



Update from the Co-Chairs

The year has started at a quick-fire pace for the LRG with the launch of the first multi-country joint research call hosted by the EU FACCE-JPI on agricultural greenhouse gases. Many LRG member countries spent the opening months of the year forging global collaborations and developing project proposals; the call closed at the end of March with the submission of Letters of Intent. 30 projects have been deemed eligible to proceed through to the full proposal stage.

Looking ahead, June will be a particularly busy month with a number of key meetings planned for the Group.

The first is a meeting of the Alliance Council in Uruguay (June 17-19), which will see the annual gathering of senior representatives of the 33 member countries. The LRG will showcase its work at this meeting and promote the collaborations and science outputs being generated by member countries of the LRG. The Council meeting will be preceded by a meeting of all the Alliance Research Group co-chairs. Both Martin and Harry will represent the LRG at this meeting.

Hot on the heels of the Council meeting comes the Greenhouse Gases and Animal Agriculture (GGAA) conference being held in Dublin (June 22-26). The GGAA is the largest gathering of scientists in the field and more than 400 scientists are expected to attend. Many projects currently conducted through the LRG will be presented at the conference. The Co-Chairs of the LRG have been invited to deliver a key note address at GGAA on Wednesday 26 June in the session that focuses on developing country issues.

Next comes the annual meeting of the LRG. The agenda focuses on five of the key work areas of the Alliance; Research Networks, Capability Development, Collaborative Projects, International Partners, and Knowledge Transfer. In addition to the LRG meeting, many of the research networks of the LRG are also taking advantage of the presence of so many scientists to hold their annual meetings in Dublin. The Rumen Microbial Genomics network will join the Ruminomics Group to meet on the 22 June; the Animal Selection Genetics and Genomics, Manure

Management and Feed Nutrition networks will all meet on 27 June. And an expert workshop will consider key areas and activities, potential benefits and modus operandi of a potential new research network on grasslands, as well as its alignment with existing initiatives and priorities.

The LRG is also jointly hosting an expert meeting with the Sustainable Agriculture Initiative (SAI) in Dublin on June 21. This is a great opportunity to inform each other of the work being undertaken and share ideas for future collaborations.

To register for the GGAA and find out more detail about the research network meetings go to www.ggaa2013.ie.

Enjoy reading the newsletter which has articles from Spain, Vietnam, Indonesia, and New Zealand in addition to the usual update from the Research Networks.

Harry and Martin



**GREENHOUSE GASES &
ANIMAL AGRICULTURE**
CONFERENCE • 23-26 JUNE 2013 • DUBLIN • IRELAND

GGAA 2013 will be held in Dublin, Ireland from Sunday 23rd to Wednesday 26th June 2013. GGAA 2013 will attract speakers and delegates from throughout the globe and will build on previous successful meetings in the series. The meeting will focus on advancements in the areas of animal derived GHG mitigation since the last meeting in Banff, 2010.

For more information and registrations please visit www.ggaa2013.ie.



From L-R Aziz Amin (Malaysia), Cesar Pinares (New Zealand), Sara Hube (Chile), Yoana Dini (Uruguay), Kalaya Boonyanuwat (Thailand), Ricardo Bualo (Argentina), Thanh Nguyen (Vietnam), Francis Lively (UK), Yeni Widiawati (Indonesia), Juan Vargas Martinez (Columbia)

International visitors participate in a Global Research Alliance technicians training course

One of the objectives of the Global Research Alliance on Agricultural Greenhouse Gases is to find ways to globally reduce methane from enteric fermentation, one of the major greenhouse gases in agriculture.

As part of achieving this objective, the New Zealand Government funded a training course to increase the global research capacity in methane measurements. Eight international visitors arrived at AgResearch-Grasslands, Palmerston North, New Zealand in January to begin a three week intensive training course on the '*Methods for the measurement of methane emissions from forage-fed ruminants*'.

Nominated by their organisations to attend the course, the participants came from Indonesia, Malaysia, Thailand, Vietnam, Argentina, Chile, Colombia, and Uruguay. These countries already have a long standing relationship with New Zealand scientists through various research projects ([click here](#)

for details). Participants received 'hands-on' training during the three weeks to develop skills that will improve the measurement and understanding of greenhouse gas emissions from agriculture in their home country. This will facilitate their participation in further research, development and extension activities or programmes on the mitigation of livestock greenhouse gas emissions. The training course strongly supports and promotes the priorities and goals of the Global Research Alliance; developing a collaborative approach to reduce greenhouse gas emissions attributed to pastoral farming.

