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RESEARCH  
ALLIANCE  
ON AGRICULTURAL GREENHOUSE GASES



RESEARCH PROGRAM ON  
Climate Change,  
Agriculture and  
Food Security



**CLIFF-GRADS Science Collaboration  
Series, August - October 2020**

# Housekeeping

- ZOOM: Q&A and upvoting
- What the series will cover, audience, presenters
- This session;
  - Hayden Montgomery, Special Representative of the GRA
  - Previous Alumni Panel; Q&A
  - Ciniro Costa Junior (CCAFS) and myself, Hazelle Tomlin (GRA); Q&A



# Paris Agreement on Climate Change



## The Paris Agreement on Climate Change

Holding the increase in the global average temperature to well below 2°C above pre-industrial levels.

AND

Low greenhouse gas emissions development, in a manner that does not threaten food production.

The agriculture sector must reduce methane and nitrous oxide emissions by 1 Gigatonne per year by 2030 to stay within the 2°C limit

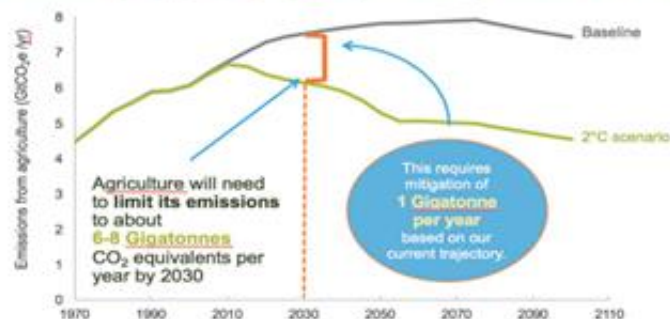
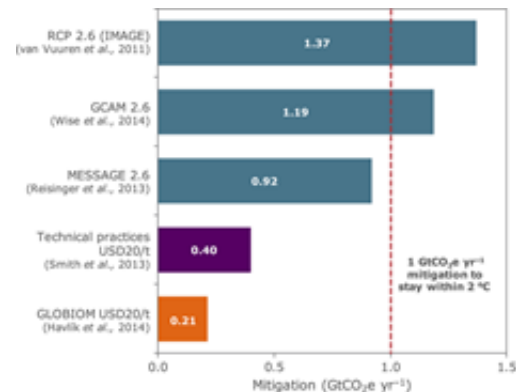


Figure 1. Mitigation needed in agriculture to achieve the 2°C target in 2030.





# Agriculture in NDCs

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FIGURE 7.  
Percentage of countries covering agriculture in their mitigation contributions

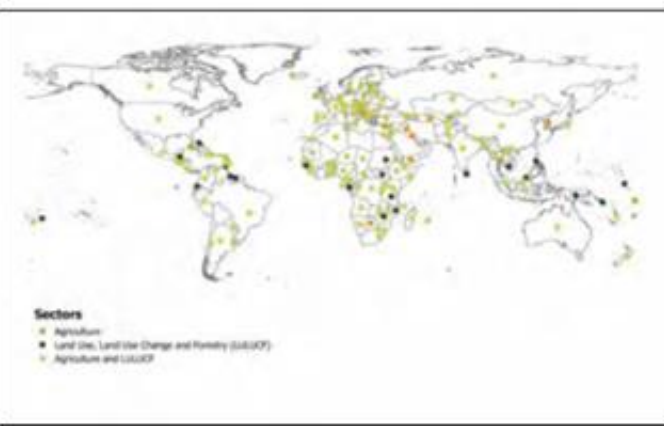
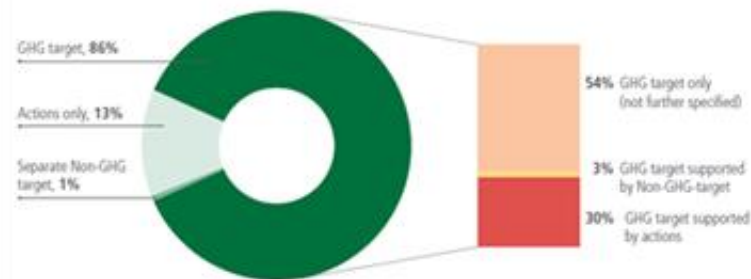
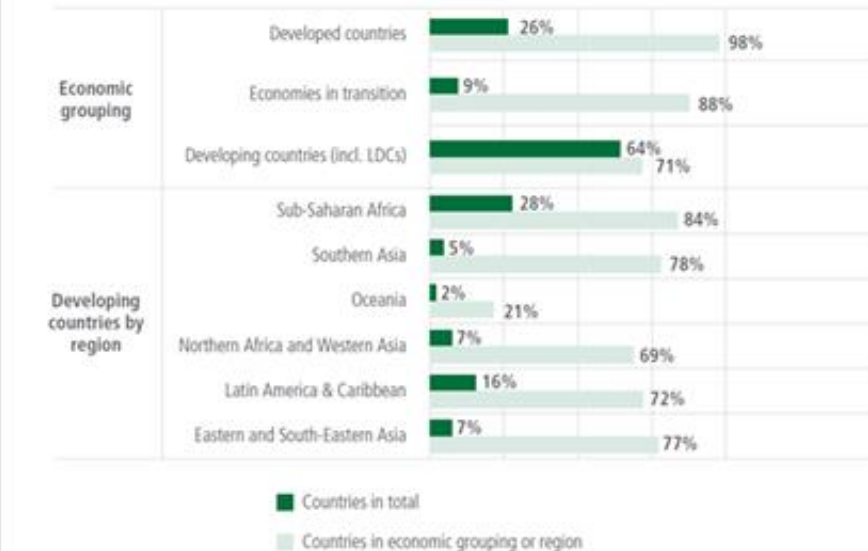


