

2024 GRA Research Group Report

[Livestock Research Group]

This reporting template is divided into four main sections: 1) Research Group (RG) overview, 2) Networks' information and updates, 3) current and future activities of the Research Group, 4) additional information regarding climate change adaptation co-benefits, collaboration opportunities with other GRA Research Groups/Partners, issues to be addressed at the upcoming GRA Council meeting, key publications produced by Networks.

The Secretariat will use the completed reports to keep up-to-date about RG activities, identify the best ways to support activities moving forward, and communicate activities and achievements both to the Council and the broader public.

1) Research Group Overview

GROUP LEADERSHIP

Co-Chairs:

- Tommy Boland (UCD; Ireland)
- Richard Dewhurst (SRUC; UK)
- Sinead Leahy (NZAGRC; New Zealand)

Support Team:

- Chista Keramati (NZ MPI, New Zealand)
- Jo Monjol (NZ MPI, New Zealand)

GROUP MEMBERS

All GRA member countries are signed up for Livestock Research Group:

Argentina, Australia, Bangladesh, Belgium, Benin, Bolivia, Brazil, Cameroon, Canada, Chile, China, Colombia, Costa Rica, Cote d'Ivoire, Cuba, Democratic Republic of Congo, Denmark, Dominican Republic, Ecuador, Egypt, Eswatini, Ethiopia, Fiji, Finland, France, Germany, Ghana, Honduras, Indonesia, Ireland, Italy, Japan, Kenya, Lithuania, Malaysia, Malawi, Mexico, Mongolia, Namibia, the Netherlands, New Zealand, Nicaragua, Nigeria, Norway, Panama, Paraguay, Peru, Philippines, Poland, Samoa, Senegal, South Africa, South Korea, Spain, Sri Lanka, Sweden, Switzerland, Thailand, Tunisia, Turkey, Uganda, United Kingdom, United States of America, Uruguay, Viet Nam, Zambia, Zimbabwe

MOST RECENT GROUP MEETING

Meeting date and location:

The 15th Annual Meeting of the Livestock Research Group (LRG) was held in-person at ISARA, Lyon, France on 1st September 2023 – immediately following the EAAP and WAAP Meeting. The meeting was attended by 38 participants, representing 18 member countries of the GRA and four partner organisations.

Attended by Alliance member countries:

Argentina, Australia, Belgium, Denmark, Finland, France, Germany, Ireland, Japan, Namibia, Netherlands, New Zealand, Norway, Senegal, South Africa, Spain, Switzerland, United Kingdom.

Participating partner organisations:

- Centre for Coordination of Agricultural Research and Development for Southern Africa (CCARDESA)
- International Livestock Research Institute (ILRI) – part of CGIAR.
- Global Methane Hub (GMH)
- Climate and Clean Air Coalition (CCAC).

NEXT GROUP MEETING

Meeting date and location:

The 16th Annual Meeting of the Livestock Research Group (LRG) will be held in Berlin on Thursday 24th October 2024, following the AgriGHG 2024 Conference (21st to 23rd October). The theme is “Mitigation in Action”.

Subject to agreement at the 16th Annual Meeting, Co-Chairs suggest that we hold the 17th Annual Meeting (2025) in Nairobi, Kenya in association with the Greenhouse Gases and Animal Agriculture (GGAA) Conference.

Other information:

GROUP COORDINATION AND COMMUNICATIONS

Regular teleconference:

Virtual meetings of the Co-Chairs are held at 6-week intervals, with additional planning meetings in the run up to the Annual Meeting.

Email updates/ Newsletters:

Research Group Newsletters have been discontinued; we will use our LinkedIn page to signpost to new material, when released on the LRG website.

There is regular email correspondence with network coordinators, LRG partners and other project leaders on an as needs basis.

Social media presence:

Social media pages for the LRG have not been used, but we are looking to re-energise the LinkedIn page to signpost members to material on the LRG website. Networks are more active users of social media.

Participation in other Research Groups and Networks:

One of the Co-Chairs (Sinead Leahy) is delivering a joint-presentation on behalf of the GRA Co-Chairs at the AgriGHG Conference in Berlin: “The potential of new technologies to reduce greenhouse gas emissions from agriculture”.