The course was organised by the New Zealand Agricultural Greenhouse Gas Research Centre (NZAGRC) and taught by a collaboration of New Zealand and UK experts in the field. Dr Cesar Pinares-Patiño from the Animal Nutrition team at AgResearch, New Zealand led the course with support from a team of AgResearch staff (German Molano, Chris Hunt, Reuben Harland, Sarah Maclean and Edgar Sandoval), Dr Garry

Waghorn (DairyNZ), Dr Keith Lassey and Ross Martin (National Institute of Water and Atmosphere). Dr Francis Lively (Agri-food and biosciences Institute, Belfast, UK) was funded by the UK Government in support of the Livestock Research Group of the Global Research Alliance to be at AgResearch for three weeks to assist Dr Pinares.

New Zealand has world-class facilities for measuring methane emissions from ruminant livestock and a global reputation in this area of science. For AgResearch, it provided important links with research institutions in important emerging economies in Southern Asia and South America.

The course was the first of its kind, reflecting a growing desire amongst scientists and other practitioners from institutions in developing countries to develop the capability to better quantify agricultural greenhouse gas emissions.

A country focus: Spain

A new scientific network called REMEDIA was established in Spain in 2012 (www.redremedia.org) to encourage scientific discussion and collaboration in all aspects of agricultural GHG emissions mitigation.

The network was started to coordinate research and development efforts under the Spanish Government's Low Carbon Development Strategy. This strategy includes a goal to reduce emissions from agriculture, which contributes to about 5.3% of Spain's total GHG emissions (3% and 2.3% from enteric fermentation and manure, respectively).

The first REMEDIA workshop was held last March in Bilbao and a second one will be held in April in Zaragoza, which hopefully will strengthen the collaboration and capacity building in Spain. REMEDIA will become a useful network to help establish links among researchers from Ibero-American countries. A blog (<http://redremedia.wordpress.com/>) has been active since 2012 aiming to become the main instrument for diffusion in Spanish of science around this area. The Spanish representatives will report on REMEDIA activities at the next LRG meeting in Dublin (GGAA 2013).

Research and development across Spain into agricultural GHG emissions mitigation has been multifaceted, at different production systems (e.g. monogastrics, small or large ruminants), levels (e.g. animal, herd, manure, housing, farm, landscape, regional...) using different methodologies (e.g. experimental measurements, modelling...) or approaches (e.g. reductionist, holistic...) and with different objectives (e.g. quantification, process understanding, application of mitigation measures...). This article highlights some of the activities of the research groups.



Figure 1. Delegates from the first REMEDIA workshop held in Bilbao 2012 (Spain).

Manure Management

As part of the REMEDIA initiative a new group (10 institutions) is collaborating to provide a novel and holistic synthesis of the potential effect on the GHG emissions of different management options along the "manure continuum" systems of a range of typical Spanish livestock production systems. Their first study involves a literature review of the Spanish scientific evidence and some scenario testing through farm modelling and LCA approach. This will be presented at the next RAMIRAN meeting.

Feeding and Nitrogen Excretion

A number of research groups (NEIKER, IES-La Granja, Valencia (UPV), Lleida (UdL) and Madrid (UPM)) are looking at the effect of diet on animal excretion and manure composition and their associated GHG emissions (housing, storage and application). Optimising protein in diets of grazing animals has been tested¹ as an effective way to decrease manure NH_3 and N_2O emissions. In pigs, researchers from UPV have also investigated the effect of slurry composition (e.g. due to management) on its potential CH_4 yield for biogas production (GasPorc: AGL2011-30023-C03) and their soil fertilizer value. This project is currently carrying out a system-based study, whereby links are explored among the different diet profile of pigs, their slurries' composition and the associated emissions during housing (NH_3 , CH_4) and after slurry application to soils (N_2O).

Best Available Techniques (BAT)

Within the BATFARM EU-Interreg project (<http://www.batfarm.eu>) researchers¹ are assessing the effect of different BAT on GHG losses using a mobile environmental monitoring unit to assess in situ GHG emissions, a dynamic chamber system for slurry storage, open and closed static chambers for manure composting and passive samplers (Leuning shuttles) for gas sampling from covered lagoons. Among these BATs the following measures are being tested:

1. Additives application during cattle and pig slurry storage
2. Stored pig slurry aeration.
3. Flushing of cattle slurry liquid fraction.
4. Composting of cattle manure by turning.
5. Composting of cattle slurry solid fraction by turning.
6. Covered lagoon.
7. Diet adjustment in laying hens.



