

# 2024 GRA Research Group Report

## Integrative Research Group

### 1) Research Group Overview

#### GROUP LEADERSHIP

##### *Co-Chairs:*

- Jean-François Soussana (INRAE—National Research Institute for Agriculture, Food and Environment, France)
- Pamela Joosse (Agriculture and Agri-Food Canada)
- Nadia Bouhafs (Department of Agriculture, Fisheries and Forestry, Australia)

##### *Support Team:*

- Robin Daniel (INRAE—National Research Institute for Agriculture, Food and Environment, France)
- Stephanie Helm (Department of Agriculture, Fisheries and Forestry, Australia)

#### GROUP MEMBERS

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

## MOST RECENT GROUP MEETING

**Meeting date and location:** None since last report.

**Attended by Alliance member countries:** N/A

**Participating partner organisations:** N/A

## NEXT GROUP MEETING

**Meeting date and location:**

Informal meeting planned alongside the International Research Symposium on Agricultural Greenhouse Gas Mitigation: From Research to Implementation

**Other information:**

Two Network meetings to be held alongside the International Research Symposium on Agricultural Greenhouse Gas Mitigation: From Research to Implementation:

- Inventory and NDC network meeting
- Circular Food Systems network meeting

## GROUP COORDINATION AND COMMUNICATIONS

**Regular teleconference:**

Quarterly Zoom call with Co-chairs and Network Leads + ad-hoc calls on specific issues

**Email updates/ Newsletters:**

Regular email communications. Individual networks have newsletters but currently no IRG newsletter.

**Social media presence:** N/A

**Participation in other Research Groups and Networks:**

Regular engagement with other research groups through Co-chairs and Network Leads meetings organised by GRA Secretariat.

RESOURCING

*Travel support to attend meetings:* N/A

*Funding for activities:* No funding provided

WEBSITE PROMOTION

N/A

**2) Networks' Information and Updates**

Network name	Network coordinators	Network Update
<b>Soil Carbon International Research Consortium</b>	Dr Suzanne Reynders (INRAE – France)	<p>The Soil Carbon International Research Consortium was officially launched during the Soil mission Week the 21 November 2023 within the frame of ORCaSa (2022-2025) a Horizon Europe project.</p> <p>The Soil Carbon IRC will act as a vehicle for advancing the aims of the GRA IRG Soils Carbon Sequestration Network and is engaging with new members with the help of its regional nodes Ambassadors so as to build a large community. It aims at providing better access to research, methods and practices related to soil carbon and advance carbon solutions through research funding, harmonisation of research activities and knowledge sharing.</p> <p>The IRC includes universities and research organisations, national and international initiatives or programmes, national and international R&amp;D agencies, development agencies, foundations, policymakers, private companies and NGOs.</p> <p>The Soil Carbon IRC develops 3 main services for its members.</p> <ul style="list-style-type: none"> <li>- A harmonised MRV framework to raise awareness and develop scientific knowledge and methods on how to Measure, Report, and Verify soil carbon stock changes in various contexts of application (Offsetting, Insetting, NDC's, CAP...).</li> </ul>

Network name	Network coordinators	Network Update
		<ul style="list-style-type: none"> <li>- The <a href="#">Impact4Soil</a> platform to drive cooperation and knowledge sharing on soil carbon at an international level. 5 modules: maps (vizualization of carbon stock and evolution over time), scientific evidence (from metanalysis), practices (from verified sources), data (from scientific repositories), network of initiatives and stakeholders.</li> <li>- A Research alignment and calls program through an aligned Strategic Research and Innovation Agenda considering all types of land use in each region; and through programming activities of funders to facilitate international collaboration between projects for the Soil Carbon IRC members.</li> </ul> <p>Past and future workshops:</p> <ul style="list-style-type: none"> <li>- <a href="#">Policy Workshop on International Carbon Certification Schemes (26 September 2024, Brussels/Belgium)</a></li> <li>- Soil Carbon for African agriculture - ORCaSa side event (30 July 2024, Rwanda)</li> <li>- Monitoring Cropland Soil Organic Carbon (SOC) stock changes - Joint workshops ORCaSa/MARVIC (24 and 25 April 2024 - Online)</li> </ul>
<p><b>Indigenous Research Network Update</b></p>	<p>Katerina Porou (NZ) Shiloh Babbington (NZ) Ruta-Rae Aickin (Samoa)</p>	<p>20 May 2024 - Held the Second Annual meeting and Field trip in Samoa alongside the Pacific Oceans and Climate Conference. The meeting was attended by 68 participants in person and 10 participants virtually, representing 21 different countries. The meeting was followed by a field trip and workshop to discuss the development of a flagship project for the Network.</p> <p>14 August 2024 - Indigenous Research Network: The Power of Inclusivity. Workshop held alongside APEC in Peru. The Workshop was led by New Zealand and co-sponsored by Australia, Canada, Peru, and The United States. Aligned with the APEC PPFS Food Security Roadmap Towards 2030. Empowering young indigenous voices in climate decisions and actions.</p> <p><a href="#">Indigenous Research Network Newsletter</a></p>