FIGURE 6.  
Percentage of countries that cover mitigation in agriculture, by economic grouping and region



# Transitioning to low-carbon and climate-resilient economies

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Sep 22: 130 financial firms sign UN Principles for Responsible Banking: \$47 trillion in assets, including BNP Paribas, Barclay's, UBS Group AG, Citigroup, Mitsubishi UFJ Financial Group, Industrial and Commercial Bank of China



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# Youth mobilisation

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Ridhima  
Panday,  
India



Greta  
Thunberg,  
Sweden



Kaluki Paul  
Mutuku, Kenya



Leah  
Namugerwa,  
Uganda



Autumn Peliter,  
Wiikwemkoong  
First Nation



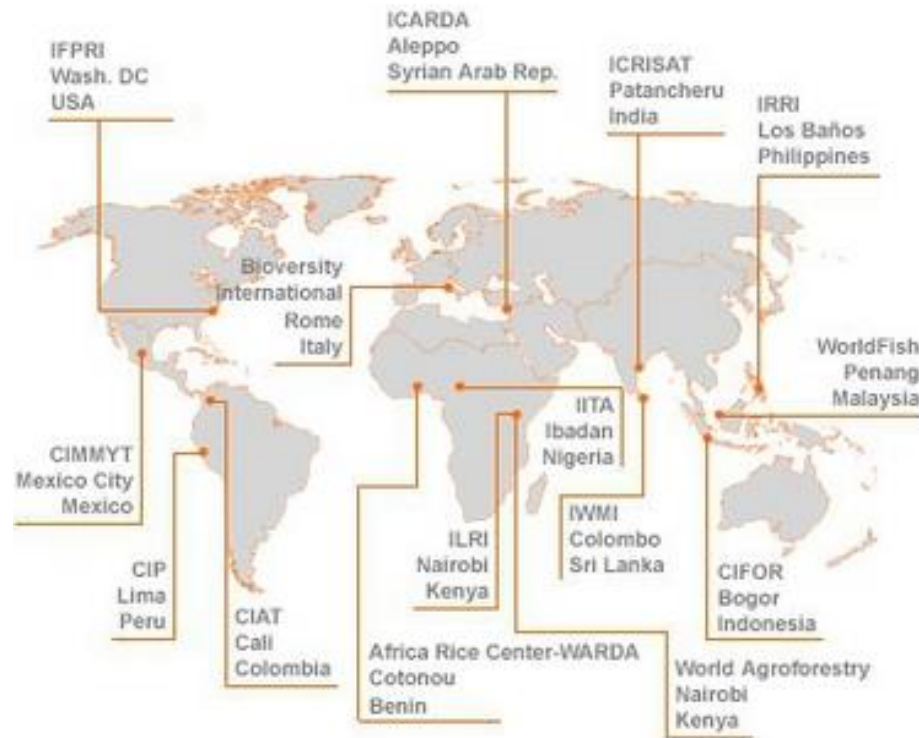
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# CGIAR: An international agricultural research consortium

