LIVESTOCK RESEARCH GROUP

# newsletter

GLOBAL RESEARCH ALLIANCE
ON AGRICULTURAL GREENHOUSE GASES

# Update from the co-chairs

We have recently returned from a successful meeting of the Alliance Council which was held in Saskatoon, Canada (June 4/5). The Research Group co-chairs had an opportunity to present an update of their activities to the Council members which was well received.

Discussions immediately following the presentations focused on the future plans for the Groups, cross research group collaborations and future reporting to the Council. We will update LRG members more comprehensively of results from this meeting when we see you at the LRG meeting to be held in Punte del Este, Uruguay (November 1/2, 2012). In the meantime, a brief report from the meeting and what it means for the LRG can be found on page 3.

Other articles of interest in this edition of the newsletter include a country focus on Ghana who are currently the only African country represented in the Alliance and hosts of the next regional capability building workshop later this year (page 2). A ten year old New Zealand industry-government consortium is featured (on page 4) as an example of the vertical exchange of knowledge, information and technology transfer from science to stakeholders (farmers, industry, policy etc) which results in a demonstrable reduction in GHG emissions intensity is being achieved in New Zealand. There is also an article (on page 6) which outlines the UK's comprehensive funding programme for GHG research. A recent investment into the Agricultural GHG Inventory Research Platform seeks to improve the accuracy and resolution of the UK reporting system whilst further investment supports UK scientists to participate in various activities identified by the Research Groups of the Alliance.

The usual updates on the activities of the Research Networks and capability building opportunities, including student opportunities being offered through the FONTAGRO project can also be found.

Enjoy reading,

**Harry and Martin**

## Global Partnerships Fund opens for a second round

The New Zealand Fund for Global Partnerships in Livestock Emissions Research (the Fund) is a contestable international research fund set up by New Zealand in support of the Global Research Alliance on Agricultural Greenhouse Gases. The second round of the Fund opens on 25 June 2011 with NZ$15 million of available funding to support proposals up to three years in duration. The size of individual proposals is expected to be in the range of NZ$1 – 3 million over the three years.

The Fund seeks proposals in response to a set of high-level research challenges in the areas of:

- Manipulating rumen function
- Reducing nitrous oxide emissions from soils in predominantly grazing livestock systems
- Manipulating the rates of soil carbon change in predominantly grazing livestock systems
- Improved information for farmer decision making in predominantly grazing livestock systems

The Fund is open to international scientists, and multi-stakeholder/country consortia bids are encouraged. International co-funding is expected. Projects can be led by a New Zealand participant or one from an Alliance member country but if the latter, must meet minimum New Zealand participation requirements.

For more information visit the Global Partnerships Fund website www.mpi.govt.nz/nzlivestockemissionsfund

New Zealand Government

# A country focus: Ghana - East Africa

Agriculture is one of the economic pillars of Ghana's development. The nexus between economic development and Ghana's ability to achieve its food and nutrition security goals are inextricably linked. Agriculture in Ghana is also critical for rural development and associated cultural values, social stability, and environmental sustainability.

Livestock production in Ghana contributes towards meeting food needs, providing draught power, manure to maintain soil fertility and structure, and is an important source of cash income particularly for farmers in the northern part of the country - supporting 10 million people. Livestock contributes just 6.1% of the agricultural sub-sector growth by GDP. Livestock populations are estimated as 1.4m Cattle, 3.4m sheep, 4.3m goats, and 0.5m swine: and projected to increase at a rate of 13% annually due to government policies and public demand for livestock products (FAO, 2009).