We have no formal connections with other Research Groups and Networks and our only contact is through the virtual meetings organised by GRA Secretariat for RG Co-Chairs and Network Leads..

RESOURCING

Travel support to attend meetings:

Funding for activities:

Co-Chairs have support for their attendance at meetings through national funders: DEFRA (UK); DAFM (Ireland); and MPI (New Zealand).

Some of the networks have (or had previously) large project funding that helped maintain core activity – this was particularly the case for Rumen Microbial Genomics (current EU HoloRuminant project), Feed and Nutrition Network (GRA Flagship on Feed Additives) and Manure management Network (Dataman). Animal Health Network is seeking COST action funding in their area.

WEBSITE PROMOTION

[List title, date and contact person for any upcoming webinars]

[List project title and contact person for any projects, events or activities that should be promoted on the GRA Website]

2) Networks' Information and Updates

Network name	Network coordinators <i>(names and institutions)</i>	Network Update <i>(e.g., communications, meetings, workshops, publications, funding applications, participation in Flagships or other GRA activities, etc.)</i>
Animal Health & GHG Emissions Intensity Network (AHN)	Nick Wheelhouse, Edinburgh Napier University (UK) and Seyda Ozkan, Independent consultant (Italy)	<p>The AHN aims to bring together researchers, governments, non-governmental organisations, private sector from multiple background to understand the impact of climate change on animal health.</p> <p><u>AHN:</u></p> <ul style="list-style-type: none"> o 70 members across 24 countries; still need to increase membership in Africa, Southeast Asia, Eastern Europe o ANH Newsletter: produced regularly by communication coordinator: Lydia Lanzoni. <p><u>Ongoing activities:</u> Major new project “Animal health as a climate solution”</p> <p>We are pleased to announce that GMH has recently approved funding for USD 1.1 million for the Phase I project ‘Animal health as a climate solution’ that will run from 1 August 2024 to 31 July 2025. This project will generate data on disease syndromes, pathogens, intervention options, research tools, policy implementation and more.</p> <p>The first phase of this proposed multi-year project has five major components:</p> <ol style="list-style-type: none"> 1) Building a global animal health and climate research framework and agenda 2) Demonstration project in Kenya on mastitis

Network name	Network coordinators <i>(names and institutions)</i>	Network Update <i>(e.g., communications, meetings, workshops, publications, funding applications, participation in Flagships or other GRA activities, etc.)</i>
		<p>3) Livestock health in NDCs/climate commitments - following the recommendations of and building on the FAO report on the role of animal health in national climate commitments</p> <p>4) Planning for Phase 2</p> <p>5) Campaign to build global ambition toward animal health and climate change</p> <p>Environmental Defense Fund (EDF) is coordinating the overall project. The AHN and a number of individual network members are playing key roles in coordination and delivery across all the work packages working with other international stakeholders including the GRA, INDC network, Global Dairy Platform and International Livestock Research Institute.</p> <p>This funding is the culmination of a truly collaborative process where the Network has provided a central role in bringing together a number of partner organisations in the process of developing the project and we are grateful to GMH for their vision and trust.</p> <p>A new chapter is beginning for AHN as a network which is central to the work of bringing animal health to the forefront of climate mitigation.</p>
Animal Selection, Genetics and Genomics Network (ASGGN)	Suzanne Rowe, AgResearch (New Zealand)	<p>ASGGN is a forum for scientists exploring the impact of genetics technologies for managing livestock GHG emissions.</p> <p><u>ASGGN Members:</u></p> <ul style="list-style-type: none"> o Over 200 members, in 40 countries o Still need to get more membership from Africa, Southeast Asia <p><u>Activities:</u></p> <ul style="list-style-type: none"> o Group present on social media (Twitter) and has its own webpage o the network organised webinars and publications

