GLOBAL RESEARCH ALLIANCE
ON AGRICULTURAL GREENHOUSE GASES

Integrative Research Group

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Integrative Research Group (IRG)

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- Its overarching aim is to develop the knowledge and capabilities to estimate, monitor, and project GHG emissions within and across agricultural systems through research, development, and knowledge transfer.
- Its actions involves applying, reporting, monitoring, and/or verifying greenhouse gas emission estimates across farming systems to subnational, national, and supranational scales.
- Work with and between the existing Livestock Research Group (LRG), Cropland Research Group (CRG) and Paddy Rice Research Group (PRRG)

IRG

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- **Builds and expands on the work of the former C&N Cycling and Inventories and Monitoring Cross-Cutting Groups**
  - Members and partners participate and connect with IRG for cross-cutting issues that do not fit well under one of the Livestock, Cropland, and/or Paddy Rice Research Groups
    - Science such as: livestock-land interactions, carbon sequestration
    - Science-policy interface such as: inventories, mitigation costing for farming systems
    - Integrated analyses involving mitigation and adaptation
- **Work done through networks that assemble necessary expertise and resources to accomplish their goals**
  - 5 networks currently
  - Grasslands, Field-Scale, Carbon Sequestration, Farm- and Regional-Scale, GHG Inventories

Grassland Network

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- **Builds on former Grassland network within the Livestock Research Group**
  - Coordinators: Fernando Lattanzi (INIA, Uruguay), Karl Richards (Teagasc, Ireland),
- **Data and best management practices for grasslands (by region, and by practice, for productivity, quality, soil carbon, N2O, etc.).**
- **Three topics of interest:**
  - Grassland management and greenhouse gases emissions,
  - Costing best practices (e.g. for tropical pasture intensification),
  - Mixed systems (temporary grasslands, integrated systems).
- **Links to Livestock Research Group (e.g. for grazing and feeding regimes, manure management, integrated grassland and livestock management, etc.).**
- **Links to Croplands Research Group (e.g. for sown grasslands, crop rotations, etc.).**

Field-Scale Network

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- **Field (point) scale (builds on the former soil C-N cycling cross-cutting group)**
  - Coordinators: Pete Smith (Aberdeen U., UK), Jean-Francois Soussana (INRA, France),
- **Integrating models and data at the field scale for grasslands, crops and mixed systems**
  - –Crop and grassland models intercomparison and benchmarking for yields and GHGs (work done in the previous C&N group, almost finished),
  - –Climate sensitivity of GHG models,
  - –Modeling mitigation and adaptation options,
  - –Statistical emulators for upscaling.
- **Links to Croplands Research Group (CRG) activities (e.g. GRAMP modeling platform, data bases) and to Livestock Research Group activities (e.g. for GHG balance modeling of livestock systems).**

Carbon Sequestration Network

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- **New network**
  - Coordinators: Denis Angers (AAFC, Canada), Claire Chenu (AgroParisTech, France),
- **Soil carbon sequestration potential across spatial and temporal scales and developing reliable low-cost monitoring and verification methods.**
  - Data base showing soil C sequestration (or loss) rates vs. systems and practices, with effects on productivity, C-N-water cycles and non-CO2 GHGs (to be linked with data bases from other groups),
  - Simple soil models for advancing process understanding (e.g. mean residence time, stabilization, etc.),
  - Meta-analyses and modeling showing soil C sequestration potential and associated effects of increased soil OM,
  - Methods for soil carbon monitoring, reporting and verifying (MRV) at local scale.
- **Integrates knowledge on soil carbon across networks and in collaboration with the CRG, LRG and PRRG.**

Farm- and Regional-Scale Network

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- **New network**
  - Coordinators: Richard Eckard (Melbourne U., Australia), Petr Havlik (IIASA, Austria),
- **Generic and robust understanding of reducing GHG emissions and storing soil carbon through improved practices and changes in production systems at scales ranging from the farm to the region, also including agricultural landscapes.**
  - Demonstration farm network showing effects of improved practices,
  - Simple farm scale calculators showing changes in productivity, soil carbon and adaptation/mitigation strategies,
  - Pilot regions assessment studies,
  - A toolbox for developing national/ regional studies.
- **This will be achieved through integration of knowledge across networks and in collaboration with the CRG, LRG and PRRG groups.**

GHG Inventories Network

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- **Builds on the former Inventories and Methods Cross-Cutting Group**
  - Coordinators: Brian Mc Conkey (AAF, Canada), Jan Verhagen (WUR, Netherlands).
- **Improving national GHG inventories, systems level and all gases, options for improved activity description, for Tier 2 and Tier 3 in sub-sectors, mobilizing GRA activities for use by countries for inventories and national communications**
  - Guidance on how to improve inventories, including data on activities,
  - Moving to Tier 2, sharing examples from countries,
  - Emission factors and activity data for farming systems
- **This network will integrate knowledge from other networks and groups and translate it in formats that can advance national inventories and communications.**

IRG Operation

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- **The IRG will reach its goals through the actions of the individual networks, cross-network collaborations, and collaborations between networks and LRG, CRG, and/or PRRG**
  - IRG work is guided by the co-chairs and the network coordinators with input from RG co-chairs, and Member representatives to the IRG
  - Networks have freedom to involve expertise and resources from outside GRA and its partners
- **All networks will contribute to cross-cutting activities, such as capacity building, knowledge transfer and communication**
- **Communication, interaction, and coordination between networks and with other RGs are critical**

Paddy Rice Research Group and IRG

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- **What are the opportunities that the PRRG would like to collaborate with the IRG**
  - What topics and which networks?
  - Funding, human resources, and partners?
  - What are some valuable outputs that could be produced within 12 months from that collaboration?