Most farmers are small holders and animals graze on natural pastures and crop stubbles which are low in protein and contain large proportions of indigestible fibre which may emit methane during ruminal enteric fermentation. To promote the productivity of livestock, especially ruminants, cost effective feed supplements that optimize rumen function and ensures higher efficiency of growth, meat and milk production are needed. This is why the project "sustainable strategies to mitigate greenhouse gas emissions in livestock production systems while maintaining agricultural productivity" has been developed. A collaboration between the Department of Animal Science, Kwame Nkrumah University of Science and Technology (Ghana), Agriculture and Agri-Food Research Centre, and Best Environmental Technologies Inc, (both Canada), the project considers animal feeding strategies using locally produced feed stock that may have the potential of mitigating methane from enteric fermentation. Grasses and multipurpose tree fodder that are fed to livestock in the six agro-ecological zones in Ghana are being gathered and tested for their nutritional value and associated methane emissions. Preliminary assessment by Agri-Food Canada indicated that including 10% of shea nut cake (Butyrospermum parkii) in finishing feedlot diets reduced 24 h in vitro methane production by approximately 20% without any significant reduction or changes in total and individual volatile fatty acid production. Methane output was also reduced during in vitro ruminal fermentation of Congo signal grass (Brachiaria ruziziensis) when the in vitro mixture was supplemented with 20% of leaves of the common bush weed plant Securinega virosa. These locally available feed sources are being evaluated because of the reduced costs of obtaining it and increased availability which may facilitate its use by small-scale farmers.

It is expected that the outcome of this research will inform policy on the development of the best techniques for reducing GHGe per unit of animal product in commercial farms.

Ghana is currently the only African country represented in the Alliance and has been a member of the Global Research Alliance since 2011.

**West Africa Greenhouse Gas Inventory and Measurement Capability Building Workshop**
**22-24 October 2012, Accra, Ghana**

The workshop aims to improve understanding of farming systems in the region and to document critical data, knowledge, and capability gaps that need to be addressed to enhance the region's ability to measure, monitor, and inventory greenhouse gas emissions in order to inform ways to improve productivity and resiliency of agriculture under climate change in a sustainable manner.

To achieve these aims, the workshop will have two targeted objectives:

a) develop a common understanding of production systems that represent regional practices and existing activity data. This will improve opportunities for countries to identify similar systems to better share knowledge on improved production practices, environmental sustainability, and resilient and resource efficient farming systems
b) identify crucial areas within those production systems where region/country-specific emission factors could be developed via measurements, and to undertake priority measurements across the region to improve environmental sustainability. Identifying critical needs for measurement guidance and methodologies is included within this objective.

A key goal of the workshop is to identify opportunities for future collaboration and coordinated capability building activities. This workshop is hosted by the Government of Ghana and co-sponsored by the Inventories and Measurement Cross Cutting Group and the Livestock Research Group of the GRA. The Inventory and Measurement Cross Cutting Research Group of the Alliance will meet in Ghana immediately following the workshop from 24-26 October 2012.


Hayden Montgomery (Secretariat, NZ); Paul Stocks (shown in the picture as Chair, New Zealand) handing over the reins to Jamshed Merchant (shown in the picture as Vice Chair, Canada)

# Update from the Alliance Council Meeting

The Alliance Council met for the second time from 5 to 7 June 2012 in Saskatoon, Canada. Twenty-two of the 33 Alliance member countries were represented at the meeting: Argentina, Brazil, Canada, China, Colombia, France, Ghana, Indonesia, Ireland, Japan, Korea, Mexico, The Netherlands, New Zealand, Philippines, Sweden, Switzerland, Thailand, UK, USA, Uruguay, and Vietnam. Alliance Members unable to attend were Australia, Chile, Costa Rica, Denmark, Finland, Germany, Italy, Malaysia, Norway, Peru and Spain.

The Research and Cross-Cutting Group Co-Chairs were invited to present to the Council an update of their groups' activities over the last 12 months. The Co-Chairs presented a coordinated power point presentation (available in the member's area of Alliance website www.globalresearchalliance.org). After an overview of the Groups was presented by Martin Scholten, the Co-Chairs of each Group provided a summary of its work plan and activities to date[1]. The presentation concluded by Martin outlining a number of challenges facing the research groups: these include ensuring a coordinated effort across the Groups, widening their reach and effectiveness, ensuring effective communication, and ensuring an inclusive approach that benefits all.

Four partners of the Alliance were also present at the meeting: Consultative Group on International Agricultural Research (CGIAR), Inter-American Development Bank (IADB), Inter-American Institute for Cooperation in Agriculture (IICA), World Bank. Each partner presented their views on links and collaboration opportunities to the Council (presentations available in the member's area of Alliance website www.globalresearchalliance.org). After each presentation there was an opportunity for the Council to discuss with each Partner how they may work with the Alliance.