Figure2. The mobile environmental monitoring unit



Figure 3. Set of 4 chambers to measure CH_4 and CO_2 production at EEZ, CSIC, Granada.

Rumen and methane

In the ruminants' nutrition area, research institutions (UPV, CSIC-EEZ, UPM, NEIKER, ULE) are working on the effect of using different feeding strategies as well as nutritional additives on CH_4 emissions by ruminants. This covers the inclusion of lipids, different types of carbohydrates (RTA2011-00107-C02-02) and antimicrobial additives in the diet as effective strategies for reducing enteric CH_4 emissions (SMethane FP7-project www.smethane.eu). A significant research effort is also underway in the microbial ecosystem area within the rumen and the response of such an environment to the different treatments (METANORUMEN FP7 –Marie Curie; AGL2008-04707-C02). Respiration chambers and modelling are routinely used in these projects.

As part of the Feeding and Nutrition Network (FNN) within LRG, the Spanish partners are contributing by providing experimental data and expertise to develop Standard Operating Procedures (SOP) for conducting and assessing in vitro and in vivo experiments for evaluating nutrition-related enteric methane and nitrogen losses mitigation practices.

Nitrous oxide emissions from grazing and manure application to soil

Research groups (CIAM, UPM) have been measuring N_2O emissions from both grazed grasslands and from application of manure to grasslands (e.g. SUM2006-00017-C03-03) and croplands. The work includes looking at treatments of digested manure, the addition of nitrification inhibitors or using different irrigation strategies. A recent meta-analysis by UPM revealed that among the potential measures to mitigate N_2O emissions in Spanish Mediterranean cropping systems, replacing synthetic with organic fertilizers (e.g. animal manures) was very effective in reducing emissions.



Figure 4. N_2O measurements in grasslands using the closed chamber technique.

Modelling approaches

A model to mechanistically predict CH_4 emissions from small ruminants (goats) has been recently developed by UPV researchers under the INIA Project (RTA2011-00107-C02-02). The model has been set up to simulate indoor facilities in which goats can be fed mixed rations. The model was evaluated using information from different experiments and literature. This model is under further development with the aim of introducing more inputs related to diet characteristics and their mechanism of action in the rumen along with potentially faeces emissions. This on-going work needs collaborative integration with other institutions and we would welcome contact from interested researchers.

For the housing stages, software to estimate CH_4 and N_2O emissions from cattle, swine and poultry facilities are currently being developed as part of the BATFARM project (Fig 6). A preliminary version of the model will be presented in the next GGAA conference in Dublin.

A new modelling framework (LANDGHG) is currently being developed by the BC3 (project CGL2009-10176) simulating novel system-based mitigation strategies to reduce GHGs within and between multifunctional land-use elements of a landscape. This includes the integration of N and C flows and losses through farm sub-models for dairy, pigs, poultry, arable crops (for food, feed or bioenergy) or grasslands systems. Also, sub-models to simulate treatment of resulting farm manure with other by-products (e.g. plant residues), such as composting or anaerobic co-digestion, are integrated within the LANDGHG framework (Fig 7). So far, different sub-models have already been created and used: (i) to assess the carbon footprint of milk produced in confinement systems (from cradle to the farm gate) and (ii) to explore potential strategies, including anaerobic co-digestion of manure, which can help to decrease GHG emissions without producing pollution swapping (e.g. NH_3 or NO_3^- leaching). A very novel addition is currently being constructed in order to incorporate a qualitative-based scoring system, similar to that from the SIMSDAIRY model, to assess other ecosystem services delivered or jeopardised by the different farming systems studied.



Figure 5. Panel of the LabVIEW program for monitoring gas analyser and the flow meter (appearing in Computers and Electronics in Agriculture).

