



GLOBAL
RESEARCH
ALLIANCE

ON AGRICULTURAL GREENHOUSE GASES

2 October 2017



Livestock Research Group

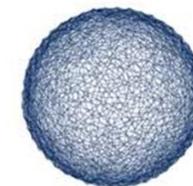
Why GRA?

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ON AGRICULTURAL GREENHOUSE GASES

- brings countries together to find ways to grow more food with lower emissions
- by improving global cooperation in research
- to support farmers, policies and other international organizations

2011



COP15
COPENHAGEN
UN CLIMATE CHANGE CONFERENCE 2009



PARIS2015
UN CLIMATE CHANGE CONFERENCE
COP21-CMP11

AT A GLANCE

48
member
countries



4 Research
Groups




Paddy Rice
Research
Group


Livestock
Research
Group


Croplands
Research
Group


Integrative
Research
Group



20 Science
Networks

14 partner
organisations



Over **3000** scientists
involved in activities of the GRA

44 international
collaborative projects
supporting the GRA



 **50** fellowships awarded to
recipients from **25** countries



19 technical training
workshops held



12 technical guidelines,
resource materials and
databases produced



Partner Organizations

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TO REDUCE SHORT-LIVED
CLIMATE POLLUTANTS



Research Groups

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RESEARCH GROUPS



Livestock



Croplands



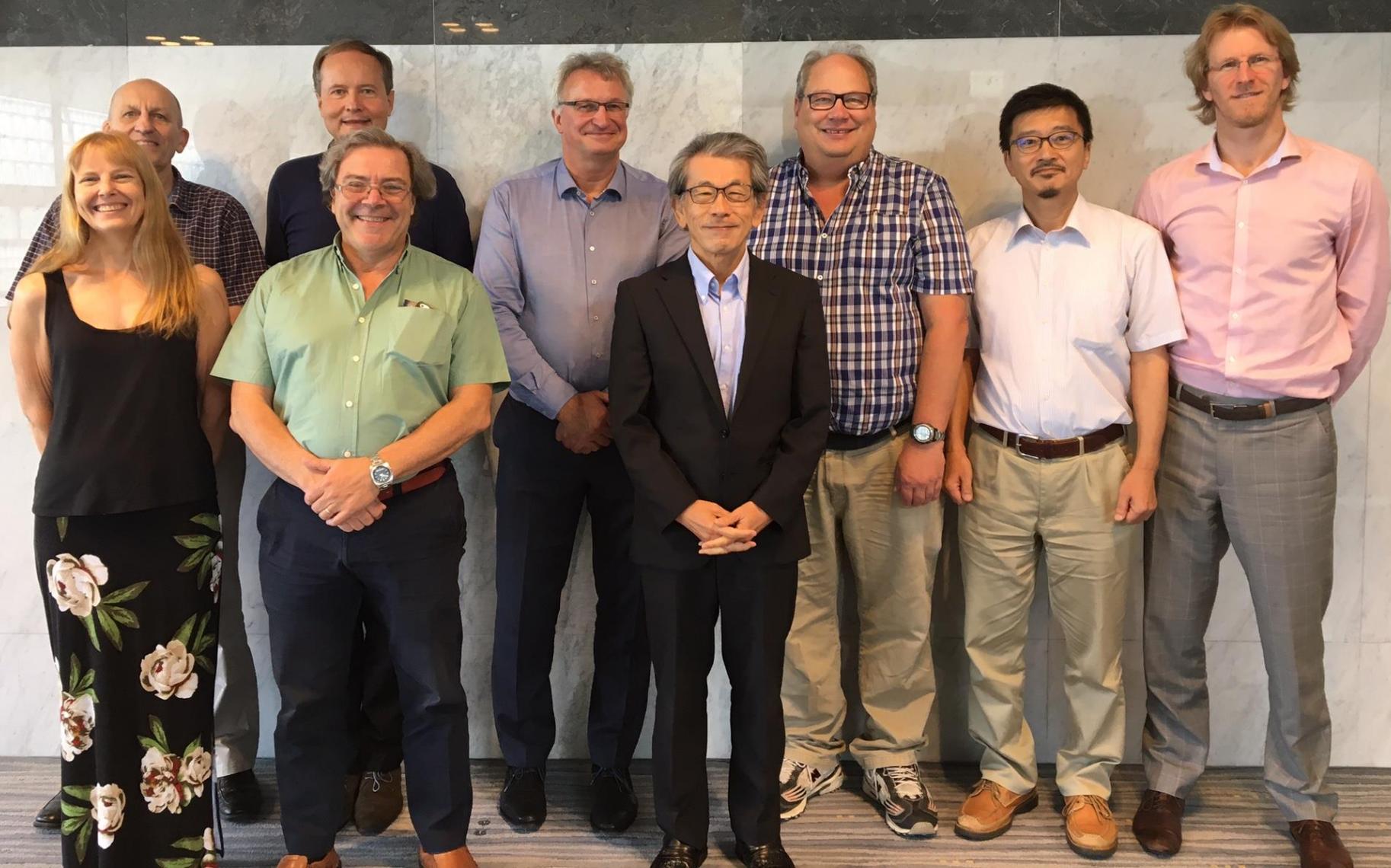
Paddy Rice



Integrative

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Team of Co-Chairs with Chair 2017



Communication

Research Group Brochures

Livestock Research Group



What is the Global Research Alliance?

Agriculture has a vital role to play in the coming decades with the world's population estimated to reach 9.4 billion by 2050. With more mouths to feed but limited natural resources to draw on, the sector must find ways to produce additional food and fibre sustainably, while also contributing to broader development goals.

The Global Research Alliance (GRA) seeks to increase cooperation and investment in research activities to help reduce the emissions intensity of agricultural production systems and increase their potential for soil carbon sequestration. It also seeks to improve their efficiency, productivity, resilience, and adaptive capacity. This contributes in a sustainable way to overall mitigation efforts but also helps meet food security objectives.

The main work of the GRA occurs in its four research groups. These are focused on key agricultural sub-sectors (Paddy Rice, Croplands and Livestock) and issues common to those sub-sectors managed by the Integrative Research Group.

What is the Livestock Research Group?