Network name	Network coordinators	Network Update
<b>Inventory and Nationally Determined Contributions (NDC) Network</b>	<p>Ngonidzashe Chirinda, (Mohammed VI Polytechnic University, Morocco)</p> <p>Mai Van Trinh, (Institute for Agricultural Environment, Vietnam)</p> <p>Natalie Doran-Browne, (Agricultural Research Advisors, Australia)</p> <p>Andrea Pickering, (NZ Agricultural Greenhouse Gas Research Centre, New Zealand)</p>	<ul style="list-style-type: none"> <li>- Global Research Alliance Agriculture Inventory Training Programme (GRAIT), a coordination initiative of international capability building programmes, launched alongside the Pacific Oceans Pacific Climate Change Conference in Apia, Samoa in May. <a href="https://graindc.org/grait/">https://graindc.org/grait/</a></li> <li>- I&amp;NDC standalone website designed, developed and published (<a href="http://www.graindc.org">www.graindc.org</a>).</li> <li>- Monthly co-lead meetings.</li> <li>- Quarterly Who's Counting newsletter (February and May), with Issue 13 due out by the end of August. <a href="https://graindc.org/resources/newsletters/">https://graindc.org/resources/newsletters/</a> Also various community updates in between newsletters.</li> <li>- Research ideas being worked on <ul style="list-style-type: none"> <li>o Reducing enteric fermentation emissions through feeding papaya seeds and mango (skin and seeds) to cattle.</li> <li>o Incorporating Animal Health metrics into national agriculture inventories (Harry Clark leading). Possible partial funding from the Global Methane Hub.</li> <li>o Guidance on incorporating mitigation technologies into National inventories.</li> </ul> </li> <li>- Initial meeting held with inventory compilers from Australia, Ireland, the UK and US</li> <li>- Joint initiative with MPI under the Network. Online Teams environment set up for further discussion by the EPA of Ireland.</li> <li>- Two workshops held on agricultural inventory capability building with Fiji – this included collaborative training between Andrea Pickering and Natalie Doran-Browne for the first workshop.</li> <li>- Andrea Pickering continues to attend project meetings, in her role as Network co-lead, on developing a protocol for including mitigation actions in Agricultural Lifecycle Analysis to ensure any linkages with the Network are identified.</li> </ul>
<b>Farm To Regional Scale Integration Network</b>	<p>Nina Grassnick (Thünen-Institute)</p> <p>Claus Deblitz (Thünen-Institute)</p>	<ul style="list-style-type: none"> <li>- Organized Session "Opportunities and challenges of farm-level GHG accounting" at DAFA conference "Agriculture research and climate change", March 2024</li> <li>- Support of project proposal for MACSUR SciPolNet project --&gt; project start expected end of 2024</li> </ul>

Network name	Network coordinators	Network Update
	Yelto Zimmer (agri benchmark)	<ul style="list-style-type: none"> <li>- Support of organizing the AgriGHG-2024 symposium taking place in October 2024, Berlin (Germany)</li> <li>- Finalizing paper on "Opportunities and challenges of farm-level GHG accounting" --&gt; paper submission to "Science of the Total Environment" planned for September 2024</li> </ul> <p>Activities in collaboration with agri benchmark:</p> <ul style="list-style-type: none"> <li>- GHG Baseline for selected countries in the agri benchmark Beef Network (Emifa-flagship Project)</li> <li>- GHG balances for typical crop farms (will be finalized by the end of 2024)</li> <li>- GHG policies in selected countries re. crop production</li> </ul>
<b>Circular Food Systems Network</b>	Mirjam Spoelstra (WUR) Flavia Casu (FAO)	<p>The CFS Network has funded three research projects, all of which focused on the development of indicators to measure circularity in agri-food systems. All projects have been finalised and reports can be found on the CFS Network website:</p> <ul style="list-style-type: none"> <li>- AgResearch NZ: A holistic framework for circular food system assessment</li> <li>- Wageningen Environmental Research: Circularity in Integrated Systems: Resource Recovery for Feed, Fuel and (Organic) Fertilizer Self-sufficiency in Ethiopia</li> <li>- Wageningen Plant Sciences: Circularity in Integrated Systems: Resource Recovery for Feed, Fuel and (Organic) Fertilizer Self-sufficiency in Ethiopia</li> </ul> <p>In May 2024 the CFS Network co-chairs participated in the Pacific Ocean Pacific Climate Change Conference in Samoa and attended the annual meeting of the Indigenous Research Network of the GRA. Possible participation and co-financing of the CFS Network in the Flagship project of the IRG have been discussed.</p> <p>The CFS Network has activated a LinkedIn account in June 2024 for members and interested parties to receive updates on the Network's activities.</p> <p>In July 2024, the CFS Network hosted a summer school on circular food systems at the campus of Wageningen University in The Netherlands. An international group of 20 Msc,</p>

Network name	Network coordinators	Network Update
		PhD and Young Professionals have participated in this fully funded summer school program to expand their knowledge of circular agriculture and food systems.