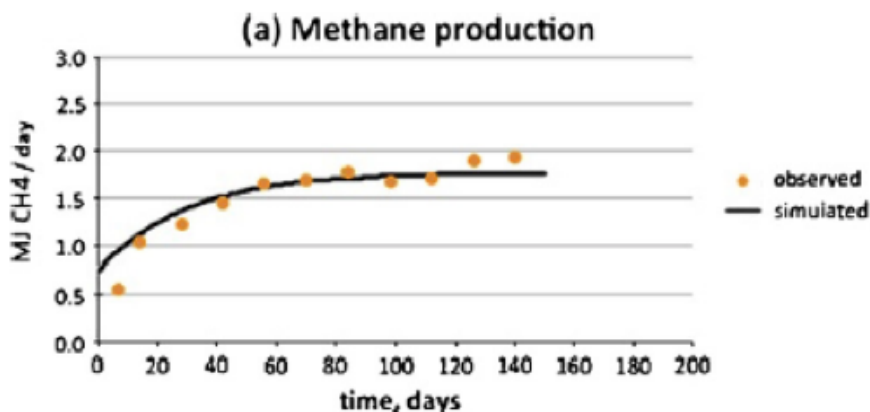


Figure 6. Model validation for CH_4 production (appearing in Computers and Electronics in Agriculture).

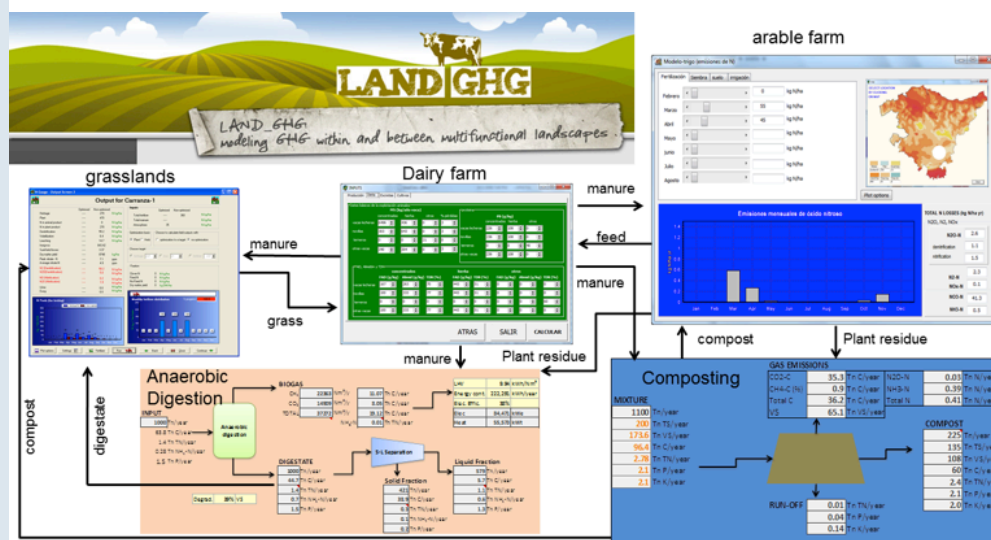


Figure 7. Diagram showing an example of LANDGHG sub-models for different farming activities interacting with each other.



Updates from the Networks

Manure Management Network

The first meeting of the MM Network took place during early September 2012 in Rome and was attended by representatives from 12 countries.

Initial areas of focus for the MM Network were agreed to be:

- Develop a best practice guide to measure emissions from manure in all stages of the manure chain
- Make a position paper and leaflet to be used for external communication dealing with goals, role, position/boundaries etc.
- Make a shopping list on practical mitigation options for farmers and policy

One of the themes in the Global Agenda of Action of the Livestock Dialogue of FAO is 'reduced discharge of animal manure'. The goal of this theme is: Reducing nutrient overload and greenhouse gas emissions through cost effective recycling and recovery of nutrients and energy contained in animal manure. The MM network agreed to cooperate with the Livestock Dialogue on this theme and to develop and execute

a new joint working program: the Manure Management Improvement Program.

For more information about the Manure Management Network, please contact the co-coordinator Theun Vellinga (theun.vellinga@wur.nl). The meeting report is available on the global research alliance website (www.globalresearchalliance.org)

The Feed and Nutrition Network (FNN)

The Network on 'Feed and Nutrition in Relation to Greenhouse Gas Emissions' is currently led by Switzerland and the Netherlands. At the start-up workshop, September 2012 in Zurich, 17 delegates of 14 from 23 countries discussed the network's scope, aims and activities. The FNN focuses primarily on summarizing and utilizing work on mitigating methane emissions from ruminants by nutritional means to develop sound recommendations for stakeholders and to identify future research priorities. Summarizing and utilizing work on manure characteristics and nitrogen excretion as influenced by nutrition is a goal

as well. A dialogue concerning a potential collaboration with FAO and with the manure management network, especially on using, extending and updating existing databases will be started at the 2nd FNN meeting on June 27, 2013 aligned with the GGAA 2013 conference in Dublin. Ideas on how to elaborate the planned best practice lists to be used for conducting and assessing in vitro and in vivo experiments will be presented in Dublin. Goals and medium- to long-term activities of the FNN will also be discussed. We encourage interested countries to join the network. For more information contact the network co-coordinator Michael Kreuzer (michael.kreuzer@inw.agrl.ethz.ch) or visit the new network website (www.fnnnetwork.wordpress.com).