The GRA's Livestock Research Group (LRG) is focused on reducing the emissions intensity of livestock production and increasing the carbon stored in soils supporting those systems. The LRG works with scientists, farmers and farm advisors, industry and policy makers to research mitigation options, share knowledge and experiences and help strengthen the resilience of livestock farming.

Members collaborate to advance global research on livestock emissions intensity at the same time as supporting countries to achieve their potential for soil carbon sequestration, and improve their efficiency, productivity, resilience, and adaptive capacity. This contributes in a sustainable way to overall mitigation efforts but also helps meet food security objectives.

The LRG includes official representatives from GRA member countries, mostly from scientific and government organisations, and key international and regional partners. New member countries and organisations are always welcome.



The LRG's work plan spans six areas of activity as shown in the diagram. This brochure provides details on each of these work areas.

Paddy Rice Research Group



What is the Global Research Alliance?

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About the Paddy Rice Research Group

The GRA's Paddy Rice Research Group (PRRG) is working together to find ways to reduce the emissions intensity, while improving the overall production efficiency of paddy rice. The Group predominantly focuses on methane (CH₄) because of its significant emissions from paddy rice production in comparison to other cropping systems. Trade-offs with emissions of nitrous oxide (N₂O) and changes of the quality of carbon stored in paddy soils are also being considered.

The PRRG is focused on helping to provide mitigation options to paddy rice farmers, land managers and policy makers by looking at the impacts of water and soil management, crop rotations, organic matter and fertilisers and cultivar selection.

The PRRG is divided into two regional sub-groups, Asia and America. Both sub-groups deliver activities to the same work plan which spans six areas as shown in the diagram.

The sub-groups allow members to develop activities specifically related to the different rice management options available:

- In the Americas extensive large scale rice farming is dominated by direct seeding, cultivation of rice and rotation with pastures or other spaced crops
- In Asia intensive small scale farming is dominated by both direct seeding and transplanting, cultivations and widespread multi-cropping of rice.



The PRRG's work plan spans six areas of activity as shown in the diagram. This brochure provides details on each of these work areas.

