- FNN consider implementing regional groups within the network.
- AHN hold a workshop in Latin America in 2015 to encourage membership.
- GRN build upon regional networks and broaden its links around the existing modelling team in the Soil Carbon & Nitrogen Cross Cutting Research Group and the GASL.
- MMN to reframe its research question to consider manure as an asset in the livestock system; this will enable the group to strengthen its focus on finding practical technical solutions for farmers.

CAPABILITY BUILDING AND ENGAGEMENT

38. Invited presentations were delivered by representatives of Malaysia, Thailand, and Indonesia. Each representative told the LRG why work in livestock GHG emissions mitigation was important in their particular country and reflected on experiences and lessons from work over the past 12-18 months. The presentations also emphasised:

- The value is in improving the national livestock GHG inventory.
- What countries hope to achieve from investing in agriculture and GHG emissions research and capacity building activities.
- How the GRA could help further their work in this area.

39. In the discussion following the presentations, it was noted that ASEAN can possibly be used as a vehicle to get regional support for work in GHG emissions mitigation from livestock. Indonesia offered to make an approach to ASEAN to get the issue on the agenda of the next meeting of ASEAN in 2015; Japan offered to help confirm the most appropriate route. The co-chairs noted that ASEAN regional GRA Council members can play a role in bridging the gap between research and policy. Vietnam noted that the funding for research in ASEAN is reduced, priority is to increase production.

40. The capability building activities in Africa were presented to the LRG members. Since the last LRG meeting in Dublin, a number of well attended engagement workshops have been held in the region; a technical training course on SF₆ and Nitrous Oxide measurement has been delivered and opportunities for researcher interaction in the Research Networks of the LRG have been promoted at a major conference, with strong interest from researchers.

41. In subsequent discussions, LRG members agreed that additional opportunities should be explored for providing training workshops (including technical guidance and methodology training), in particular where they can be linked to broader implementation activities and can support wider national development goals. To this end, the LRG Co-chairs agreed to develop a document that helps

explain why and how better understanding of GHG emissions and emissions intensity from livestock, along with enhanced capacity to monitor and report emissions through improved GHG emissions inventories, can directly support countries in achieving their climate change and development goals.

COLLABORATIVE RESEARCH PROJECTS

Manure Management Kiosk

42. Julio Mosquera from Wageningen University updated the meeting on the work of the CCAC funded Manure Management Kiosk (MMK). The MMK addresses three major issues; food security and global health; equity and poverty reduction; resources and climate. The projects objectives are to:

- Facilitate multi-stakeholder dialogue at international and local level.
- Implement and support joint analyses and assessments.
- Identify and provide tools and guidance.
- Promote and support innovation and local practice change.

43. The MMK aims to integrate manure management practices into livestock systems by managing and removing barriers to action with a view toward enhancing food security and sustainable development. To achieve this there will be a Web-based Knowledge Counter that will open a single door to:

- A subject library.
- Global overview of lessons learned.
- Entry to Livestock Geo-wiki (<http://www.geo-wiki.org/>).
- E-Market for service and assistance (Roster of Experts).
- Opportunities for Practice Change.

44. The opportunities for the MMK are to: 1) develop more synergies with the work of the MMN of the GRA and the other networks; this is to be progressed through the networks co-chairs meeting and 2) link the MMK website to the websites of other similar initiatives.

FAO Global Livestock Environmental Assessment Model (GLEAM)

45. Harry Clark on behalf of *Pierre Gerber of the UN Food and Agriculture Organization (FAO)* outlined the progress to date of the joint activity between the LRG and the FAO working with the Global Livestock Environmental Assessment Model (GLEAM).

46. GLEAM aims to identify regionally appropriate low emission pathways for the livestock sector. It combines modules that calculate emissions for Herd, Feed, Manure, System and Allocation (product) components finally calculating the emission per kilogram of product. All of the main emissions are calculated and as the model works at a local level it is able to scale up the results for scenario analysis e.g. a change in management practice or feed composition.

47. The joint LRG/FAO GLEAM project will consist of using the expertise in LRG member countries to scrutinise packages of mitigation actions as identified by the GLEAM model, improve the GLEAM model, and consider pathways to their implementation. To support and build on this activity, a proposal has been submitted to the CCAC which comprises of two distinct Phases that will be conducted sequentially. Phase 1 will utilise the FAO GLEAM modelling capacity, and the resources of the GRA and project partners, to analyse farm systems within selected regions. It will identify and quantify the most promising individual mitigation actions and assemble these into complementary mitigation packages that are suitable for implementation within specific systems at sub-regional

scale. Within identified countries/systems, specific sites will be identified for their suitability as 'test' sites for the implementation and monitoring of the identified packages. Partners will also be identified who will coordinate this implementation. Phase 2 will focus on the implementation at the selected sites and the identification and implementation of the actions needed for broad scale replication.