Rumen Microbial Genomics (RMG) Network

Recent activities have focussed on broadening the links to overseas collaborative Rumen Microbial Genomics programmes. The RMG Network website (www.rmgnetwork.org.nz) now links directly through to the



RuminOmics and SMethane websites. The RuminOmics programme (www.ruminomics.eu), co-ordinated by Professor John Wallace (University of Aberdeen, Scotland) aims to connect the animal genome, gastrointestinal microbiomes and nutrition to improve digestion efficiency and the environmental impacts of ruminant livestock production. The SMethane programme (www.smethane.eu), co-ordinated by Dr David Yáñez-Ruiz (CSIC, Spain), aims to provide a technology platform for Small and Medium Enterprises (SMEs) to develop the successful use of nutritional additives to reduce methane emissions from ruminants.

Other work over the past months focused on the development of the agenda and organisational requirements for the joint RuminOmics and RMG Network Workshop to be held in Dublin, Ireland on 22nd June 2013 immediately before the GGAA 2013 conference. This joint workshop has been entitled 'Harmonisation of techniques associated with ruminal genome, microbiome and metagenome analysis' –

the outcome of the analysis often depends on the details of the techniques used: How should samples of ruminal digesta be taken? And when? How should they be stored? How should DNA be extracted? Following extraction, several methods are available for analysing the community, but are they all valid? How best can we use NGS to achieve our objectives in this respect? And how does metagenomic sequence data from massively parallel sequencing help us to analyse the structure and activity of the community? Further information on pre-conference workshops is available at www.ggae2013.ie/workshops.html

The first RMG Network newsletter was sent to network members (<http://www.rmgnetwork.org.nz/news,listing,8,rmg-network-newsletter.html>). It included a report from Dr Christina Moon (AgResearch Limited) who attended the RuminOmics workshop in France and a report from Dr Gemma Henderson (AgResearch Limited) who was an invited speaker at the inaugural International Symposium on Microbiology and Biotechnology held in Brazil. Other articles covered the internship of Vincenzo Lopreiato to AgResearch from the Catholic University of Piacenza, Italy, during which he focussed on methodologies for measuring greenhouse gas emissions from ruminants and potential methane mitigation research areas.

Animal Health Network

The UK-led proposal on establishing a global research network to explore the synergies between efforts to reduce animal disease and reducing GHG emissions intensity was presented and approved at the LRG meeting in Uruguay in November 2012. The proposal was based on outcomes from a UK-funded scoping workshop held in Bangkok in June 2012 where participants concluded that a well-connected network would be of considerable value as this is an emerging concept with significant focus for development.

UK researchers are currently conducting a literature review to collect evidence of links between animal health measures and GHG abatement opportunities across different regions of the world and to assess where there is greatest scope to reduce GHG emissions intensity. This work will form a paper for submission to a relevant academic journal and provide useful scientific background to inform the development of the Animal Health Network. A start-up meeting for the network will be held in the coming months providing an opportunity to share information on research and discuss the exciting possibilities for this new LRG work area. Anyone interested in attending

the meeting or becoming a member of the network should contact Adele.Hulin@adas.co.uk.

Animal Selection, Genetics and Genomics Network

ASGGN membership now comprises more than 200 researchers, advisers and policy makers from 40 countries. Members are affiliated to more than 70 organisations including Universities, National Research organisations, and Private Research organisations, Consultancies and Government Departments and Agencies.

Several collaborative initiatives are being developed:

- 1) A Working Group of members from Australia, Brazil, Canada, Denmark, Netherlands, New Zealand and USA is preparing a position paper on methane phenotyping in ruminants.
- 2) Projects aligned with the Rumen Microbial Genomics Network are being progressed in New Zealand.
- 3) An Australian project will include alignment with New Zealand high and low methane sheep selection lines.
- 4) An animal genomics project between New Zealand and The Irish Agriculture and Food Development Authority (TEAGSC) is in place.
- 5) Formal collaboration has been established between Canada and New Zealand.
- 6) A group of European researchers is progressing a large multi-national genetic evaluation of methane measurements on dairy cattle.