**Outcomes from the meeting:**

- New Zealand handed over the Chair of the Council to Canada (Jamshed Merchant, Assistant Deputy Minister, Agri-Environment Services Branch, Agriculture and Agri-Food Canada)
- Uruguay was confirmed as Vice-Chair of the Alliance Council
- Brazil was confirmed as Co-Chair of the Croplands Research Group
- New Zealand continues as the Alliance Secretariat
- Alliance Communications Policy was finalised and adopted by Council
- Alliance Secretariat to participate as observer on the Stakeholder Advisory Board of the Agriculture Food Security and Climate Change – Joint Programming Initiative (FACCE-JPI)

**Actions for the LRG:**

- Co-Chairs of the LRG (and the other research groups) to participate in a teleconference with the Council Chair and Secretariat every three months
- The work plan of the LRG (and the other research groups) is to be made available to the Council
- The LRG (and the other research groups) will provide a brief up-date report to the Council every six months with a presentation to be given annually on activities being undertaken against the work plan
- LRG member countries to decide if they would each like to have an individual web-page on the Alliance website which directly outlines or links to sources of information that outline what their country is doing to measure and manage agricultural GHG emissions

**The next LRG meeting**

Punte Del Este in Uruguay is the location for the next meeting of the LRG; which is set to start on the afternoon of the 1st and continue through the 2nd November 2012. The meeting will be an opportunity to consider further work that the LRG can undertake in light of the feedback from the Council. Our structured and balanced work plan was positively received by the Alliance Council and we must now consider how we can meet the Councils' expectations and build on our collaborative approach and successful research projects that we have already initiated.

Details of the meeting will be distributed when they become available.

*[1]The Soil Carbon and Nitrogen Cycling Cross-cutting Group Co-Chairs were unable to attend, and their presentation was given on their behalf by Harry Clark*

# Two heads are better than one

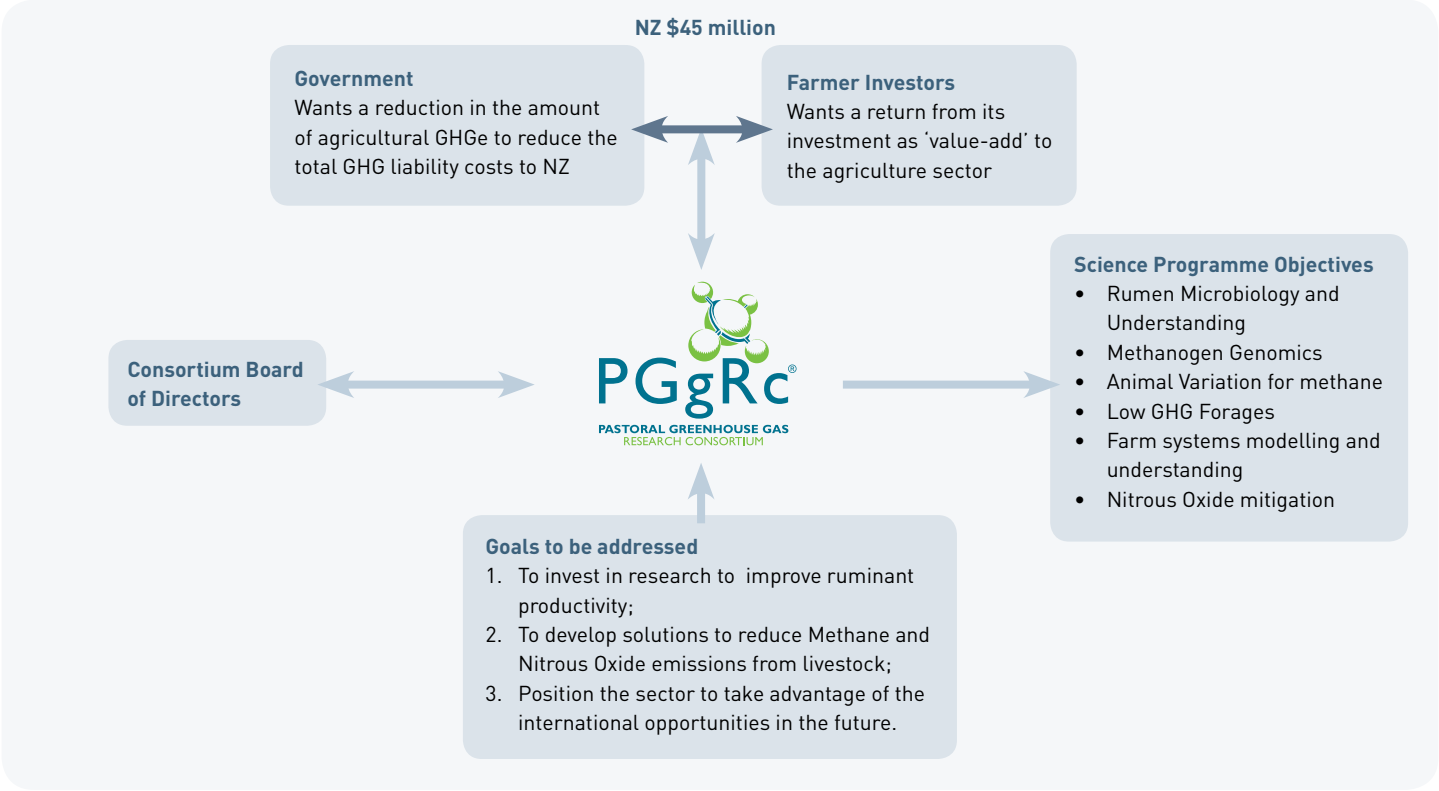
## – the New Zealand consortium addressing livestock emissions