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- **Mission:** Food security and poverty alleviation
- 15 centers, 70 regional offices
- Plus partner organizations



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# CGIAR: Cross-cutting themes, 11 programs & 3 platforms

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Fish



Trees



Livestock



Maize



Rice



Tubers



Wheat



Nutrition



Climate



Policy



Eco-systems



Big Data



Breeding



Gene-bank



# Climate Change, Agriculture and Food Security Programme

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## Our research flagship



Priorities and Policies for CSA



Climate-Smart Technologies and  
Practices



Low Emissions Development



Climate Services and Safety Nets



Gender and Social Inclusion



Scaling Climate-Smart Agriculture

## Where we work



East Africa



West Africa



Latin America



Southeast Asia



South Asia



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## Report



Actions to  
**Transform Food Systems**  
Under Climate Change



Published on  
2020-06-16

# CCAFS Low Emissions Development Flagship Core Projects 2019 - 2021

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Nutrient mgmt for  
maize (CIMMYT)

Nutrient mgmt for rice  
and wheat (CIMMYT)

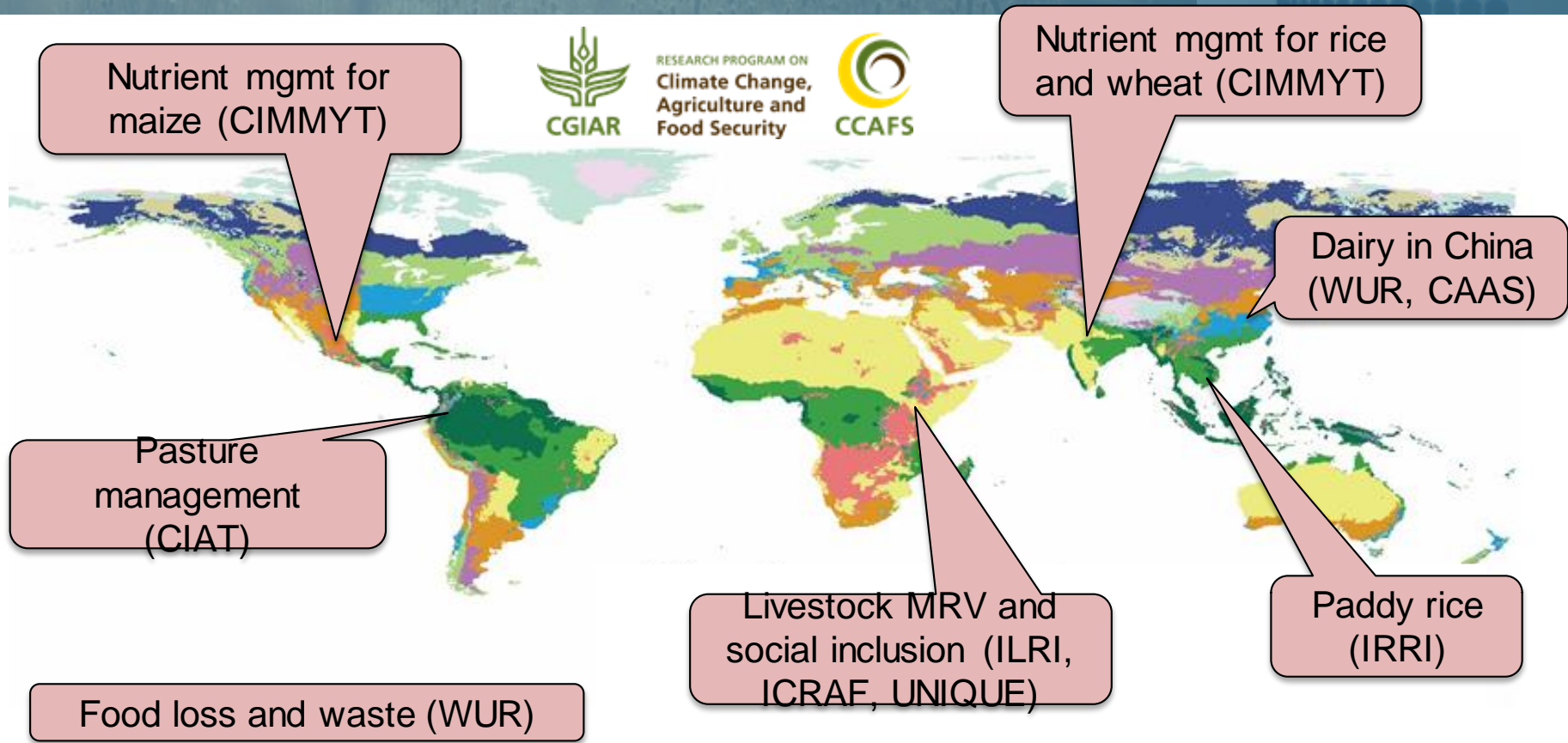
Dairy in China  
(WUR, CAAS)