The next Network meeting is scheduled for June 2013, in Dublin, following the Greenhouse Gases in Animal Agriculture Conference. The agenda will cover a combination of science and business.

For further information about the Network see the website www.asggn.org or contact Grant Shackell asggn@agresearch.co.nz

Proposed Grasslands Research Network

The last LRG meeting in Uruguay agreed to explore the potential scope and benefits of a Research Network on Grasslands, led by Uruguay. To further progress these discussions, an expert workshop will be held on 27 June in Dublin to further discuss the potential scope, benefits, priorities, alignment with other existing initiatives, and operation of such a network, with the aim of making a formal proposal to the LRG. Experts interested in participating in this workshop should contact the convenors of the workshop, Veronica Ciganda and Gonzalo Becoña, or the organisational support person Andy.Reisinger@nzagrc.org.nz.

JIRCAS

Japan International Research Centre for Agricultural Sciences

JIRCAS (Japan International Research Centre for Agricultural Sciences) is the national institute of Japan that undertakes research on agriculture, forestry and fisheries technology in Japan as well as developing countries in tropical and subtropical regions.

JIRCAS aims to:

1. provide solutions for global food security/supply and environmental problems through innovative technology development; and
2. through international collaboration and cooperation publishes information to illustrate global trends in agriculture, forestry, fisheries and farming systems.

JIRCAS currently funds projects in Paraguay, Ethiopia, Vietnam, Ghana, Uzbekistan, Indonesia and Thailand. JIRCAS's main activities are:

1. International Collaborative Research
2. Dispatch and Invitation of Researchers
3. Research Planning and Evaluation
4. Cooperation with Developing Regions

One project funded by JIRCAS that is just being completed is called 'Greenhouse Gases and Sustainable Agriculture in Southeast Asia' and has involved Thailand, Indonesia and Vietnam. In recent months, project symposiums have taken place in each country to report key project findings. Highlights of meetings in Vietnam and Indonesia are included here.

International Symposium on Greenhouse Gases and Sustainable Agriculture in Southeast Asia – 20 November 2012, Can Tho University of Vietnam.

Nguyen Van Thu and Nguyen Huu Chiem, Can Tho University

The International Symposium on Greenhouse Gases and Sustainable Agriculture in Southeast Asia was organized by JIRCAS at Can Tho University of Vietnam in November 20, 2012. The objectives of the Symposium were to share research outcomes relating to monitoring and mitigation technologies of GHGs from paddy rice and livestock production in Southeast Asia and exchange ideas for future technological development required among researchers in the region.

The workshop was supported by the Can Tho University. Twenty eight scientists, researchers and lecturers from Institutions across Japan, Thailand, Indonesia and Vietnam participated.

The JIRCAS Program Director Dr. Tomoyuki Kawashima gave the opening remarks for the Symposium which had four sessions: 1) monitoring and mitigation of GHGs in livestock sector; 2) monitoring and mitigation of GHGs from paddy field; 3) cross-cutting session; 4) general discussion on future research collaborations and solutions to mitigate the GHGs in agricultural production. Fifteen papers were presented at the Symposium relating to paddy rice and livestock, which are the major agricultural greenhouse gas sources in the region.



Fig 1; delegates at the workshop in Vietnam



Fig 2; delegates at the workshop in Indonesia

International workshop on data inventory and mitigation on carbon emissions and nitrogen cycling from livestock in Indonesia

April 24, 2013, Jakarta, Indonesia

The Indonesian Government has committed to reduce GHG emissions by at least 26% below business as usual by 2020, and more with international help. One of the key steps in GHG emissions mitigation is data inventory. The aim of this JIRCAS funded project was to identify and then quantify the biggest contributors to agricultural GHG emissions in order to understand the options available to mitigate GHG emissions from livestock; methane emissions from ruminants and manure management have been the projects main focus.

Research to reduce CH_4 has been undertaken in different animal and feed types, producing data that could be used to predict CH_4 production from local ruminants (beef cattle, buffalo and sheep) fed local feed based on dry matter intake (DMI). Diet manipulation has also been studied with consideration of the feed processing, additives and feed supplements and active secondary compounds in locally available plants (tannin, saponnin) to determine the

effect on CH_4 emissions. Measurements of CH_4 emissions were taken using the face-mask technique; findings indicate a large variance between systems relative to the IPCC default emission factors. The next steps identified are to improve the accuracy of emission factors (for local breed and feed resources), suitable for Indonesian conditions.

