UK Update – GRA Croplands Meeting 2015 – Brasilia

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on behalf of Dr. Luke Spadavecchia

GHG R&D Platform
Sustainable Intensification Platform
Other Activities
Agricultural Greenhouse Gas R&D Platform

**Scope:** to develop a SMART inventory for the agricultural sector that is representative of UK soils, climate and management systems. The SMART inventory will explicitly capture the impact of on farm mitigation measures that enhance the efficiency of production.  
*The SMART inventory will be operational in 2017.*

> 16 collaborating organisations  
£13M investment over 5 years
Inventory Improvement Programme

In Final Phase!

Data Synthesis and Model Development Hub

Completed!

Developing new Methane Emissions Factors

Developing new \( \text{N}_2\text{O} \) Emissions Factors

Completed!

New Targeted Research

Knowledge Transfer: Effective Mitigation Methods

Stakeholders INCLUDING GRA!

Inventory Delivery: Ammonia and GHGs

Knowledge Exchange

Identify Existing Research/Data

Published Defra Research

Defra Surveys

Academic Research

Industry/Levy Body Data

International Reporting

National Reporting

Department for Environment, Food & Rural Affairs
Now Almost 100 site years of data in UK combined data set (old and new experiments):  
*All data will be publicly available!*

- New fertiliser to tillage site
- Existing fertiliser to tillage site
- New fertiliser to grass site
- Existing fertiliser to grass site
- New manure to tillage site
- Existing manure to tillage site
- New manure to grass site
- Existing manure to grass site
- New urine/dung to grass site
- Existing urine/dung to grass site

**Cross Compliance Soils**

- Chalk and limestone
- Heavy
- Medium
- Peaty
- Sandy and light
Indicative N$_2$O Results

- Results indicate that the IPCC default EF of 1% for N$_2$O from synthetic fertiliser applied to soils is too high for UK croplands, but is perhaps more reasonable for grasslands
  - Mean for crops = 0.4%
  - Mean for grass = 0.7%
  - Work on grazing returns is ongoing. We have separate EFs for dung and urine but need careful checking – combined EF is 0.52% << IPCC default!
  - All EFs are draft and subject to change!
Sustainable Intensification Research Platform

**Scope:** to develop ways of increasing the productivity and profitability of UK agriculture while reducing environmental impacts, enhancing biodiversity and delivering wider ecosystem services.

>30 collaborating organisations

£4.2M investment over 3 years
Sustainable Intensification Platform research themes

3. Markets and drivers

2. Landscape-scale: opportunities and risks

1. Farm-scale: Integrated Farm Management

- Exploring influences and opportunities for the management of UK farms from markets, the food-chain and other external drivers.
- Exploring how the geographic context of land capability and environmental risk should influence farm management decisions.
- Developing ways of integrating production and environmental objectives into profitable farming systems.
# SI Platform – key focus areas

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<th>1. Integrated farm management</th>
<th>Understanding the system</th>
<th>Designing interventions</th>
<th>Socio-economic context</th>
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<td>Metrics/indicators</td>
<td>Integrated Farm Management practices</td>
<td>Decision support</td>
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| 2. Landscape-scale opportunities and risks | Land typology (capability and risk) | Landscape scale interventions | Collaborative land management |

| 3. Markets and drivers | Resilience of UK farming | Income streams | Spheres of influence |

For more information contact [Steve.Aston@Defra.gsi.gov.uk](mailto:Steve.Aston@Defra.gsi.gov.uk)!
Other UK Activities

- **MAGGnet**: UK ready to submit update based on new publications from platform. MAGGnet now also linked with GRAMP.
- **GRAMP**: Website now fully launched – update on progress to come later! We invite GRA countries to register, submit info & new models and to participate in webinars! *Need to consider contributions to site maintenance from GRA partners.*
- **Peatlands**: UK now has 3 years of good experimental data from managed agricultural peatlands and peatland restoration methods.
- **Peatlands**: The UK is submitting a bid to LIFE (£10 M IP integrated project). This is not an experimental project but looks at mechanisms for best practice. *Actual submission will be next year.* Interested in how we can interact.
- **Maximising opportunities to collaborate under EU Horizon 2020**, in particular UK is participating in the ERAGAS “Greenhouse Gasses from Agriculture and Silviculture” ERAnet.