Pasture  
management  
(CIAT)

Food loss and waste (WUR)

Livestock MRV and  
social inclusion (ILRI,  
ICRAF, UNIQUE)

Paddy rice  
(IRRI)



# CCAFS Strategic Partners

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# AT A GLANCE

**62**  
member  
countries

**22** partner  
organisations

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



**72** international  
collaborative projects  
supporting the GRA



**172** fellowships awarded to  
recipients from **45** countries



**4** Research  
Groups



Paddy Rice  
Research  
Group



Livestock  
Research  
Group



Croplands  
Research  
Group



Integrative  
Research  
Group



**17** Science  
Networks



**40** technical training  
workshops held



**23** technical guidelines,  
resource materials and  
databases produced



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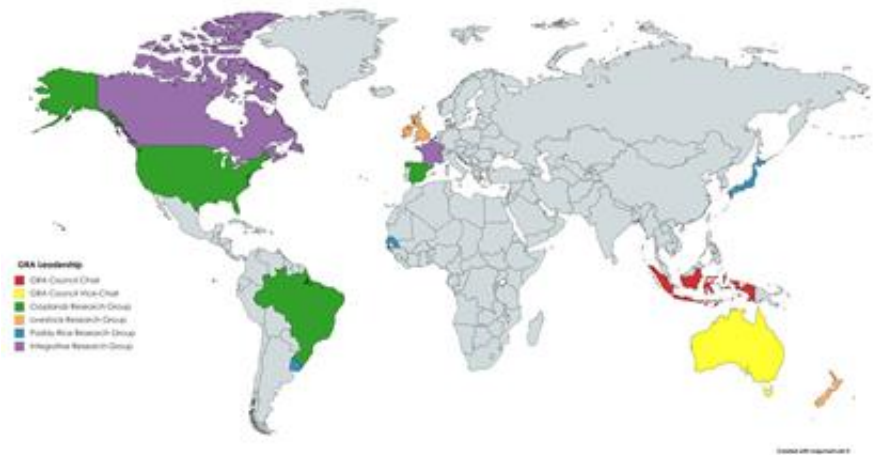
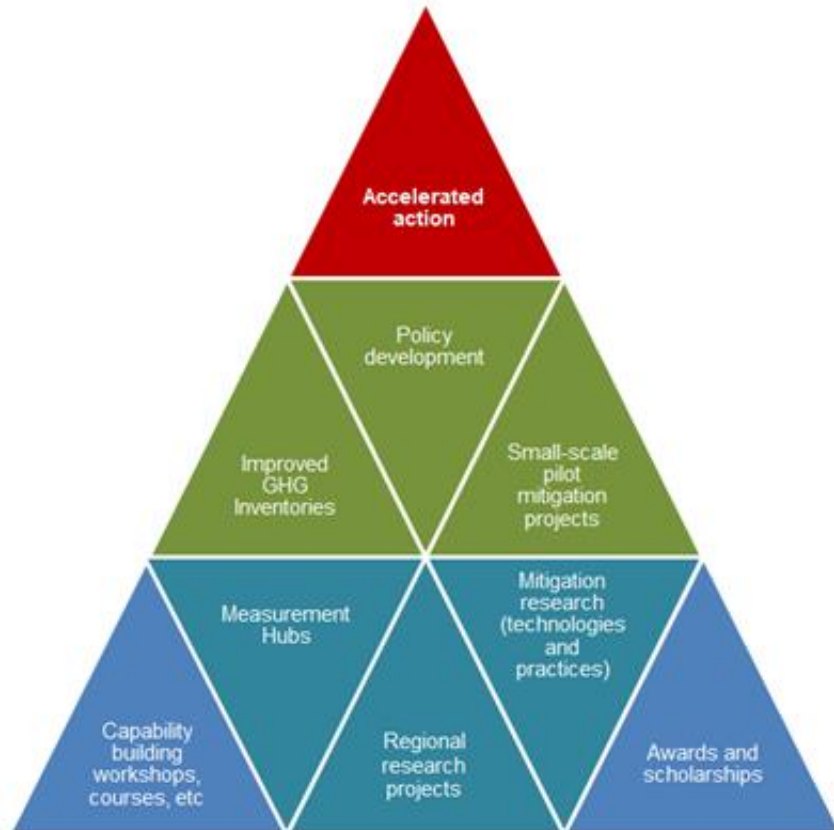