Manure is a large source of GHG emissions (N_2O and CH_4) in Indonesia, and mitigation research is well advanced in the area of biogas capture to generate energy from faeces. The by-product from biogas can be used as an effective fertilizer. However, research has found that uptake and adoption of this technology to mitigate emissions is still low (67%) due to undurable material used or inappropriate construction/technology (size/capacity). The next step for this research is to integrate research findings to develop a model that considers emissions along the manure continuum.

Global Research Alliance Senior Scientist (GRASS) Award

Supporting research in Agricultural Greenhouse Gases

The New Zealand Government has announced funding for senior scientists to participate in an exchange programme to enhance collaboration and the building of mutually beneficial research partnerships between New Zealand and other Global Research Alliance countries.

Focus areas

- Methane emissions from livestock and livestock wastes
- Nitrous oxide emissions from livestock wastes
- Enhancement of pastoral soil carbon sinks
- Integrated whole farming systems impacts at all scales as they relate to livestock emissions.
- National inventory development as it relates to livestock emissions

Eligibility

To be eligible, you must:

- Have a PhD or be a scientist with at least 5 years experience participating in/leading major projects that align to the priorities of LEARN, the Alliance or other relevant national strategies.
- Demonstrate impact and leadership in your professional field.
- Be able to contribute to scientific research and its application in your home region and the larger Alliance network, based on your networking record.
- Work in collaboration with a New Zealand research organisation.
- Be resident and normally employed on a permanent contract by a research organisation in an Alliance member country.
- Be fluent in English.

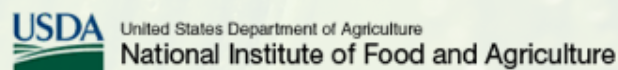
Funding

The exchange must be between 6 weeks and 6 months duration.

- Up to \$30,000 for 6 months (pro rata for less than 6 months) will be provided to recipients to cover actual and reasonable living expenses.
- Up to \$5,000 will be provided for economy airfares and travel/medical insurance.
- Up to \$5,000 will be awarded for associated research costs.

For more details refer to the LEARN Website: www.livestockemissions.net

Or Email the New Zealand Agricultural Greenhouse Gas Research Centre: enquiry@nzagrc.org.nz



USDA Borlaug Fellowship Program

The Norman E. Borlaug International Agricultural Science and Technology Fellowship Program aims to promote food security and economic growth by increasing scientific knowledge and collaborative research to improve agricultural productivity. It accomplishes this by:

- Providing training opportunities for early and mid-career researchers and policymakers from developing and middle-income countries;
- Fostering collaborative research to improve agricultural productivity;
- Facilitating the transfer of new science and agricultural technologies to strengthen agricultural practices
- Addressing obstacles to the adoption of technology, such as ineffectual policies and regulations.

The program is administered by USDA's Foreign Agricultural Service.

Priority Research Areas

Areas of training and research can be in any agriculture-related field including plant pathology, entomology, veterinary sciences, microbiology, agricultural economics, food safety, sanitary and phytosanitary topics, natural resources management, agricultural biotechnology, global climate change, and agricultural policy. Allowable training topics vary by country and year and can be found in the country-specific application announcements posted on the website.

Eligibility for the Borlaug Fellowship Program

- Citizens of country in which the Borlaug Fellowship Program is offered
- Early to middle stage of their professional career
- Good working knowledge of the English language
- Minimum of a Master's degree
- Two or more years of practical work experience and currently employed in an university, government, non-profit, or private agricultural research entity in the recipient country.
- Demonstrate intention to continue working in the home country after completing their Borlaug fellowship in the U.S

For more details refer to the Borlaug Website: <http://ffas.usda.gov/icd/borlaug/Borlaug.asp>

Or email: Susan.Sadocha@fas.usda.gov



Fig 1; Prof Peter Buurman delivering his lecture on SOC

The benefits of a GRASS Award seen through the eyes of two recent recipients, Professor Peter Buurman from Wageningen University and Dr Rod Venterea from the USDA

Professor Peter Buurman has unique expertise in soil organic matter studies and pyrolysis-GC/MS analysis, which he shared with scientists from across New Zealand during his 6-week fellowship in February/March this year.

