**ON AGRICULTURAL GREENHOUSE GASES** 

GRA Council meeting, Berlin

10 September 2018

## Research Group Co-chairs' Report

Yasukazu Hosen, Álvaro Roel, Jane Johnson, Mark Liebig, Rosa Mosquera, Martin Scholten, Harry Clark, Pamela Joosse, Jean-François Soussana, Richard Eckard



## Team of Co-Chairs with Chair 2018



### **Research Groups**

GLOBAL RESEARCH ALLIANCE ON AGRICULTURAL GREENHOUSE GASES



## Outline of work 2017+





## Impact driven!



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



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## **Research Group Reports Achievements & Ambitions**

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# Paddy Rice Research Group Report

Yasukazu Hosen and Álvaro Roel

## Paddy Rice Research Group: Recent key achievements (1)

#### GLOBAL RESEARCH ALLIANCE

**ON AGRICULTURAL GREENHOUSE GASES** 

- Americas Sub-Group Meeting
  - 14 May 2018, Piura, Peru
    - Participation of 6 Americas, 1 Europe
      - & 1 Asia members + CIAT, FLAR
- Asia Sub-Group Meeting
  - 2 September 2017, Tsukuba, Japan
    - Participation of 7 Asia & 1 Americas members + IRRI, CIAT
  - 12 October 2018, Bangkok, Thailand
- Adoption of an APEC capability building project
  - 10-12 October 2018, Bangkok, Thailand
  - In the week of 12 November, 2018, Osorno, Chile
  - Aiming at dissemination of AWD technology in Asia-Pacific countries
  - Proposed by Japan, New Zealand and Mexico, with co-sponsoring by Chile, Malaysia, the Philippines, Thailand, and Viet Nam



## Paddy Rice Research Group: Recent key achievements (2)



- Launch of a collaborative research project in Americas
  - FONTAGRO Project
    - "More rice with less emissions and less water consumption"
    - Participating Countries: Colombia, Perú, Chile
    - Co-participants: CIAT, FLAR
- Launch of 2<sup>nd</sup> phase of the collaborative research project in Asia
  - Post-MIRSA (MIRSA3) project
    "GHG emission reduction, Soil C & N and yield maintenance, and Long-term estimation"
    - Fund contributor: MAFF of Japan
    - Participating Countries: Japan, Viet Nam, the Philippines, Indonesia

- Co-participants: IRRI
- Publication
  - Paddy rice MRV handbook, February 2018
  - Special Section
    'Frontline research in mitigating GHG emissions from paddy fields' (10 original papers) in SSPN, February 2018
  - Review of rice mitigation options in Latin America and the Caribbean in MDPI, March 2018



Sustainable and Low Greenhouse Gas Emitting Rice Production in Latin America and the Caribbean: A Review on the Transition from Ideality to Reality

Ngoni Rasha Chini da Vi, Laun Awano (, Maria Katty (, Sandra Louno ), Jonando Corres ), Mandon Dillato) (, Ano Maria Labogerren VI, Otsay Mariano Basto V, Danas Korlowell Santing Jianmili (, Calesi Pilipi Farros ), Migari Langue S. Myran Garanis (), Basto Korlowell Santing V, Danas Penarak Katt V, Ganashi Zavella V, Jeo Tarez, Filar Jiang V, Strans Tadow V, Gatta Hallow V, Michael Barro, Mark V, Jeo Tarez, Filar Jiang V, Strans

## Paddy Rice Research Group: Main ambitions (1)



#### **Research Collaboration**

- Launch of new projects
  - Turning to rice cultivars for solving the methane puzzle in irrigated rice systems
  - "Mitigation of CH<sub>4</sub> emissions trough the use of rice cultivars"
  - Participants: IRRI, CIAT, FLAR, CCAFS
  - CLIFF GRADS Scholarship
  - Sustainable rice production in Latin America
    - "Benchmark the economic and environmental sustainability"
    - Participating Countries: Colombia, Uruguay, Chile, Brazil
    - Co-participant: UIUC, CIAT, FLAR, AfricaRice

## Paddy Rice Research Group: Main ambitions (2)



#### **PRRG Communities**

- Participation/communication of new partner organisations
- Involvement of more members
  - South Asia, Africa, & Europe
- 3<sup>rd</sup> Co-Chair

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## Croplands Research Group report

Jane Johnson, Mark Liebig, Rosa Mosquera & Ladislau Martin-Neto

### Croplands Research Group: Recent key achievements



## United Kingdom, September, 2017

### Brazil, August, 2018





20 – attendees, 14 countries, plus invited experts.