Future



# GRA strategic investments

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# CLIFF-GRADS: Climate Food and Farming Global Research Alliance Development Scholarships

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# CLIFF-GRADS Background

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## Purpose

- Support PhD students from developing countries to conduct research on climate change mitigation in agriculture and quantification of agricultural greenhouse gases
- Foster a network of young professionals
- Improve data on mitigation and emissions to reduce the impact of agriculture on the climate



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# CLIFF-GRADS Background

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- ~USD 10,000 fellowships
- Aims to provide 50% of fellowships to women
- Funding: New Zealand Government, CGIAR Trust Fund

Workshops + participation in global events, networking with leading scientists and policy makers

## Mitigation focus:

- All agricultural subsectors
- Farm emissions
- Food loss and waste emissions

CLIFF Programme established in 2011, with joint contributions from GRA for the CLIFF-GRADS Programme since 2017



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# CLIFF and CLIFF-GRADS Impacts 2011-2019

## The numbers

- Improve data on mitigation and emissions to reduce the impact of ag
- 92 students (~50% women)
- 20 developing countries (Latin America, Asia and Africa)

## Survey of impacts (n=40) (2019)

- **96%** CLIFF students deepened their understanding of climate change mitigation in agricultural systems.
- **93%** Built new partnerships
- **93%** learnt new techniques for measuring agricultural GHGs or carbon sequestration
- **93%** improved the quality of their thesis
- **93%** used new or improved research methods

# Questions for Hayden...

# Alumni Panel: Samuel Anuga, Ghana

## **Round 2 CLIFF-GRADS Recipient.**

Hosted by CIAT, Colombia in 2019 and supervised by Dr. Ngonidzashe Chirinda.

*CLIFF-GRADS Project: Just how smart are the climate smart options promoted in the Climate Smart Villages of Nicaragua.*



# Serene Environment and Workspace

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# Friendly people and new friends

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# Visiting places in host country





# New cultural experiences (dance, food etc.)

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## Round 2 Recipient

Hosted by Bangor University in Wales, UK in 2019 and supervised by Dr. James Gibbons.

*CLIFF-GRADS Project: Economic implications of GHG mitigation from dairy systems in Costa Rica.*

# Academic Skills

1. System approach - Dairy farming systems in Costa Rica
2. Environmental assessment - Life Cycle Assessment
3. Economic implication - Marginal abatement cost curve
4. Writing scientific article





## *To determine measures of GHG mitigation in dairy farms*



# Networking

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# Alumni Panel: Florencia Garcia, Argentina



## **Round 1 Recipient.**

Hosted by INIA, Chile in 2018 and supervised by Dr. Emilio Ungerfeld.

*CLIFF-GRADS Project: Effects of inhibiting rumen methanogenesis on microbial biomass production and composition.*



# A good start!

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Dr. Emilio Ungerfeld



Dr. Camila Muñoz



CLIFF-GRADS María De Bernardi

# Enjoy and share time!

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# Mt challenge...