Network name	Network coordinators (names and institutions)	Network Update (e.g., communications, meetings, workshops, publications, funding applications, participation in Flagships or other GRA activities, etc.)
		<ul style="list-style-type: none"> o Enteric Flagship: more than 1,000 samples collected over five countries. This is an on-going projects and samples can be sent for analysis. o Methane predicts: Project funded by NZ and Ireland, aiming at developing and validating high throughput predictors for large capacity screening of methane emitting ruminant at individual and system level. This project could be expanded into a Flagship. o Grass to Gas (FACCE ERA-GAS project): sharing protocol and bringing technology together o Support from CLIFF-GRADS alumni to help with website and communications
Rumen Microbial Genomics Network (RMG)	Milka Popova (INRAE, France), Jana Seifert (HOLMIR, Germany) and Yanfen Cheng (Nanjing Agricultural University, China)	<p><u>Activities:</u></p> <ul style="list-style-type: none"> o During the year, the RMG held their webinars, including” Rumen Microbes: Back to the roots of Culture” held on May 28th and 29th. Recordings are available via the GRA secretariat. <p>The Rumen Gateway Flagship led by Sharon Huws is a key activity in this network:</p> <ul style="list-style-type: none"> o 12 hubs, with the main hub is in Belfast o Welcome new samples, which can be sent to the closest hub o Increase involvement of LMIC to capture microbial diversity o All involved become an author of a major publication
Feed and Nutrition Network (FNN)	Andre Bannink, WR (Netherlands), Alex Hristov, Penn State University (US) and David Yáñez-Ruiz, CSIC (Spain)	<p><u>Objectives:</u></p> <ul style="list-style-type: none"> o Summarise and evaluate the available data on mitigating GHG emissions of ruminants by nutritional means o Develop sound recommendations on methane mitigation by nutritional means for stakeholders

Network name	Network coordinators <i>(names and institutions)</i>	Network Update <i>(e.g., communications, meetings, workshops, publications, funding applications, participation in Flagships or other GRA activities, etc.)</i>
		<ul style="list-style-type: none"> o Identify gaps in knowledge and focus research on priority issues <p><u>Activities:</u></p> <ul style="list-style-type: none"> o The Feed Additives Flagship has been a central activity of this network. This has been highly productive with a series of papers (6) submitted to Journal of Dairy Science.
Manure Management Network (MMN)	TBC	<p>The Co-Chair (Tony Van der Weerden) has stepped down and makes the following suggestion:</p> <p>“It may be good to realign the network with ‘circularity systems’, something that has been mentioned in the past. This would then link several aspects of agricultural productions – recycling/reusing manures as a nutrient source, reducing emissions/losses from manures, reducing waste, plus more advanced technologies such as the engineering of biobased fertilisers. It would be constructive to present this to the Council for their feedback. ”</p>

3) Research Group Activities

CURRENT

CURRENT ACTIVITIES					
Activity Name	Outcomes	Members involved	Partners/others involved (if relevant)	Existing funding is provided through (e.g., name of international fund/name of Partner funding or collaboration), including use of any fellowship/exchange programs	Please categorise output as one or more of the following: Capability Building (CB), Research (R), Guidance (G), Policy Support (PS), potential co-benefit with respect to climate change adaptation and resilience (MAC)
There are two <u>FLAGSHIP PROJECTS in the livestock domain:</u> these are sponsored by GRA Council, with many LRG members active in their development and operations.	Current livestock related Flagship projects: 1. Feed Additives (led by D Yanes-Ruis and A Bannink); 2. Rumen Gateway (led by Sharon Huws, QUB)	Open to all GRA/LRG members		GRA supported; also support from industry (Global dairy Platform) for the new Feed Additives Flagship project	R, PS

CURRENT ACTIVITIES					
Activity Name	Outcomes	Members involved	Partners/others involved (if relevant)	Existing funding is provided through (e.g., name of international fund/name of country research funding/name of Partner funding or collaboration), including use of any fellowship/exchange programs	Please categorise output as one or more of the following: Capability Building (CB), Research (R), Guidance (G), Policy Support (PS), potential co-benefit with respect to climate change adaptation and resilience (MAC)
<p><u>NETWORK WORKSHOPS</u> Each network holds annual workshops – these were usually aligned to major conferences or held virtually.</p>	Project concepts; consortium building; funded projects.	Many GRA/LRG members are involved in the different networks	Funding agencies. GRA and EU funding.		R
<p><u>DATABASES</u> Management of major international databases – such as: 'Hungate 1000' rumen microbial genomes (Rumen Microbial Genomics Network) DATAMAN manure emissions (Manure Management Network)</p>	Major 'go-to' databases internationally	Many GRA/LRG members are involved in the different networks			R, G, PS