PGgRc®
PASTORAL GREENHOUSE GAS RESEARCH CONSORTIUM

New Zealand's greenhouse gas emissions (GHGe) profile is unique as a developed country; almost half of its total GHGe come from pastoral agriculture through its significant cattle, sheep and deer populations. But agricultural also creates more than half of New Zealand's merchandise export earnings.

Making significant reductions of GHGe as part of international agreements on climate change without jeopardising its prosperity is therefore a significant challenge, requiring cooperation between Government and Industry to fund transformational science to deliver mitigation technologies, products and services to the agricultural sector.

One way in which New Zealand is addressing this challenge is through the Pastoral Greenhouse gas Research Consortium (PGgRc). The consortium is a joint venture between industry, representing the main livestock sectors in NZ pastoral agriculture (dairy, beef, sheep deer and fertiliser), and the Government. Since 2002, industry and government have invested equally into research to develop mitigation solutions for reducing methane and nitrous oxide emissions from grazing ruminants. Over the last 10 years, NZ$45m have been invested into a broad range of science areas to find cost effective mitigation solutions that are appropriate to the New Zealand pastoral industry. One key challenge is that farming in New Zealand is pasture based and therefore known and existing mitigation options such as feed additives and manure management can make only minor contributions to addressing agricultural GHGe, and new and novel solutions are needed.




The joint approach ensures that any solutions keep commercial viability and uptake by farmers in mind while responding to the government's goals to reduce the liability presented by rising GHGe. As Figure 1 illustrates, the PGgRC is the 'meat in the sandwich' with two stakeholders to manage; each with its own set of expectations. Its farmer investors want mitigation solutions which are affordable, effective and have no adverse affect on productivity. The Government wants an overall reduction in emissions which will reduce any costs associated with its emissions liability. The PGgRC works closely in partnership with its main research provider AgResearch Limited to drive the science programmes that are relevant but retain the flexibility to focus on leads as they have been discovered. The PGgRC then ensures that the transfer of information arising from its science projects is readily available and communicated in easily understood ways.

This approach has delivered steady progress and although a cost effective mitigation for methane has not been developed as yet, key steps have been made towards that. Highlights of research since 2002 are;

- The first rumen methanogen genome sequenced and published, which underpins efforts to find antibodies or chemogenomic inhibitors of methane-producing microbes
- A flock of low and high methane emitting sheep that allow exploration of the causes of natural variability and derive genetic predictors that can be exploited for targeted breeding
- the development of comprehensive methods for measuring and monitoring rumen microbial populations that now enable a more rapid assessment of intervention options
- a contribution toward the development of Dicyandiamide (DCD) as a nitrification inhibitor that can mitigate Nitrous Oxide from pastoral grazing systems
- Solid progress towards using genomic knowledge to develop methane inhibitory compounds and a vaccine against methanogens.