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# CLIFF-GRADS Alumni

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Photo: Banira Lombardi



# Alumni Panel: Yuri Gelsleichter, Brazil



## ***Round 2 Recipient.***

Hosted by ISRIC, Netherlands in 2019 and supervised by Dr. Gerard Huevelink.

*CLIFF-GRADS Project: Assessing the impact of land use change scenarios on soil organic carbon stocks.*

ISRIC...

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**ISRIC**

International Soil Reference and Information Centre  
Also called as World Soil Information

ISRIC

World Soil Museum



Stephan Mantel



Gerard Huevelink



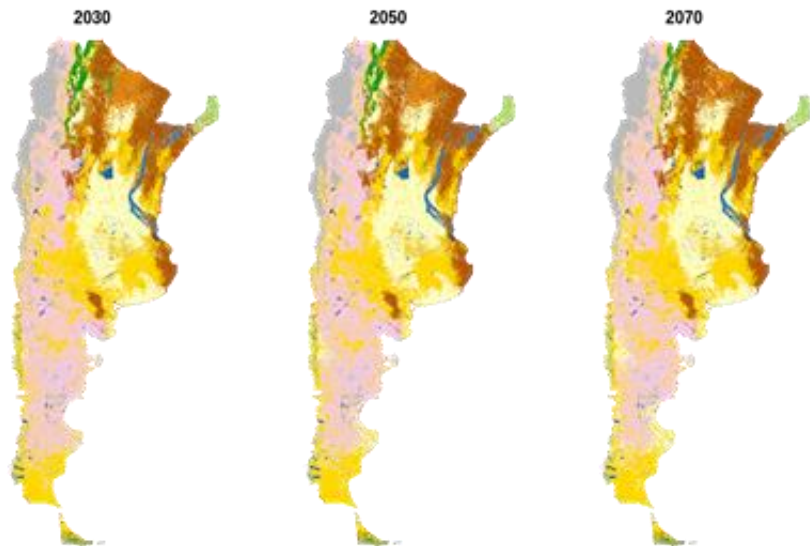
Bertim



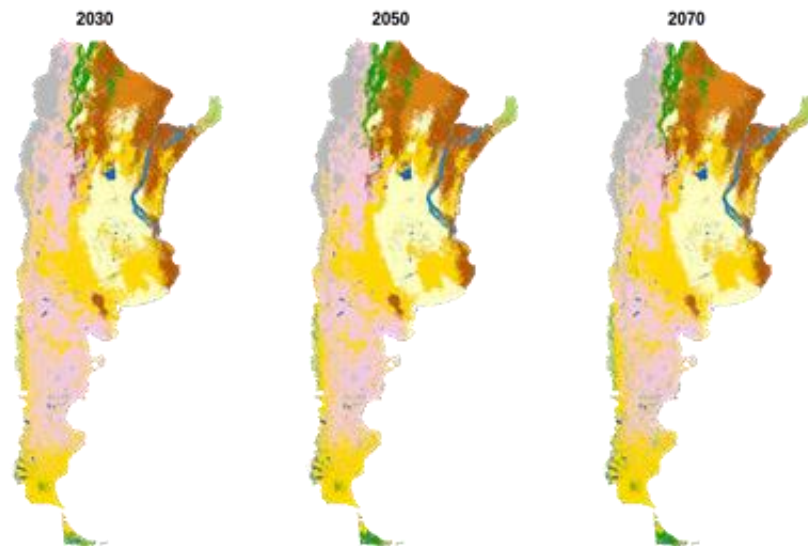
# My CLIFF-GRADS project...

## Land use scenarios 2030/2050/2070 to predict Soil Carbon

Scenario Economic Growth



Scenario Environmental Conservation





# Soils of the world course

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# Volunteering

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Volunteer at



wageningen soil conference

— UNDERSTANDING SOIL FUNCTIONS —

The volunteer team



Volunteer at the Soil classification Master Class



# Closing thoughts...



- Just be yourself, **talk**;
- **Ask for help** and **advices**, it can make you much more productive;
- **Integrate** with people and culture;
- **Make friends**, try new things.



# Questions for Samuel, Florencia, Titis and Yuri...

# Making the most out of CLIFF-GRADS...

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- Competitive application process
- You are now representatives of our international research partners, and your home research institutes and home countries
- Good global ambassadorship; volunteer for something you feel passionate about, try a new sport, experience the local culture...