CURRENT ACTIVITIES					
Activity Name	Outcomes	Members involved	Partners/others involved (if relevant)	Existing funding is provided through (e.g., name of international fund/name of Partner funding or collaboration), including use of any fellowship/exchange programs	Please categorise output as one or more of the following: Capability Building (CB), Research (R), Guidance (G), Policy Support (PS), potential co-benefit with respect to climate change adaptation and resilience (MAC)
Two enteric methane mitigation databases (Feed and Nutrition Network): which summarise and recommend science-based enteric methane mitigation options and support the development of robust enteric methane emission prediction models.					
<u>COLLABORATIVE FUNDING CALLS</u> Exploring opportunities for countries to work together to synergise research calls, build synergy and avoid duplication.	A third Ireland-New Zealand research funding call (supported by DAFM (IE) and MPI (New Zealand) was launched in 2024. The first two calls (2022 and 2023) supported 8 projects	Ireland New Zealand			R

CURRENT ACTIVITIES					
Activity Name	Outcomes	Members involved	Partners/others involved (if relevant)	Existing funding is provided through (e.g., name of international fund/name of Partner funding or collaboration), including use of any fellowship/exchange programs	Please categorise output as one or more of the following: Capability Building (CB), Research (R), Guidance (G), Policy Support (PS), potential co-benefit with respect to climate change adaptation and resilience (MAC)
	with total joint funding of over €14 million.				
<p><u>COLLABORATIVE PROJECTS</u></p> <p>Networks have central roles in major international collaborative projects, such as (Feed & Nutrition Network) Global Network and Capturing Effects of Diet on Emissions from Ruminant Systems (CEDERS) and a new project INTEGRITY (ERA-GAS) and Rumen Microbial Genomics Network</p>	Major global research projects	HoloRuminant: France, Denmark, New Zealand, UK, Israel, Spain, Australia, Finland, Lithuania, Norway, Ireland, Canada, Belgium, Germany, Netherlands		EU Horizon 2020 project with strong RMN involvement: HOLORUMINANT: Understanding microbiomes of the ruminant holobiont. Led by INRAE (Diego Morgavi).	R

CURRENT ACTIVITIES					
Activity Name	Outcomes	Members involved	Partners/others involved (if relevant)	Existing funding is provided through (e.g., name of international fund/name of country research funding/name of Partner funding or collaboration), including use of any fellowship/exchange programs	Please categorise output as one or more of the following: Capability Building (CB), Research (R), Guidance (G), Policy Support (PS), potential co-benefit with respect to climate change adaptation and resilience (MAC)
(HoloRuminant, MASTER)					
REVIEW PAPERS For example, Feed & Nutrition Network has been very active in producing review papers based on the large databases assembled by the network.	Six papers were produced by the Feed Additives Flagship project and have been submitted for publication in Journal of Dairy Science.	Many members of the Feed & Nutrition Network.		Range of funding to support different authors (including member support for co-chairs).	R, PS
PROJECTS with INDUSTRY GRA is acting as a knowledge partner for the Global Dairy Platform (GDP) Pathways to dairy net Zero project - NZAGRC and SRUC	Models, analysis, reports and presentations supporting the GDP Pathways to dairy Net Zero project (e.g. at events linked to COP28/29, Climate Week (New York),	New Zealand, UK, Kenya, Uruguay, Uruguay		Global Dairy Platform (GDP) funding	R

CURRENT ACTIVITIES					
Activity Name	Outcomes	Members involved	Partners/others involved (if relevant)	Existing funding is provided through (e.g., name of international fund/name of Partner funding or collaboration), including use of any fellowship/exchange programs	Please categorise output as one or more of the following: Capability Building (CB), Research (R), Guidance (G), Policy Support (PS), potential co-benefit with respect to climate change adaptation and resilience (MAC)
are leading with input from consultants in various countries and support from FAO GLEAM modellers.	Nourish Conference etc.				