48. The LRG/FAO (GLEAM) project will be coordinated by Victoria Hatton (LRG co-chairs team and NZAGRC), who has been seconded to FAO in Rome through funding from the New Zealand Government. She will take up this position in late November and ensure the initial phase of the LRG/FAO GLEAM project can merge seamlessly into the CCAC project on enteric fermentation if its funding application is successful.

Horizons 20/20 Programme

49. Martin Scholten on behalf of *Jean-Charles Cavitte from the European Commission* outlined the new opportunities within the Horizons 2020 framework programme for research funding. This programme is a 70 billion euro programme which will run from 2014-2020.

50. Horizons 2020 bring together research and innovation with an emphasis on improving societal challenges such as, Societal Challenge 2: food security and sustainable agriculture, which has the most relevance to the Alliance. Sub-priorities under this challenge will consider production efficiency and climate change, ecosystem services and public good, rural areas, and forestry.

51. The programme hopes to encourage increased participation in projects from small/medium enterprises. Therefore the process has been simplified for non-EU involvement.

52. International cooperation is seen as crucial to address the large challenges and the programme is an open funding programme. While there are specific criteria for non-EU members to meet before becoming involved with the programme, partners in Horizon 2020 may be private/public, public/public (including Joint programming initiatives), and European innovative partnerships.

53. Jonathan Levin (INRA France) will work with the co-chairs to ensure LRG members are aware of the specific funding opportunities and points of engagement available through H2020.

LINKS TO POLICY AND INTERNATIONAL INITIATIVES;

Strengthening communications of the role and relevance of the LRG of the GRA

54. The Secretariat recently produced a brochure, which contains high level information about the GRA and its Research Groups. At the Council meeting it was agreed that each Research Group would also produce a brochure detailing the work to date and the impact the research has had globally. The LRG brochure will contain general information about the research of the Group.

55. The LRG agreed that the Co-Chairs will lead this initiative and produce this brochure on behalf of the group, based on input from member countries. To facilitate this, the Co-chairs asked members to forward photos, videos or other documentation that demonstrate country-specific examples of research and implementation. A drop box will be created for members to upload the material. Members were reminded that the GRA website offers opportunities to profile individual country activities; the LRG brochure would necessarily have to be selective in the material it presents to achieve its communication goals.

56. Discussion on general communications led to the general consensus that communication about the work of the Group is important. This could be started by countries sending through updated information to the Secretariat to be uploaded on the country pages of the GRA website.

Sustainable Agriculture Initiative document

57. In Dublin, a meeting between representatives of the SAI and the LRG agreed to work together to produce a document outlining the current best practice and emerging options to reducing GHG emissions intensity from livestock. This document, funded by the NZAGRC in support of the objectives of the LRG, has now been completed. A final draft of the document was circulated to LRG members at the meeting ahead of the final electronic version being placed on the GRA and SAI websites. The Co-chairs noted that this was a key example of the LRG partnering with industry to facilitate implementation. It was agreed that the Co-chairs would seek to develop a further roadmap for cooperation with SAI, building on the good linkages and collaboration developed as part of the production of the brochure.

58. The Co-chairs noted that based on the work conducted in LRG member countries to date, the LRG was now in a good position to provide targeted integrated management options on:

- herd management {breed, feed, health, keeping},
- grassland management,
- manure management.

59. Options to communicate and implement such solutions, in conjunction with relevant partners from industry such as; SAI, policy (FAO, GASL) and farmers - including the World Farmers Organisations, would be explored in the coming year.

UPDATE OF WORKPLAN

60. This session summarised the outcomes from the meeting and updated the LRG work plan.

Stocktake of work to date:

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- The Co-chairs and their support team will develop a webpage of examples from LRG member countries that showcase current activities that reduce the emissions intensity of livestock production, along with any barriers to their implementation and enabling factors to support upscaling of activities.

NEXT MEETING/CLOSING REMARKS

61. The Co-chairs announced that based on the offer received from Italy, the seventh meeting of the LRG will be held in Lodi, Italy, during June 2015. LRG members warmly welcomed this offer. Details about the meeting will be circulated to members early in 2015.

62. The Co-Chairs thanked Indonesia for their hosting a successful meeting, and all participants for their attendance and on-going strong engagement in the LRG.

APPENDIX 1: Participants List

Country	Attendees	
Alliance Member Countries		
Argentina	Dr José Ignacio Arroquy	arroquy.jose@inta.gob.ar ; jarroquy68@gmail.com
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