## Why has the PGgRC been successful?

- The investment has spanned 10 years; stable funding has clear benefits for science programmes, and investors from both industry and government were clear about the need for a long-term focus
- The concept of matched funding where parties invest equal amounts of money is a positive basis to build upon
- The Consortium model promotes inclusivity and ownership of the outcomes.
- The end–user of any solutions (livestock farmers and government) is financially involved and ensures that the drive to develop a cost effective and productive mitigation solution for GHGe that match agricultural practice is always front of mind. The potential liability for unmitigated GHG emissions has required all participants to invest into areas of science that are a long way from delivery but critical to build a stable platform for success
- The Science community has been supported to do their science, and build and retain core capacity in critical research areas; knowing that this challenge is biologically complicated and will take time to understand and solve is matched by a stable funding environment
- Difficult conversations have been had around the protection of Intellectual Property (for future commercial exploitation) versus the need for scientists to publish, leading to the adoption of a mutually beneficial approach using patenting and timing

## The Future

The PGgRC recognises that the challenge of reducing emissions from freely grazing animals is not unique to New Zealand. Collaboration must expand across countries to maximise the potential for faster progress towards the new and novel solutions needed for improving agricultural productivity and reducing its contribution GHGe. The Alliance provides a valuable platform and impetus to share knowledge, data and expertise in ways that no single country can. However, the need for international collaboration is instigating changes to the funding landscape for livestock emissions mitigation research within New Zealand, with a drive towards a more integrated "New Zealand Inc" approach that will see science programmes being even more closely aligned and more focused investment to accelerate the delivery of end-user driven solutions. The PGgRC is excited by this next phase in its work programme and the opportunities to increase research capacity offered by global coordination.

For further details follow www.pggrc.co.nz

# UK GHG Research Platform supports the goals of the Alliance

**The UK Government has invested significantly in agricultural GHG emission research over the last 18 months. A £12.6 million Agricultural GHG Inventory Research Platform seeks to improve the accuracy and resolution of the UK reporting system whilst further investment supports UK scientists to participate in various activities identified by the Research Groups of the Alliance. Funding from the Department for Environment, Food and Rural Affairs (Defra) has been allocated to ADAS[2] to facilitate and coordinate UK involvement in the Alliance.**

The UK is leading the LRG's work investigating links and synergies between efforts to reduce the burden of disease on livestock and GHG emissions intensity. The aim is to promote and share information on links between animal health and GHG emissions, identify gaps, and focus research efforts that can help countries increase their livestock productivity while lowering emissions intensity. A meeting in Bangkok (June 2012) has scoped the possible activities and priorities for this work by the LRG, including the potential for a dedicated research network (see page 8 for an update of this meeting). UK scientists are also participating in ongoing LRG activities such the RMG and ASGG networks, and research collaboration on rapid low cost automated enteric measurement. The UK has been involved in co-authoring the best practice guidance on using chambers to measure nitrous oxide ($N_2O$) from soils, and recently contributed to the capacity building workshop on measurement and mitigation of GHG's in SE Asian livestock systems. In October 2011, the UK hosted a GHG measurement methodologies and techniques workshop to support the goals of the Alliance.

Many of these contributions build on the projects being undertaken within the current UK GHG platform. Initiated in 2011, the platform will generate new country-specific measured and modelled methane ($CH_4$) and $N_2O$ emission factors from agriculture. The main objective of the research is the development of an improved Agricultural GHG Inventory that uses appropriate country- and practice-specific emission factors and reflects the adoption of mitigation practices by the agricultural industry. This will enable forecasting and monitoring of performance against the wider UK target emissions reductions set by the UK Climate Change Act 2008. The Platform comprises three closely linked projects:

Scientists involved in the Methane Research Project

### 1. Data synthesis, modelling and management project

This project is providing a synthesis of new and existing evidence on GHG emission factors and the effectiveness of mitigating measures. This will be integrated with UK agricultural statistics and data on farm practices to define an improved emissions inventory structure for reporting and tracking change, and will be supported by the development of a robust methodology to quantify the uncertainty in emission estimate.