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# Buddy system...

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- Pairs old Alumni with new Alumni
- Cultural and academic support
- Your buddy can.. share their favourite hangouts... recommend their favourite foods... give tips on learning a new language... connect you with their friends...



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# Communication



## WhatsApp Groups:

- to share relevant research opportunities, resources or events
- CONTACT +64 21 30 5365 to be added



## Twitter:

- follow the latest scientific dialogues on new publications, resources and events on [@GRA\\_GHG](#), [@GRA\\_HaydenM](#), [@CGIARClimate](#), [#CLIFFGRADS](#)

## Email:

- [cliffgrads@globalresearchalliance.org](mailto:cliffgrads@globalresearchalliance.org)

# Publications and Reporting Requirements

- Publications: Publications, presentations, etc. resulting from this research must acknowledge CCAFS and the GRA as well as your host institution and any donors
- Reporting Requirements: Short summary report of your training and research and feedback on your CLIFF-GRADS experience, due 4 weeks after your research stay completion



# Ongoing Involvement in CLIFF-GRADS

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- *Please keep us in the loop on what you are doing in your career, we love to receive emails from you!*
- *Please encourage your peers to apply for CLIFF-GRADS*
- *Your feedback is very valuable for us!*







# Useful CCAFS and GRA Resources...

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## SAMPLES



## ACGE calculator



## AG-MRV PLATFORM



## GRA-LIBRARY





# SAMPLES - Standard Assessment of Agricultural Mitigation Potential and Livelihoods

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HOME ABOUT EMISSIONS DATA MEASUREMENT METHODS TOOLS MRV PLATFORM PUBLICATIONS & MEDIA CONTACT

**Emissions Data**  
Emission factors for specific agricultural practices  
VIEW

**Measurement Methods**  
Guidelines for conducting field measurements  
VIEW

SAMPLES is a global research program that supports tropical countries to measure greenhouse gas emissions from agriculture and identify mitigation options compatible with food security.



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<https://samples.ccafs.cgiar.org/>



# MRV Platform for Agriculture - Measuring, Reporting and Verifying GHG emissions and mitigation

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## MRV in Practice

Summaries of MRV concepts and methods for agriculture, with details for the livestock sector