Croplands Research Group



What is the Global Research Alliance?

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The main work of the GRA occurs in its four research groups. These are focused on key agricultural sub-sectors (Paddy Rice, Croplands, and Livestock) and issues common to those sub-sectors managed by the Integrative Research Group.

What is the Croplands Research Group?

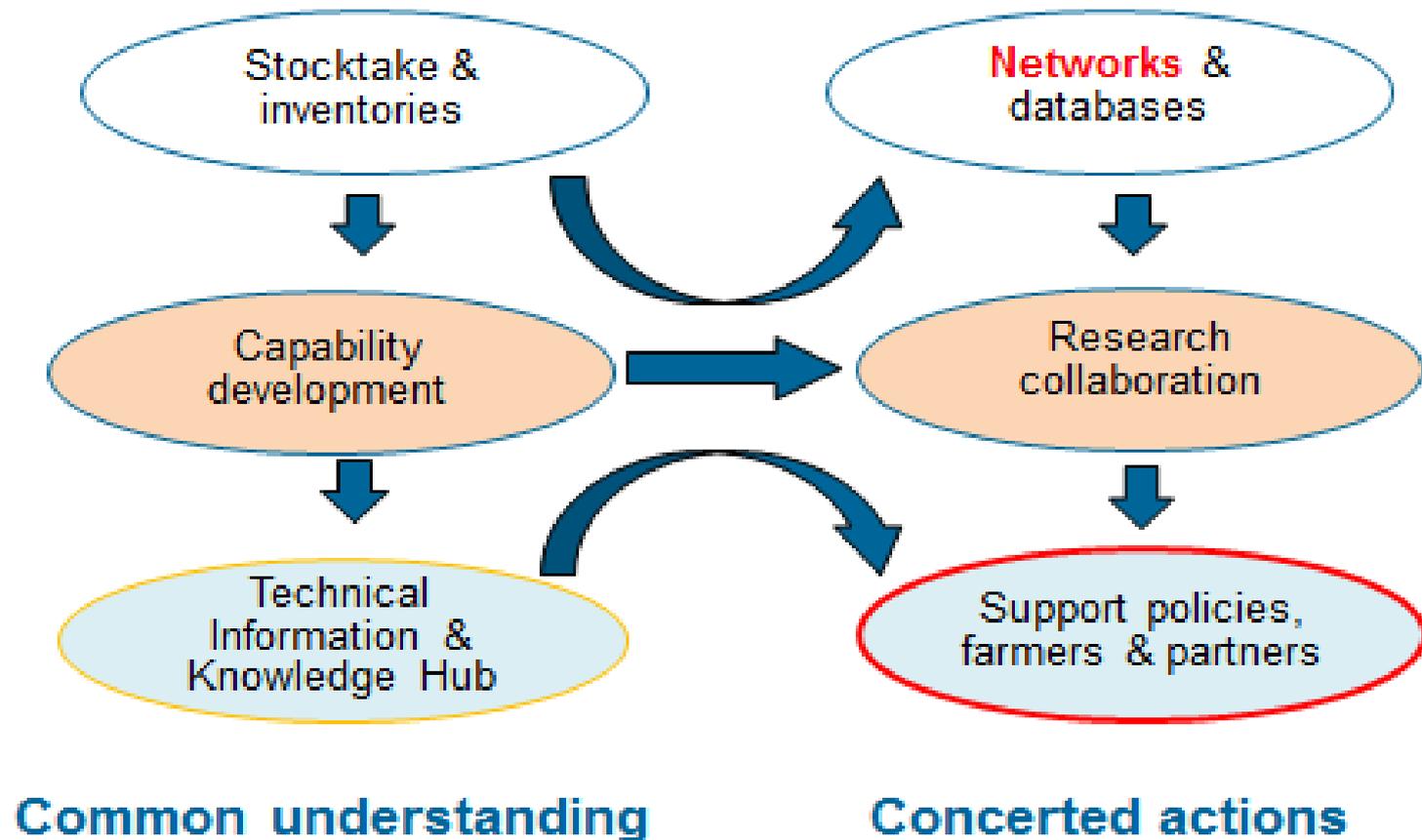
The GRA's Croplands Research Group (CRG) is focused on reducing greenhouse gas intensity and improving the overall production efficiency of cropland systems. Scientists from CRG member countries work together to find ways to limit losses to the atmosphere of valuable carbon and nitrogen from crops and soils, and to transfer that knowledge and associated technologies to cropland farmers, land managers and policy makers around the world.