FUTURE

FUTURE ACTIVITIES					
Activity	Expected Outcomes	Members involved	Partners/others involved (if relevant)	Funding to be sought from – (e.g. name of international fund/name country research funding/name of Partner funding or collaboration)	Please categorise expected output as one more of the following: Capability Building (CB), Research (R), Guidance (G), Policy Support (PS), potential co-benefit with respect to climate change adaptation and resilience (MAC)
Establish a LRG sub-group focussing on Africa. [Still a work in progress – but a key target for 2025 meeting in Nairobi]	New research network – led from within Africa, organising local meetings and project development.	Countries in Africa			CB, R, S
Identification of science priorities, barriers to adoption of practice changes and funding mechanisms. Areas include: carbon sequestration and land use, adoption of technologies, data collection for inventories. [Led by networks; we will also ask member countries to	New collaborative R&D and Knowledge Exchange activities	Networks		Networks to identify opportunities; member governments and funding agencies to explore opportunities for joint programming.	R, G

FUTURE ACTIVITIES					
Activity	Expected Outcomes	Members involved	Partners/others involved (if relevant)	Funding to be sought from – (e.g. name of international fund/name country research funding/name of Partner funding or collaboration)	Please categorise expected output as one more of the following: Capability Building (CB), Research (R), Guidance (G), Policy Support (PS), potential co-benefit with respect to climate change adaptation and resilience (MAC)
provide input on priorities and opportunities]					
Prioritisation of science capability needs across LRG and by regions. Contribute to capability development – in conjunction with CCAC, CCAFS, FAO, World Bank and GRA Integrative Research Group (IRG).	Members sharing expertise in mitigation, measurement and inventory development.	Co-chairs with country representatives and partner organisations.			CB

2) Additional Information

CLIMATE CHANGE ADAPTATION CO-BENEFITS

[Note any potential climate change adaptation and resilience co-benefits that may result from current or future activities]

POTENTIAL COLLABORATION WITH OTHER RGS/PARTNERS

Continued work with Global Dairy Platform, beyond the current 'Pathways to Dairy Net Zero' scoping study.

ISSUES TO BE ADDRESSED AT THE NEXT GRA COUNCIL MEETING

Developing plain language summaries to improve science to policy communication (part of the Science and Policy discussion).

Progress with creation of an LRG African network focused on data sharing; inter-regional learning; co-benefits to GHG mitigation, with the support of regional GRA Secretariat and regional organisation such as CCARDESA.

Making best use of global funding opportunities, especially to fund long term projects (Global Methane Hub).

As part of the discussion In terms of future new initiatives, Research Groups and Networks we need to look closely at the remit of the Manure Management Network. The Co-Chair has stepped down and makes the following suggestion:

“It may be good to realign the network with ‘circularity systems’, something that has been mentioned in the past. This would then link several aspects of agricultural productions – recycling/reusing manures as a nutrient source, reducing emissions/losses from manures, reducing waste, plus more advanced technologies such as the engineering of biobased fertilisers.”

KEY PUBLICATIONS PRODUCED BY NETWORKS

Six papers have been submitted to Journal of Dairy Science from the Feed Additives Flagship project (under review):

1. Recommendations for identification and selection of bioactive compounds to develop anti-methanogenic feed additives.

2. Recommendations for testing enteric methane-mitigating feed additives in animal studies.
3. Modeling the impact of feed additives on enteric methane emission of ruminants: Approaches and recommendations.
4. A guideline to uncover the mode of action of anti-methanogenic feed additives for ruminants.
5. Regulatory frameworks and scientific evidence requirements for the authorization of feed additives to mitigate ruminant methane emissions.
6. Assessment of feed additives as a strategy to mitigate enteric methane from ruminants: Accounting – How to quantify the mitigating potential of using anti-methanogenic feed additives.