## Case Studies

Lessons learned for improving MRV through advanced livestock GHG inventories



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<https://www.agmrv.org/>

# Useful CCAFS and GRA Resources...

## The Agro-Chain Greenhouse Gas Emissions (ACGE) calculator



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LIBRARY

English

Collaborative Activities

Fellowships

Meetings

Publications

Research Funds

Technical Manuals

SEARCH LIBRARY

Technical Manuals

Technical Manuals

Technical Manuals

Technical Manuals

Technical Manuals

Technical Manuals

Technical Manuals

Technical Manuals

Research Groups

Croplands

Integrative

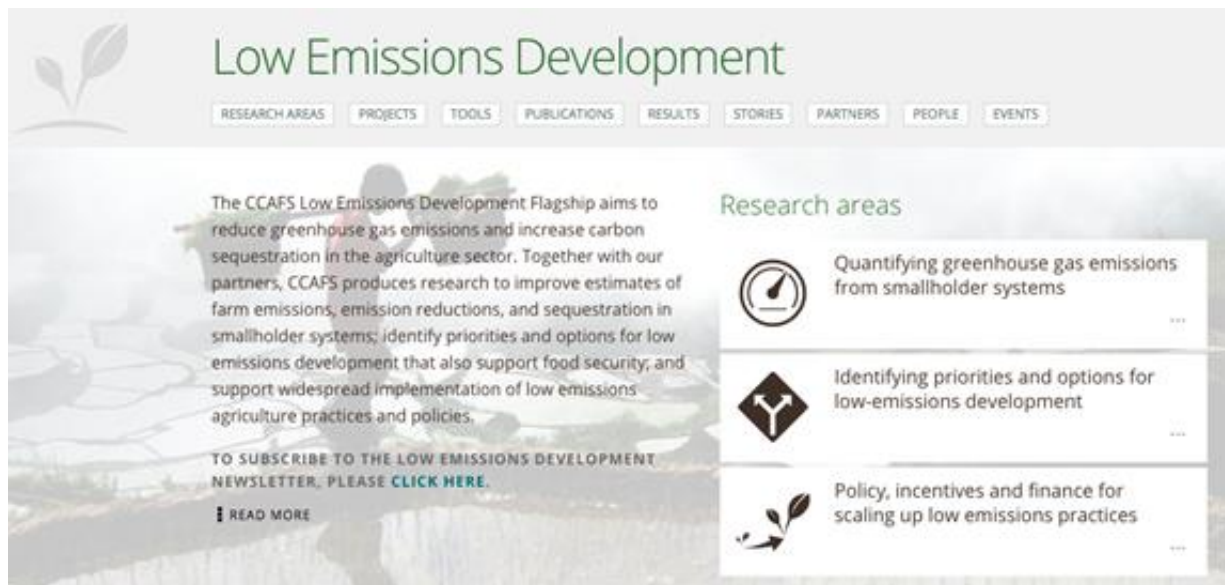
Livestock

Paddy Rice



# Useful CCAFS and GRA Resources...

CCAFS - Low Emission Development Resource Guide (will be launched by October 2020)



# Questions for Hazelle and Ciniro...

Date (GMT)	Registration Links & Speakers
19/08/2020 10:00	<a href="#"><u>Special Session: The Role of Science in Decision Making</u></a> ; Sir Peter Gluckman, Chair of the International Network of Government Science Advice (INGSA) and president-elect of the International Science Council (ISC)
25/08/2020 19:00	<a href="#"><u>Thematic Student Session: Integrated Systems</u></a> ; Dr. Todd Rosenstock, Climate Change and Environmental Scientist, World Agroforestry Centre (ICRAF)
2/09/2020 10:00	<a href="#"><u>Special Session: National GHG Inventories</u></a> ; Dr. Olia Glade, Director MRV Systems, Greenhouse Gas Management Institute (GHGMI)
8/09/2020 18:00	<a href="#"><u>Thematic Student Session: Pasture Systems &amp; Agronomy</u></a> ; Dr. Jacobo Arango, Environmental Biologist at the Tropical Forages Program at the International Centre for Tropical Agriculture (CIAT)
16/09/2020 10:00	<a href="#"><u>Special Session: Livestock MRV</u></a> ; Dr. Andreas Wilkes, Associate Expert, UNIQUE Forestry and Land Use GmbH
22/09/2020 7:00	<a href="#"><u>Thematic Student Session: Ruminant Systems</u></a> ; Dr. Sinead Leahy, International Capability and Training Coordinator, the New Zealand Agricultural Greenhouse Gas Research Centre (NZAGRC)
30/09/2020 11:00	<a href="#"><u>Special Session: Global agricultural production and emission trends</u></a> ; Professor Chev. Dr. John R. Porter, Emeritus Professor of Agriculture and Climate Change, University of Greenwich
7/10/2020 8:00	<a href="#"><u>Thematic Student Session: Rice Systems</u></a> ; Dr. Bjoern Ole Sander, Senior Scientist and Climate Change Specialist, International Rice Research Institute (IRRI)
14/10/2020 10:00	<a href="#"><u>Special Session: World Farmers Organisation (WFO) Young Farmers Panel</u></a> ; A panel of farmers from the WFO Gymnasium Programme
20/10/2020 18:00	<a href="#"><u>Thematic Student Sessions: Soil Systems</u></a> ; Dr. Ngonidzashe Chirinda, Soil and Climate Change Scientist, Mohammed VI Polytechnic University, Morocco
28/10/2020 10:00	<a href="#"><u>Writing for publication, Research Collaboration and Series Wrap Up</u></a> ; Ciriaco Costa Junior (CCAFS) and Hazelle Tomlin (GRA)



# Thank you!

WEB:

[https://globalresearchalliance.org/library/cliff\\_grads-fellowship/](https://globalresearchalliance.org/library/cliff_grads-fellowship/)

EMAIL: [cliffgrads@globalresearchalliance.org](mailto:cliffgrads@globalresearchalliance.org)

TWITTER: [@GRA\\_GHG](#), [@CGIARClimate](#),  
[@GRA\\_HaydenM](#), [#CLIFFGRADS](#)