The CRG has interest in a wide range of topics, including crop selection, tillage management, crop rotations, and fertilizer management, as well as the fundamental processes underlying greenhouse gas emissions from crops and soils. The CRG's vision is to develop widely available decision support tools that enable reduced greenhouse gas emissions intensity from climate-resilient croplands, producing sustained or increased yields, and identify management practices that improve soil carbon sequestration in croplands.

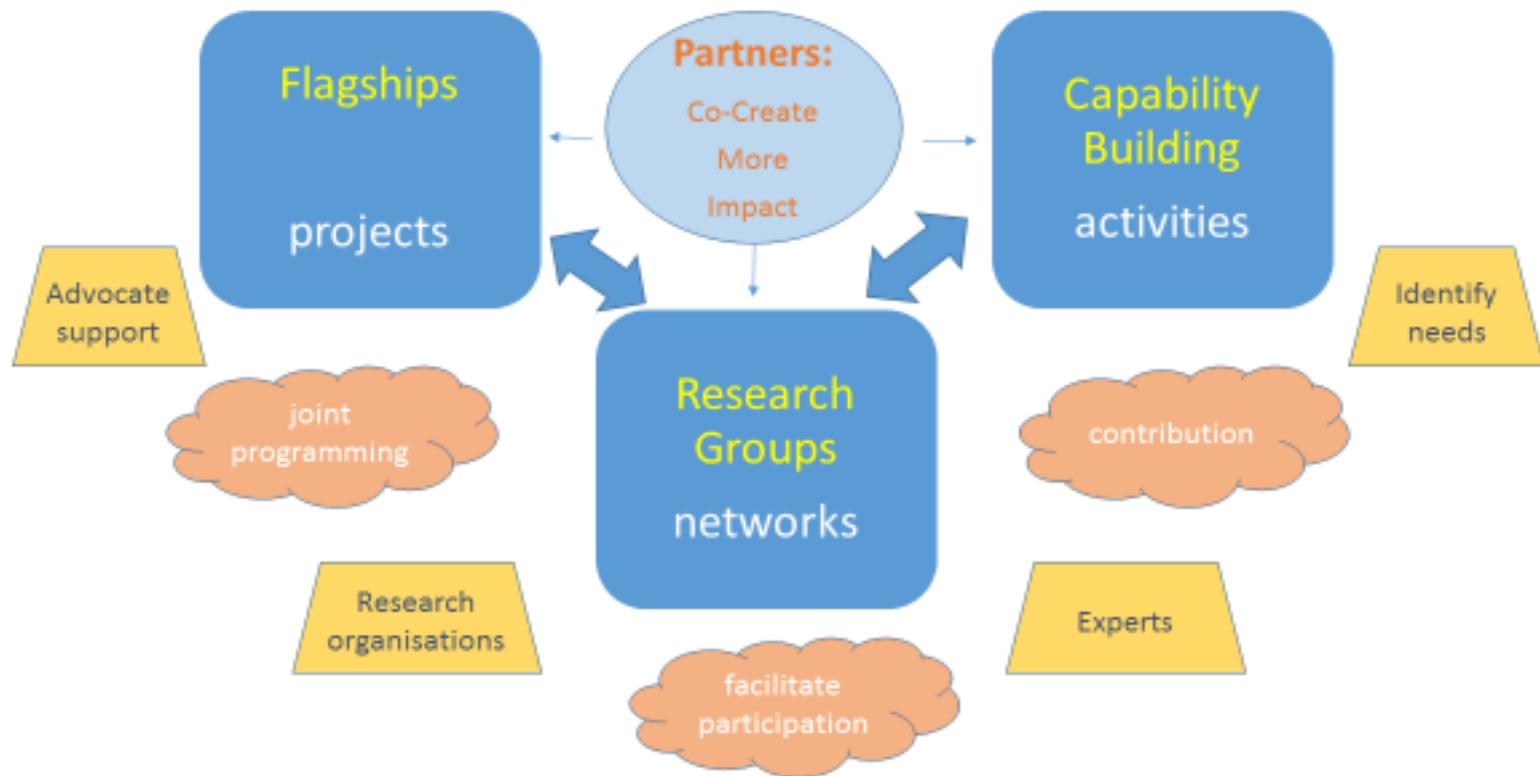


The CRG's work plan spans six areas of activity as shown in the diagram. This brochure provides details on each of these work areas.

Outline of Work 2011-2016

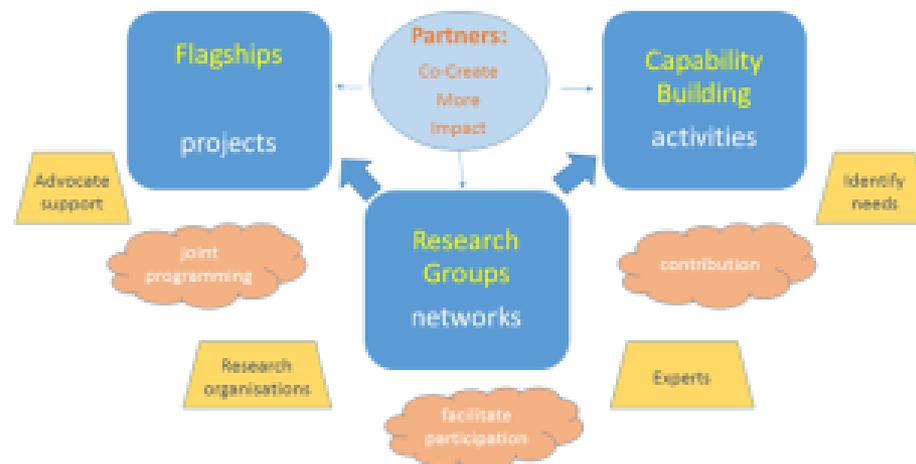


Outline of Work updated 2017+



Impact driven!

We bring countries together to find ways to grow more food without growing GHG emissions



GRA Flagship Projects

- Addresses a critical research and/or capability building need of the GRA
- Provides unique GRA value-add, by making a major contribution to:
 - Reducing greenhouse gas emissions while supporting food security
 - Advancing global knowledge through collaboration
 - Supporting countries in their developing and implementing solutions

- GRA Council endorsed development of four GRA Flagships in 2016:
 - Enteric Fermentation
 - Agricultural GHG Inventories
 - Soil Carbon Sequestration
 - Rice Systems
- New Flagships are under preparation:
 - Circular Food Production
 - Nitrous Oxide