### 2. Methane ResearCH$_4$ project

This project is measuring $CH_4$ emissions from different livestock types under different farming systems representative of the UK to understand how animal nutrition, rumen additives, genetic differences, and farming systems affect emissions (and how they might be reduced). It will also produce emission factors that better represent livestock management in the UK. Experimental work is running at the partner organisations across the UK, with $CH_4$ emissions being determined from dairy cattle, beef cattle, and sheep, using a range of ages, breed types, and diets. A number of different techniques are being used to measure $CH_4$ emissions, including chambers, the $SF_6$ technique, and online monitoring, together with novel techniques such as the hand-held LaserMethane detector.

### 3. Nitrous Oxide InveN$_2$Ory project

This project is measuring $N_2O$ emissions from soils, taking account of influencing factors such as the amount and timing of manufactured and organic nitrogen applications, and the use of nitrification inhibitors. The aim is to understand the major factors controlling the amount of $N_2O$ released from soil and produce emission factors that better reflect the range of soils, climate, and crop and soil management within the UK. The work to measure $N_2O$ emissions from soils has required round-the-clock analysis of samples taken from chambers across the UK. Experiments quantifying emissions from fertiliser and manure applications to grassland and arable land were started in spring 2011. Laboratory examination of the major controls on the effectiveness of the nitrification inhibitor DCD and field campaigns to examine spatial variability of $N_2O$ fluxes and comparisons of Eddy Covariance and Chamber methods to quantify fluxes are underway.

For more information visit the UK GHG Platform website at www.ghgplatform.org.uk

*[2]ADAS is one of the UK's largest independent providers of agricultural and environmental research and consultancy, rural development services and policy advice.*

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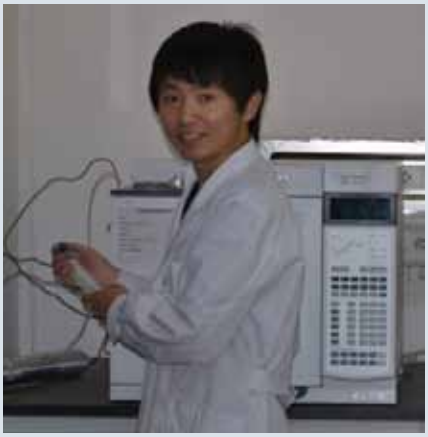
# Grazing cattle have no net impact on Nitrous Oxide emissions...

...is the title of a PhD being studied by Lei Zhong. He is embarking on his PhD considering the "effect of grazing on nitrous oxide emissions from nitrification and denitrification processes from temperate grasslands". Lei is enrolled in his PhD at the Graduate University of the Chinese Academy of Sciences, but as a LEARN co-funded PhD scholar he will undertake part of his PhD programme in New Zealand.

Although studying under the primary supervision of Ecology Professor Yanfen Wang, an expert in grassland ecosystem ecology, biogeochemistry, and carbon and nitrogen cycling, Lei also benefits from a New Zealand based supervisory team of Dr Frank Li, an expert in agro-ecosystem modelling and analysis and Dr Saman Bowatte a expert soil microbial ecologist both at AgResearch, Palmerston North, New Zealand. Lei will be in New Zealand for 16 months during which time he will carry out extensive field work and data analysis.

Lei's PhD programme builds on the knowledge that animal grazing, in general, affects the carbon and nitrogen cycling in grassland ecosystems. But as Lei explains, ***'there is no assessment to date on the effects of cattle grazing on nitrification and denitrification processes, and on nitrous oxide emissions from meadow steppe grasslands in Northern China, especially the effects of animal excreta on nitrous oxide emissions. The primary objective of my research is to quantify the nitrous oxide emissions through nitrification and denitrification processes from soils from meadow steppe grassland in northern China and managed temperate grassland in New Zealand".***



Lei Zhong (LEARN PhD student) says that "the field and laboratory data collected will be used to model nitrous oxide emissions using a process-based ecosystem nitrogen model"