### 3) Research Group Activities

#### CURRENT

CURRENT ACTIVITIES					
Activity Name	Outcomes	Members involved	Partners/others involved (if relevant)	Existing funding is provided through	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)
Strategic Research and Innovation Agenda covering all soil types	Write a revised Strategic Research and Innovation Agenda (SRIA) based on CIRCASA SRIA and including soils in pastures,	INRAE (Delphine Derrien, Laure Bamière)	CIRAD (Julien Demenois) ORCaSa regional nodes (CSU, FARA, EMBRAPA, SFI, CSIRO)	ORCaSa – Horizon Europe projet	<ul style="list-style-type: none"> <li>• Research (R)</li> <li>• Guidance (G) for funders</li> <li>• potential co-benefit with respect to climate change</li> </ul>

CURRENT ACTIVITIES					
Activity Name	Outcomes	Members involved	Partners/others involved (if relevant)	Existing funding is provided through	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)
	forests and public areas for recreation.				adaptation and resilience (MAC)
New multi-ecosystem MRV methodological framework	Build a multi-ecosystem MRV framework based on previous ones and considering new initiatives for possible improvement/clarification  Build a new methodological framework for cropland meeting user requirements and preparing a technological breakthrough for MRV of	INRAE - Cesbio (Eric Ceschia)	ISRIC (Fenny Van Egmond)	ORCaSa – Horizon Europe projet	<ul style="list-style-type: none"> <li>• Capability Building (CB),</li> <li>• Research (R),</li> <li>• Policy Support (PS),</li> <li>• potential co-benefit with respect to climate change adaptation and resilience (MAC)</li> </ul>

CURRENT ACTIVITIES					
Activity Name	Outcomes	Members involved	Partners/others involved (if relevant)	Existing funding is provided through	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)
	SOC stock changes by the IRC.				
Organization of a side event at the International Research Symposium on Agricultural Greenhouse Gas Mitigation	<p>Develop a policy &amp; research agenda for development and implementation of circular food systems</p> <p>Develop new activities for the Network based on this policy &amp; research agenda</p>	CFS Network core team		Dutch Ministry of Agriculture	R, G & PS, MAC

FUTURE

FUTURE ACTIVITIES					
Activity	Expected Outcomes	Members involved	Partners/others involved (if relevant)	Funding to be sought from –	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)
Organise end-of-year webinar	Provide information on a CFS theme based on Network's activities in 2024	Webinar for CFS Network members		N/A	R
Newsletter Q3	Update to members on Network's activities	For CSF Network members		N/A	

Possible second edition of the CFS Network Summer School	Disseminate knowledge and inform students on circular food systems in different regions, benefits of CFS, and possible barriers to implement CFS	Organized by CFS Network core team		Dutch Ministry of Agriculture and WUR	CB, R, G, MAC
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#### 4) Additional Information

##### CLIMATE CHANGE ADAPTATION CO-BENEFITS

- SRIA goal: Inform widely relevant priority goals and measures that align with broader European and international research in the area of Soil Organic Carbon (SOC) and to allow partners to jointly promote the generation of new relevant knowledge.
- New multi-ecosystem MRV methodological framework
- Promotion of Circular Food Systems is directly linked to increasing resilience of agrifood systems and climate change adaptation

##### POTENTIAL COLLABORATION WITH OTHER RGs/PARTNERS

CFS Network is currently looking into the possibility of participating in, and co-financing a Flagship research project with the IRN

##### ISSUES TO BE ADDRESSED AT THE NEXT GRA COUNCIL MEETING

- Potential IRG restructure
- Nina Grassnick will step back as co-lead of the Farm To Regional Scale Integration Network --> new co-lead is needed
- Financial support to the CFS from the Dutch Ministry of Agriculture will end in 2025. The Network will seek additional financial support and welcomes any ideas to support the Network so it can continue its activities and organizing events.

### KEY PUBLICATIONS PRODUCED BY NETWORKS

AgriCarbon-EO v1.0.1: large-scale and high-resolution simulation of carbon fluxes by assimilation of Sentinel-2 and Landsat-8 reflectances using a Bayesian approach, <https://doi.org/10.5194/egusphere-2023-48>

White paper: Circular Food Systems around the world: exploring concepts, ideas and opportunities, <https://doi.org/10.18174/638397>

CFS Network funded research: Nutrient cycling on dairy farms in the Netherlands: The role of farm structure, management and trade-offs, <https://doi.org/10.1016/j.resconrec.2024.107875>