Research Groups

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RESEARCH GROUPS



Livestock



Croplands



Paddy Rice



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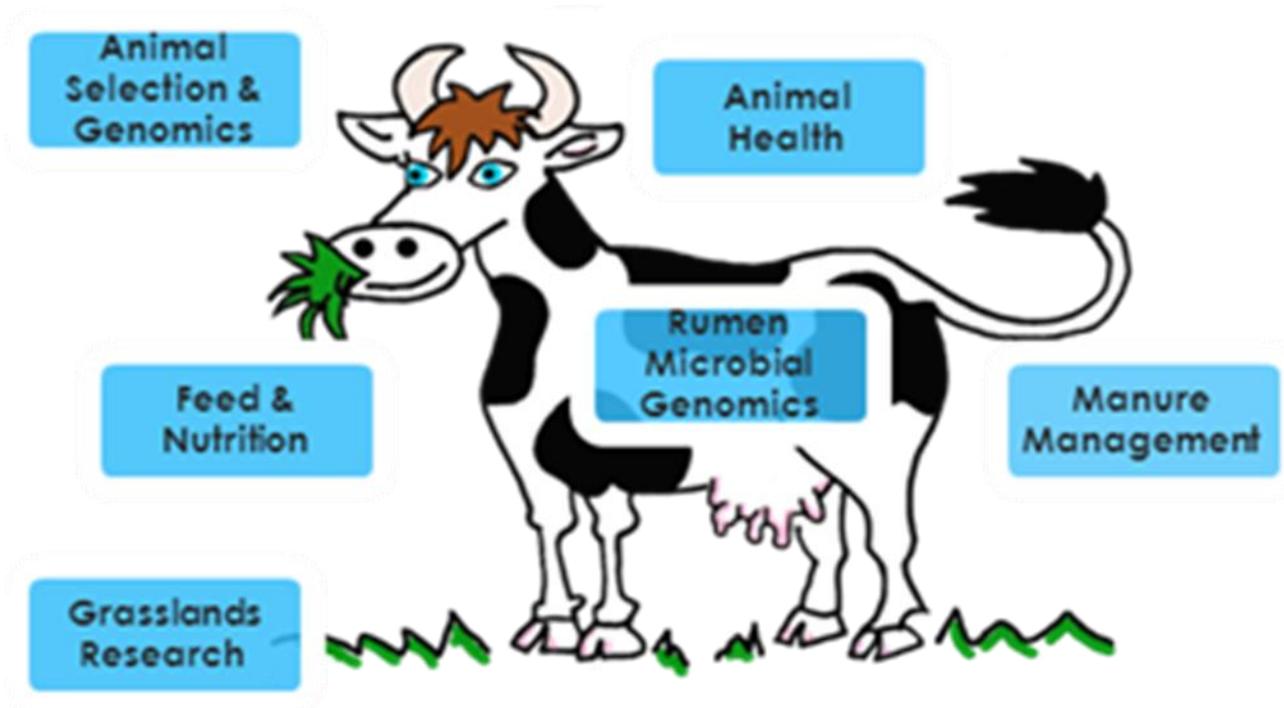


- Harry Clark
- Martin Scholten

- *Andy Reisinger*
- *Laura Kerney*
- *Henk van der Mheen*

- 2010 Banff, Canada
- 2011 Clermont-Ferrand, France
- 2011 Amsterdam, Netherlands
- 2012 Punta del Este, Uruguay
- 2013 Dublin, Ireland
- 2014 Yogyakarta, Indonesia
- 2015 **Lodi, Italy**
- 2016 Melbourne, Australia
- 2017 Washington DC, USA
- 2018 Vietnam

Networks within LRG

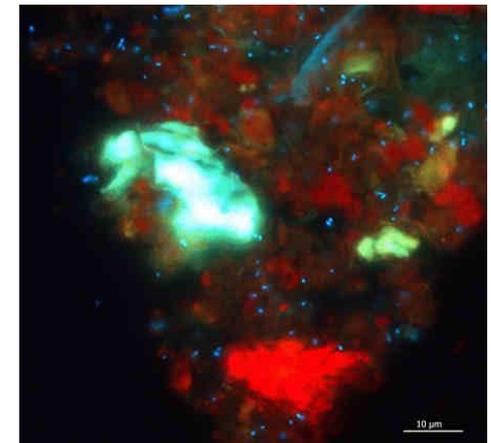


Animal Selection, Genetics & Genomics Network

- Practice brief for policy makers on improved ruminant genetics for productivity and climate change outcomes
- Advanced state of knowledge on breeding low-emitting animals

Rumen Microbial Genomics Network

- Ground-breaking research in understanding rumen composition across animal species
- Development of global reference sets of data on the rumen microbiome



Feed & Nutrition Network

- Major global databases on predicting and mitigating livestock GHGs through feed & nutrition – being used in IPCC guidance
- Improvements to global good practice for research techniques

Networks actively engaged in developing flagship projects

Activities research networks (2)

Animal Health Network:

- Publishing the impact of improved animal health on reducing emissions intensity – recently contributed to peer reviewed paper on challenges and priorities for modelling livestock health and pathogens in the context of climate change
- Urgently seeking a new leadership team to take over from the UK

Manure Management Network

- New leadership team – China, Netherlands and US – and development of a potential new project seeking CCAC funding
- Produced the Manure Management Kiosk – an online hub of information and resources on manure management