19 – attendees, 12 countries, plus invited experts.



Several Networks actively engaged

Conservation Agriculture– preparation of meta-analysis of conservation management effect on  $N_2O$  and  $CO_2$  (7 countries) Science topical session at SSSA International Soils Conference with CSSS & MSSS (San Diego January 6-9, 2019).

Peatland management - Workshop in Norway – with MYR and PeatWise w/local stakeholders Norwegian and other N. European Researcher. Network organized a EGU session. Expanding into SE Asia and Baltic countries. (8 countries)

### Landscape Management of Agriculture System (LMAS):

Developing and testing hydro-biogeochemical model for decision-support system, building a modelling research team,

- Implementing a NSFC-UNEP effort, proposed project under N Flagship
- Published a methodological framework for quantifying GHG footprints

Nutrient Management - fact sheet in progress (10 countries)

#### Agroforestry - Integrated Crop & Livestock systems

- Proposal to merge into a large network
- Crops/livestock/trees



GRAMP – working with Landscape Management Network

*MAGGnet-* added a ArcView mapping feature, easy to use, update and complements Excel spreadsheet

Literature database – database, by country, climate, cropping system 1600 entries

FACEbook/communications – regularly updated

### Croplands Research Group: Main ambitions



- Enable and support Networks and Activities
- Identify how networks can contribute to relevant GRA Flagships (e.g., Soil Carbon Sequestration, GHG Inventory, Possible future Flagships on Nitrous Oxide and Circular food system)
- Enhance communication and coordination among CRG cochairs, Network leaders and membership
- Proposed next meetings:
  - N<sub>2</sub>O measurement workshop (Canada in July 2019)
  - CRG workshop (US November 2019)

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## Livestock Research Group report

Martin Scholten & Harry Clark

### Livestock Research Group: Recent achievements



#### Vibrant networks of scientists collaborating

- Eight years of international collaboration celebrated by more than 40 LRG reps and partners in Ho Chi Minh City at the annual meeting
- Major LRG work on rumen microbial genomics (Hungate 1000) published in <u>Nature</u>
- Feed & Nutrition Network project published <u>three review papers</u>
- Regional networks in Latin America/Caribbean (sustainable intensification) and South/South East Asia (inventories)
- Successful launch of the Enteric Fermentation Flagship
- Other priority LRG research projects also underway
  - Updating technical manuals, advancing knowledge, developing global databases



### Livestock Research Group: Recent achievements



#### **Critical work with international partners**

- CCAFS: joint delivery of three projects to strengthen countries' MRV capabilities
- <u>ERA-GAS</u>: funding two LRG network projects and other relevant work, and opening a new livestock GHG joint call in October
- CCAC, FAO, World Bank: implementing 2<sup>nd</sup> phase of 'Reducing enteric methane for improving food security and livelihoods' project and preparing bid for 3<sup>rd</sup> phase



### Livestock Research Group: Recent achievements



#### Working regionally and bilaterally

- Successful East Africa engagement workshop on low emissions livestock development (GRA, FAO, WB, CCAFS, ILRI, UNECA)
- Technical workshops in Kenya, Thailand and Malaysia
- In-country and regional projects to improve MRV and measurement, e.g. Indonesia, China



### Livestock Research Group: Main ambitions 2018/19

- Encourage more countries to help resource LRG activities, especially for capability building and participation (e.g. funding for experts' travel and time)
- Support greater African involvement in the LRG engagement workshops in West and Southern Africa and regional project/s in East Africa
- Support more research networks to establish focal projects, including through the GRA's flagships
- Encourage members to more actively engage in critical IPCC processes, including Special Report on Climate Change & Land, and 6<sup>th</sup> Assessment Report
- Hold the next LRG meeting immediately following the international GHG & animal agriculture (GGAA) conference in Brazil, 9-10 August 2019

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# Integrative Research Group report

Pamela Joosse, Jean-François Soussana & Richard Eckard

## Integrative Research Group: Recent achievements (1)



Field

Inventories

Soil carbon

Farm, region

**Second IRG meeting**: Paris, January 2018, 34 participants, representing 14 Alliance member countries and invited experts. Next IRG meeting: CIAT, Colombia, in Feb. 2019. Workplan of the IRG and of the four networks adopted

#### Changes in Co-chairs:

- Canada : Brian McConkey (AAC) → Pamela Joosse (AAC)
- Australia : Robyn Johnston (ACIAR) → Richard Eckard (Melbourne U.)