# The International Meat Secretariat (IMS)

The International Meat Secretariat (IMS) is a non-profit association that brings together meat and livestock organizations throughout the world. It currently boasts 94 members from 30 different countries. The IMS provides a forum for the exchange of ideas and experiences on the issues affecting the international meat and livestock sector. The IMS focuses on sustainability and has established a number of committees to positively promote the meat sector. In doing this the IMS developed relationships with organizations where there are common interests to pursue. The IMS has recently formalised its relationship with the Food and Agriculture Organisation, where it will represent the Pork and Beef and Lamb industry on its steering group; providing positive inputs from these agricultural sectors. The IMS were represented at the last LRG meeting in Amsterdam to explore potential areas for collaboration where the IMS and LRG share common goals. Following the meeting, the LRG was profiled by the IMS Secretary in a recent newsletter to raise awareness of the activities of the LRG and help members of both organisations to identify any opportunities for further engagement.

For further information follow the link to the website: http://www.meat-ims.org

INTERNATIONAL MEAT SECRETARIAT
Oficina Permanente Internacional de la Carne
Office International de la Viande

# Updates from the Networks

## The Animal Selection, Genetics and Genomics Network (ASGGN)

The first ASGGN meeting will be held Cairns, Australia on 21st July 2012; following the International Society for Animal Genetics (ISAG) Conference. The Network provides opportunities for science, policy and industry personnel interested in animal selection, genetics and genomics research to share ideas, technologies and data, develop new research projects, build capability and collaborations and avoid duplication of effort.

Anyone interested in attending the Network meeting, or establishing collaborations in the area of animal selection approaches towards mitigating methane emissions from ruminants should contact the co-convenors: Dr Hutton Oddy (NSWDPI, Australia) or Grant Shackell (AgResearch, Invermay, New Zealand) by clicking here.

### Recent Activities of the ASGGN:

The Reducing Emissions from Livestock Research Programme, an Australian funded research initiative met recently in Sydney Australia. This research programme has become an aligned activity of the ASGGN and members were able to share science results and to compare work being conducted in Australia and New Zealand on independent populations. Hosted by Meat and Lamb Australia the meeting outcomes suggest that there is a host genetic basis underpinning at least some of the variation in methane yield in a range of different populations of sheep and that this is of a similar magnitude to that observed in cattle.

## The Manure Management Group

The Manure Management Network will hold its inaugural meeting in Rome during the first week of September 2012. The meeting will not only be an opportunity for scientists to exchange information about their research on the mitigation of GHG emissions from manure but the plan is to develop a research workplan for the Network, discuss how individuals can cooperate more between the countries and disseminate knowledge generated.

The Manure Management Network is keen to facilitate a close connection with the Livestock Dialogue which is led by the FAO; a Group which also focuses on options for "zero discharge" from manure. Cooperation in this field is key for the LRG and the Livestock Dialogue. For more information contact: paul.vriesekoop@wur.nl

## Rumen Microbial Genomics Network

The 2nd Rumen Microbial Genomics (RMG) Network meeting was held on 21st June 2012 in Clermont-Ferrand, France. Around 50 scientists from 12 countries attended the day-long workshop that was held immediately following the INRA-Rowett Gut Microbiology conference.

The workshop organisers Diego Morgavi (INRA, France) and Adrian Cookson (RMG Network Co-ordinator, AgResearch, New Zealand) opened the meeting with an overview of the Network. Presentations from Bill Kelly, Graeme Attwood and Adrian Cookson (AgResearch, New Zealand), gave updates on projects that have been funded by the New Zealand Government to support the work of the Network and the LRG. Joel Doré (INRA, France) provided some insights

into the structure and progress of the Human Microbiome Project and the EU MetaHIT programme to stimulate discussions on how lessons learned from these networks will be useful in the RMG Network development.