Regional Networks

- Latin American and Caribbean countries, focused on sustainable intensification of livestock farming
- Mediterranean countries, focused on adaptation to climate change

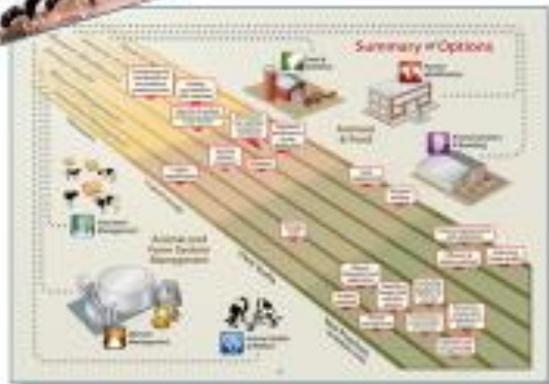
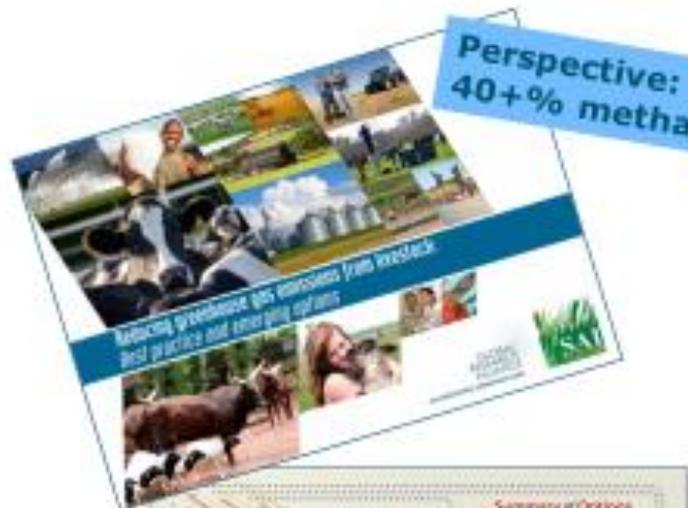
Capability building achievements

LRG-agreed focus on supporting countries to progress towards Tier 2 inventories for livestock

- ✓ Countries now implementing Tier 2 inventories, e.g. Indonesia
- ✓ Regional training for South/South-East Asian countries
- ✓ White Paper on MRV of livestock GHGs produced with CCAFS, FAO & World Bank and input from many GRA country experts + summary for policy makers shared at UNFCCC meeting in May
- ✓ Co-published an informative guide on the benefits of Tier 2 inventories to increase policy options (climate & agriculture)

Plus ongoing support provided through fellowships and awards such as NZ's LEARN scheme

Achievements



- Genotyping low methane production for selection
- Improving feed quality and digestibility, rumen microbes
- Improving animal health and husbandry conditions
- Manure management: collection, storage and utilisation
- Improving C sequestration soils
- Precision Livestock Farming



Project with FAO (funded by CCAC and NZ Govt) –

‘Reducing enteric methane for improving food security and livelihoods’:

- Demonstrated options to reduce emissions intensity at the same time as increasing productivity in 13 countries
- Funding secured for a second phase: implementation

Web Page

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ABOUT US

RESEARCH GROUPS

COMMUNITY

UPDATES & EVENTS

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Q SEARCH

LOGIN

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We bring countries together to find ways to grow more food without growing greenhouse gas emissions.



Community



Paddy Rice



Livestock



Croplands



Integrative

August 2, 2017 • News

NEW BROCHURE FOR THE CONSERVATION AGRICULTURE

The Conservation Agriculture Network of our Croplands Research Group, led by Canada, has produced a new brochure of

July 27, 2017 • News

JOB OPPORTUNITIES WITH THE UNITED NATIONS' CAPITAL

A number of opportunities are currently available for research and officer positions with the United Nations' Capital

July 26, 2017 • News

FIRST GLOBAL SUSTAINABLE RICE CONFERENCE &

The Sustainable Rice Platform (SRP) is holding the 2017 Sustainable Rice Conference and Exhibition at the UN

www.globalresearchalliance.org



FOR MORE INFORMATION

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