Massey University recently invested in a pyrolysis GC/MS spectrometer which is without doubt the most effective way to measure soil organic chemistry, and Peter came to New Zealand to provide intense training to users of the machine. While based at Massey University, Peter also invited scientists from Landcare Research and Waikato University to learn about soil organic carbon; his lectures brought over 30 specialists together and facilitated closer collaboration across New Zealand in this area of science.

Dr. Rodney Venterea is on a 3-month stay at Lincoln University with

Professor Tim Clough. Rod is a soil scientist with the U.S. Department of Agriculture's Research Service and Professor at the University of Minnesota with expertise in soil nitrogen transport and transformation and greenhouse gas measurement and modeling. The objective of the fellowship is to examine the role of the nitrite molecule in regulating soil nitrous oxide (N₂O) production. Nitrite is a central substrate mediating several different N₂O producing mechanisms including both biological and abiotic pathways. In many circumstances, nitrite is present at low concentrations, and is often overlooked in experimental studies examining soil transformation and N₂O production. However, because of its high reactivity and central role, nitrite can be quite important as a regulator of N₂O production; its occurrence has been found to be important in intensively fertilized cropped soils. With the assistance of Dr. Shabana Shah, experiments have been set up to study these processes in concentrated urine patches using two New Zealand soils with contrasting properties.

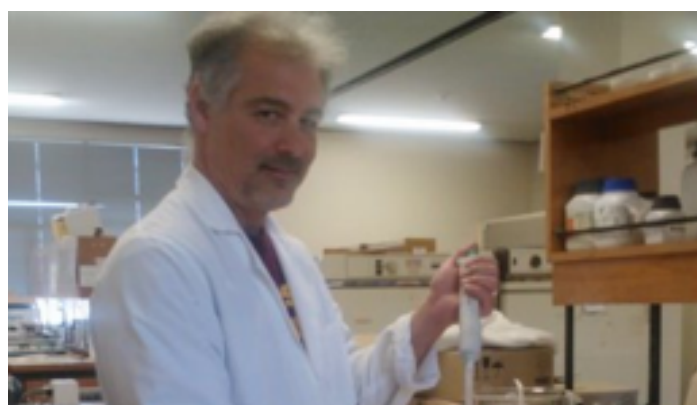


Fig 2; Dr Rod Venterea at Lincoln University



Fig 3; Both scientists brought their families with them to New Zealand to enjoy the extended summertime



Learn

Livestock Emissions &
Abatement Research Network

LEARN Postdoctoral Fellowship

The New Zealand Government in support of the goals of the Global Research Alliance is funding postdoctoral fellowships for emerging scientists from developing countries to benefit from working on a research project mentored by a New Zealand researcher while being based at a New Zealand institution. The Fellow must be employed in a research post in their home country to receive the award.

Focus areas

- Methane emissions from livestock and livestock wastes
- Nitrous oxide emissions from livestock wastes
- Enhancement of pastoral soil carbon sinks
- Integrated whole farming systems impacts at all scales as they relate to livestock emissions.
- National inventory development as it relates to livestock emissions

Eligibility

To be eligible, you must:

- Have gained a PhD in the last 5 years.
- Be a high achieving researcher (supported by academic transcripts, letters of recommendation and publishing record).
- At the time of application be employed in an area of research aligned with livestock GHG emissions mitigation in your home country.
- Have the support of your employer to apply for the Fellowship.

Funding

The Scholarship is awarded for up to two years with an expected minimum duration of 12 months.

- NZ\$50,000 per year for a maximum of two years.
- Up to \$5,000 will be provided for economy airfares and travel/medical insurance.

For more details refer to the LEARN Website: www.livestockemissions.net or email the New Zealand Agricultural Greenhouse Gas Research Centre: enquiry@nzagrc.org.nz

Upcoming conferences

- 20th Association for the Advancement of Animal Breeding and Genetics (AAABG) Conference 2013 to be held in Napier, New Zealand, 20 - 23 October
- 64th meeting of the European Federation of Animal Science, to be held in Nantes, France, 26th-30th August 2013.
- 2nd Asian-Australasian Dairy Goat Conference 2014 (AADGC), will be held Bogor, Indonesia, 3-6 April, 2014.
- 5th International Symposium on Animal Functional Genomics will be held in Brazil, 8th -11th Sept 2013
- 22nd International Grasslands Congress, 15-19 September 2013, Sydney, <http://www.igc2013.com>

Funding Opportunity:

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