After lunch participants split into groups to discuss how the RMG Network might function; agreeing a mission statement, organising the structure, standardising research methods and protocols and developing new research projects. The workshop was a great opportunity for feedback and dialogue on network progress and good levels of participation enabled a great deal of points to be covered. The scientific and network-focussed discussions will be distilled into a summary document that will be made publicly available through the RMG website. www.rmg.org.nz

## Animal Health Network

The UK is leading the LRG's work investigating links and synergies between efforts to reduce the burden of disease on livestock and GHG emissions intensity. The aim of this work is to promote and share information on links between animal health and GHG emissions intensity, identify gaps and focus research efforts that can help countries increase their livestock productivity while lowering emissions intensity. A meeting in Bangkok (June 2012) has scoped the possible activities and priorities for this work by the LRG, including the potential for a dedicated research network.

The scoping workshop on Animal Health and Greenhouse Gas Emissions Intensity Network was held following a meeting of the STAR-IDAZ[3] consortium. Twenty countries were represented with participants from the African Union (AU-IBAR), the STAR-IDAZ, LRG, World Organisation of Animal Health (OIE) and Food and Agriculture Organisation (FAO). The workshop opened with an introductory talk to explain the background of the Alliance and the LRG. Several excellent talks were given in order to provide background information on the issue. Timothy Robinson from the FAO presented an analytical framework that could be used to approach the problem and demonstrated emission reductions of ~9% through control of disease. John Elliott of ADAS then presented an ongoing project funded by Defra and Scottish Government that aims to produce a MACC (Marginal Abatement Cost Curve) to model the impact of controlling endemic cattle diseases and Jos Houdjik of Scottish Agricultural College presented some experimental work that neatly showed helminth infection increases the GHGe of an animal per unit of product.

Participants in the workshop then had a chance to discuss and voice their opinions on priority areas and the benefits or otherwise of setting up a network. Given that this is a novel area of research, the majority of members found the introductory talks most informative and felt that setting up a network would be valuable. There was great support for this network to initially act as an information sharing structure that could provide benefits beyond this as it matures. The UK will now present recommendations on establishing a network in partnership with the LRG and STAR-IDAZ.

*[3]STAR-IDAZ is a global network of Animal Disease Research www.star-idaz.net*

# Global Research Alliance Senior Scientist (GRASS) Award

## Supporting research in Agricultural Greenhouse Gases

The New Zealand Government in support of the goals of the Global Research Alliance is funding senior scientists from Alliance member countries 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.

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### 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

### 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

## STOP PRESS

FONTAGRO is a three year regional collaboration project that aims to improve the national greenhouse gas inventories and develop mitigation options adapted to the farming conditions of participating countries. Led by Uruguay it involves research institutes across Argentina, Chile, Colombia and the Dominican Republic. A number of research opportunities are available that individuals from any of the FONTAGRO countries can apply for. Please email the nominated contact person if you are interested in any of the opportunities.

| Country | Institution | Student opportunity | Theme | Research opportunity | Period | Financial assistance | Nominated Contact Person |
|---|---|---|---|---|---|---|---|
| Uruguay | INIA - Uruguay | Internship | Chromatography | Adjustment of a gas chromatograph for $N_2O$, $CH_4$ and $SF_6$ determination | 4-6 mo | Partial | pnunez58@gmail.com |
| Uruguay | INIA - Uruguay | Master Thesis | Nitrous Oxide | Quantification of $N_2O$ from bovine urine | 1-2 yrs | Partial | vciganda@inia.org.uy |
| Chile | INIA - Chile | Other | Nitrous Oxide | Training on $N_2O$ measurements using manual and automatic systems | 1-2 mo | Partial | vciganda@inia.org.uy |
| Chile | INIA - Chile | Other | Chromatography | Training on GHG determination by gas chromatography | 1-2 mo | Partial | malfaro@inia.cl |
| Chile | INIA - Chile | Master Thesis | Nitrous Oxide | Determination of nitrous oxide emission factors from grasslands in volcanic soils | 1-2 yrs | Partial | malfaro@inia.cl |
| Chile | INIA - Chile | Master Thesis | Nitrous Oxide | Soil processes associated to GHG emissions | 1-2 yrs | Partial | malfaro@inia.cl |
| Chile | INIA - Chile | Master Thesis | Nitrous Oxide | GHG mitigation alternatives for grasslands | 1-2 yrs | Partial | evistoso@inia.cl |