

Croplands Research Group

Mark A. Liebig

USDA – Agricultural Research Service
Mandan, North Dakota, USA

GRA Engaging Workshop
8-9 April 2014, Warsaw, Poland



Presentation Overview



GLOBAL
RESEARCH
ALLIANCE
ON AGRICULTURAL GREENHOUSE GASES

- **CRG Vision, Emphasis Areas, Membership**
 - **Component Descriptions, Work Plans**
 - **Meeting Summaries**
 - **Milestones**
-



Vision

- ✓ **Widely available decision-support tools for reducing greenhouse gas emissions intensity from croplands, thereby producing sustained or increased yields for a climate-resilient agriculture**
 - ✓ **Croplands that have greater soil carbon sequestration**
-



Emphasis Areas

- ✓ **Greenhouse gas emissions/pathways studied are CO₂, CH₄, and N₂O**
 - ✓ **Evaluations to understand soil condition, tillage management, crop management inputs, inorganic and organic amendments, crop varieties, crop rotations, etc.**
 - ✓ **Technologies and management practices relevant to farmers and field applications**
-

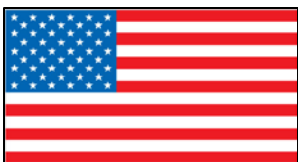
Members/ Leadership



GLOBAL
RESEARCH
ALLIANCE
ON AGRICULTURAL GREENHOUSE GASES



**Brazil – Ladislau Martin-Neto, Renato Rodrigues,
EMBRAPA**



**USA – Alan Franzluebbers, USDA – Agricultural
Research Service**





Group Focus

Component 1

Quantifying net greenhouse gas emissions in cropland management systems

Leaders: France, USA

Component 2

Assessing greenhouse gas emissions in agricultural peatlands and wetlands

Leaders: Finland, Norway, Sweden

Component 3

Modeling nitrous oxide emissions and soil carbon stocks

Leaders: France, USA



Work Plan

Component 1 – Quantifying net greenhouse gas emissions in cropland management systems

Standardized protocols and methods for determining GHG emissions and carbon sequestration



International database on agricultural management influences on GHG fluxes, carbon sequestration (including long-term experimental sites)

Practices for minimizing GHG emissions and sequestering carbon in different soils, environments, cropping systems

Emission factors for specific countries

Summary documents for decision makers

MAGGnet

**Managing
Agricultural
Greenhouse Gas
network**



Work Plan

Component 2 – Assessing greenhouse gas emissions in agricultural peatlands and wetlands



Overview reports on topic / state of knowledge

Management practices and their effects on GHG emissions

Network of experimental sites

GHG datasets for models and management testing

Recommendations to restore peatlands to more natural ecosystem functioning

Peatlands in Agriculture – Considerations for Greenhouse Gas Mitigation

Manuscript in review from scientists in Finland, Indonesia, Denmark, Norway, Sweden, United Kingdom, Netherlands





Work Plan

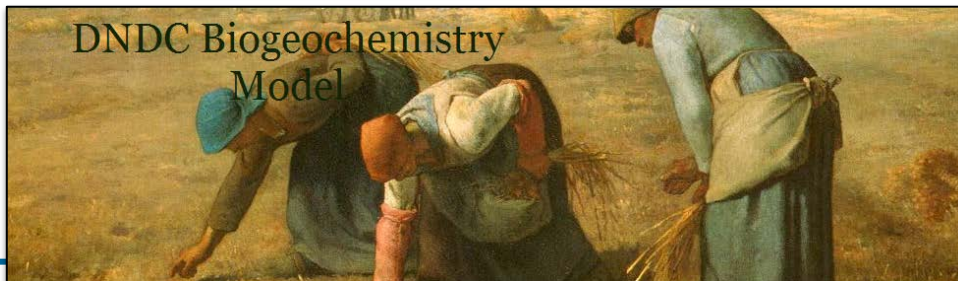
Component 3 – Modeling nitrous oxide emissions and soil carbon stocks

Inventory of publications using N₂O and soil carbon models

Review articles describing N₂O and soil carbon models

➔ Model evaluation, synthesis of the best models, best conditions for each

GRA Modelling Platform



Objectives

- Establish collaborations
- Create website
- Encourage interaction
- Synthesize problem areas
- Build capacity

Meetings

- ✓ **Networking among participants is critical to progress**
 - Group management/protocol
 - Project updates
 - Project proposals
 - ✓ **Five meetings since 2010**
 - Meetings scheduled after major international conference
-



Meetings

2010 November 4 – Long Beach, California, USA

Following the ASA-CSSA-SSSA Annual Meetings

Highlights:

Briefing of GRA formation
Analysis of resource stocktake
Prioritized emissions research



Future work to focus on:

Library of literature and websites
Inventory/outline of protocols and methods
International database of researchers



Meetings

2011 March 1-2 – Grignon and Versailles, FRANCE

In association with the First Alliance Council Meeting

Highlights:

- Further analysis of the stocktake
- Identify funding opportunities
- Use Alliance website for communications
- Propose topics to the cross-cutting team



Future work:

- Searchable database
- Best mitigation options and recommendations



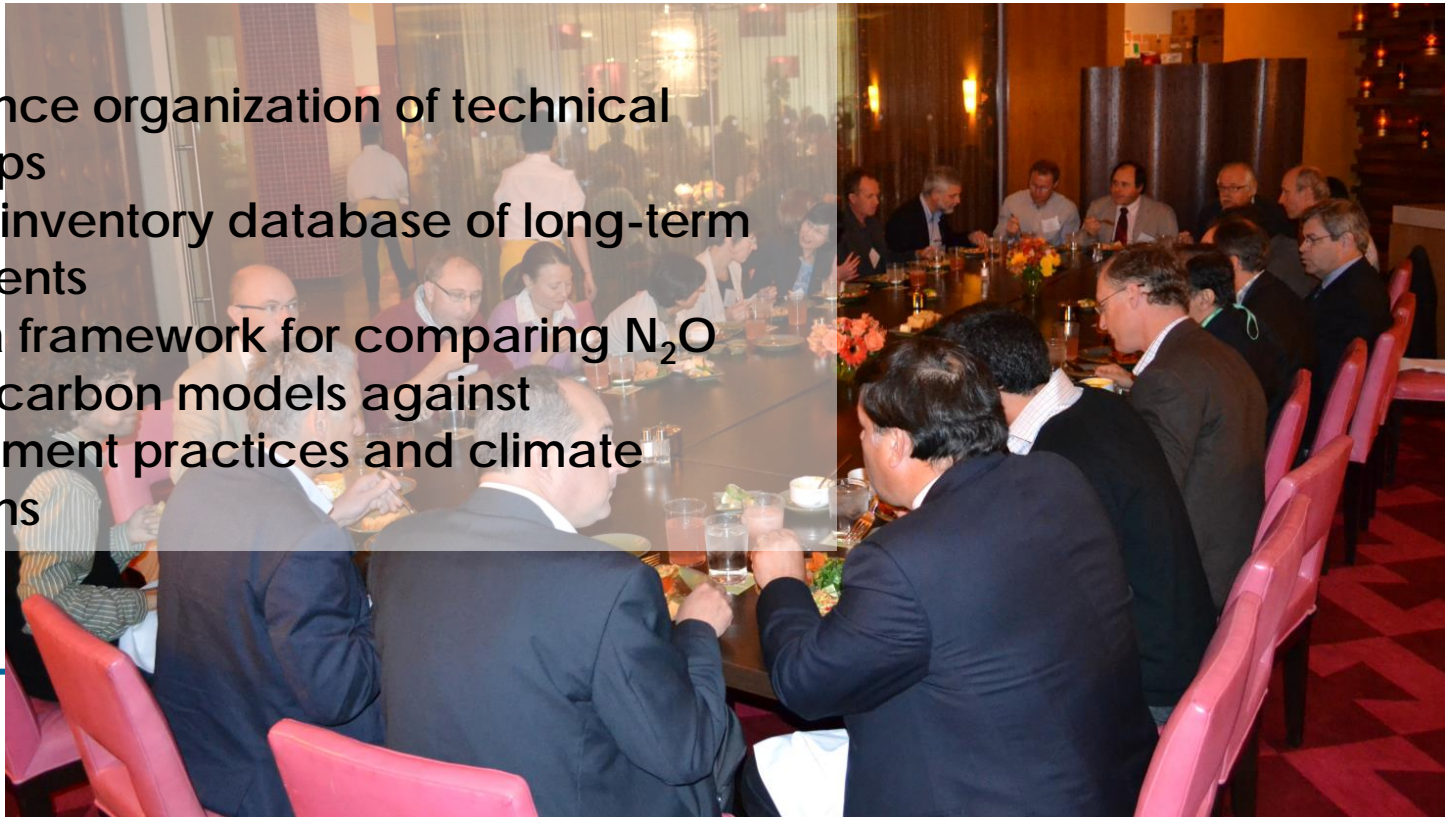
Meetings

2011 October 20 – San Antonio, Texas, USA

Following the ASA-CSSA-SSSA Annual Meetings

Highlights:

- Commence organization of technical workshops
- Build an inventory database of long-term experiments
- Create a framework for comparing N₂O and soil carbon models against management practices and climate conditions





Meetings

2012 July 3, 5, 7 – Bari, ITALY

During and after the EUROSIL 2012 Conference

Highlights:

- Clarified group communications process
- Proposed new joint activities on agroforestry, irrigation, and water use
- Proposed expert exchange and cooperation with FAO on drained organic soils
- Develop a modelling platform
- Develop 1-page brochures





Meetings

2013 November 7 – Tampa, Florida, USA

Following the ASA-CSSA-SSSA Annual Meetings

Highlights:

- Identification of adaptation and mitigation synergies and opportunities
- Development of a partnership with Climate Change, Agriculture, and Food Security program of CGIAR
- Launching of the GRAMP website
- Modelling workshop planned in March 2014
- Agreement to communicate between annual meetings via regular emails





Next Meeting

2014 August 29 – Debrecen, Hungary

Following the European Society for Agronomy Congress

Agenda:

- Under consideration
- Review of previous proposals

ESA 2014
Congress

25-29 AUGUST 2014, DEBRECEN, HUNGARY

WELCOME

PROGRAMME

ABSTRACTS

SPONSORS

ACCOMMODATION

VENUE

GENERAL

home [Alan Franzluebbbers](#) [Log out](#)

XIIIth congress of the European Society for Agronomy

The next congress of ESA will take place between 25-29 August 2014 in Debrecen, Hungary.

Welcome, Alan Franzluebbbers!

Abstract status: uploaded, pending



Milestones

- ✓ **Selection of >20 USDA Borlaug Fellows**
 - ✓ **Population of MAGGnet database with >200 experimental sites**
 - ✓ **Expansion of the GRA Croplands Group Literature Database to other research groups**
 - ✓ **Launch of GRAMP website – <http://gramp.org.uk/>**
-

Website

<http://www.globalresearchalliance.org/research/croplands-research-group/>

Thank you for your attention