**IRG streamlined** into 4 networks providing cross-scale knowledge integration, including grasslands and delivering to 2 flagships

- Soil Carbon Sequestration
- Field scale
- Farm 2 Regional scale
- Greenhouse Gas Inventories



Flagship

First workshop of the Farm 2 Regional network in Paris, January 2018 Agreement on the F2R short and longer-term plan, including further meetings and on the scope and expectations of the network

## Integrative Research Group: Recent achievements (2)



#### SOIL CARBON SEQUESTRATION NETWORK

- Intercomparison of soil carbon models with bare fallows
- > Planning for systematic review of tropical agriculture on soil C sequestration

#### **FIELD INTEGRATION NETWORK**

- Comparison of 24 models for simulating yield, GHG emissions and soil carbon published.
- Testing the sensitivity of models to climate change, with AgMIP.
- > Testing models and their limitations for ability to model mitigation options published

#### FARM AND REGIONAL SCALE INTEGRATION NETWORK

- Integrating farm data and farm emission models across countries
- Improving global maps of land degradation and soil carbon (CIRCASA H2020)
- Modelling global land degradation impacts on crop yields
- Modelling global soil carbon sequestration potentials and comparing with agriculture GHG emissions (CIRCASA H2020)
- Contribution to global maps and global modelling developed by Chapter 6 of IPCC Land and Climate Change report (SRLCC)

## Integrative Research Group Further ambitions for networks (1)



- Synthesis of existing indirect carbon budgeting methods estimating changes in SOC stocks (H2020 NIVA project submitted) and of offsetting methods for domestic carbon projects (regional carbon demonstrators, submitted for French ADEME funding)
- Developing regional projects, such as the Latin America project on legumes in grasslands and similar projects in Europe

#### FARM AND REGIONAL SCALE INTEGRATION NETWORK

- Estimating costs of changes in farming practices providing SOC sequestration
- Training and capability building for the next generation of modellers
  - Soil carbon modelling workshop proposed for GGAA2019 in Brazil

#### **GREENHOUSE GAS INVENTORIES NETWORK**

- Comparison between bottom-up and top-down inventory approaches
- GRAMP for Tier3, using model ensembles
- Characterisation of GHG emissions from analogous production systems



GLOBA

### Integrative Research Group Further ambitions for the Group (2)

- RESEARCH ALLIANCE ON AGRICULTURAL GREENHOUSE GASES
- Develop a group communication plan (leaflet, website, social media, ...)
- Develop regionally funded projects, based on a template format for project proposal to help identifying opportunities, funding source, ...
- Identify partners that can support IRG
- Identify funding opportunities
- Develop a work plan for training activities
- Provide capability building to developing countries on methodologies to help validate GHG inventories and national plans (e.g. NDCs)

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## Joint Research Group Recommendations

#### Research Group requests to Council Supporting the Co-Chairs & Networks

- Acknowledge the support already provided by those countries undertaking co-chairing roles
- Provide time & staff & budget to co-chairs; concept of co-chair 'teams' not just co-chairs
- Facilitate experts and research organizations to join networks
- Arrange and coordinate regional and thematic networks
- The Livestock & Paddy RGs still want to move to a tri-chairing arrangement; please consider volunteering & provide the necessary resources

# Research Group requests to Council Supporting Flagship's

- GLOBAL RESEARCH ALLIANCE ON AGRICULTURAL GREENHOUSE GASES
- Co-chairs endorse the concept of flagships
- Increased responsibilities for Flagships is placing increasing demands on co-chairs' time. For some co-chairs the workload is unsustainable
- The development of resourcing mechanisms is critical for success of the flagships
- The co-chairs urge Members to
  - Provide direct support for involvement in flagships
  - Support Flagship proposals in competitive calls



- Resourcing is critical to undertake capability development – too few Member countries are providing the resources necessary to undertake capability building activities (LRG is an exception & acknowledges strong NZ support)
- Research groups are working to develop a more integrated cross-group approach to capability building.
   Support needed for regional workshops covering all aspects of MRV
- You can help facilitate the recruitment of experts & provide support; host meetings for GRA integrated workshops; provide fellowships to link capability development with GRA projects

Research Group requests to Partners Co-create more Impact

- RESEARCH ALLIANCE ON AGRICULTURAL GREENHOUSE GASES
- RGs appreciate the increased involvement of Partners.
- Partner involvement is critical, especially for the success of flagship projects and capability building
- Encourage partners to work with GRA to co-create new activities and programmes

# **Questions to your Co-Chairs?**





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

