



NewsLetter No: 5 June 2005

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Greenhouse in Agriculture - Delivering abatement options and solutions

by Dr Richard Eckard, GIA Program Leader

The Greenhouse in Agriculture Project is changing gear slightly after June 2005, with some changes in the projects.

We have started a new site at Cunderdin in Western Australia (see article by Louise Barton), funded by the AGO, GRDC and the Agriculture WA.

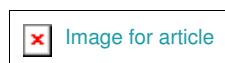
While the ESAI funding for the first phase of the Victorian DPI component terminates in June 2005, DPI have committed to a next round of funding. This new phase of the work in Victoria will focus on delivering actual abatement options and technologies.

From June 2005, the Australian Greenhouse Office will now be co-funding most of our research and we look forward to a closer integration of our efforts with their needs.

A highlight has been the presentation of results from the work to date at our annual science meeting (see article on the ASM). This is an important step where the science presented to peers for their comment, before we make any further interpretation, conclusion and publish the results more widely.



The new methane chambers at Ellinbank



CRC Annual Science Meeting - an early peek at the data

by Richard Eckard, GIA Program Leader

The Greenhouse in Agriculture team were well represented at this year's CRC Annual Science meeting, where presentations were delivered by Louise Barton, Fiona Barker-Reid, Ray Leuning, Robert Edis, Richard Eckard, Deli Chen and Frances Phillips. Our PhD students were also well represented, with talks from Alison Laing, Luke Wylie and Deb Turner.

It was clear from the presentations that our research sites are delivering high quality data that will be important information for both policy and ensure that practical management advice to the farming community will be based on local data.

The data to date suggest that nitrous oxide emissions from nitrogen fertiliser, applied to irrigated dairy pastures and rainfed winter wheat, appear much lower than the average of northern hemisphere grain and pasture studies.

More variable emissions have been found by the CRC team in studies of irrigated cotton/vetch/wheat rotation and substantially higher emissions from irrigated maize.

The Australian emission factors for nitrous oxide from agriculture vary around the 1.25 per cent default value recommended by the Intergovernmental Panel on Climate Change (IPCC), which is based primarily on northern hemisphere grain and pasture studies.

These results highlight the need for local research into specific agricultural systems in Australia to develop a greater understanding of management, climate and soil interactions on N₂O emissions profiles and their applicability to different regions of Australian agriculture.

Congratulations to Fiona for the best presentation award.

New Nitrous Oxide Site at Cunderdin, WA

by Louise Barton, UWA

Good opening rains have heralded the commencement of seeding in the WA wheatbelt. Installation of the automatic gas sampling chambers and associated analytical equipment at Cunderdin has been completed and N₂O measurements have commenced. Dave Gatter has been kept busy with the anticipated logistical and teething problems associated with setting up the automatic system; however the group is confident that everything will be in place for seeding in late May.

In addition to installing the equipment, soil and plant residue samples have been collected. The Department of Agriculture's pedology team visited the site in March to describe the soils, while initial soil samples were taken by Louise Barton, Renee Buck and Christoph Hinz. The results from the soil analyses will be used to assist Louise Barton and Li Yong to initialise a N₂O simulation model (WNMM) that has been developed by Deli Chen at the University of Melbourne.



Dennis van Gool and Ted Griffin (Department of Agriculture Western Australia) describing the soil at WA N₂O Project site, Cunderdin.



Richard Eckard presenting to the National Industry Liaison Panel

National Industry Liaison Panel

by Traci Griffin, Project Leader, Communications, Partnerships and Extension

The 2nd National Agricultural Industry Liaison Panel meeting was held on March 22nd in Canberra. The meeting was well attended with numbers increasing since inaugural July 2004 meeting.

New member organisations included:

- * Dairy Australia and Australian Dairy Farmers;
- * Grain Council of Australia.

Presentations and discussions covered a range of topics including:

- * The operations and relevance of the Kyoto Protocol, by Tony Beck;
- * Plant responses under elevated CO₂ - by John Evans
- * An update on GIA research program, and

* An introduction of CRC for Greenhouse Accounting's new CEO Michael Robinson.

A survey of participants after the meeting endorsed need and role of the forum, with industry groups particularly happy with efforts to develop their knowledge and understanding of greenhouse and its emerging relevance.

Copies of presentations are available at <http://greenhouse.crc.org.au/crc/gia/>

Nitrous oxide emissions from grain cropping at Rutherglen

by Fiona Barker-Reid

The Rutherglen site was decommissioned at the end of March 2005 after collecting data for 2 full years.

The data to date suggest that nitrous oxide emissions from nitrogen fertiliser, applied to rainfed winter wheat, appear much lower than the average of northern hemisphere grain and pasture studies.

Intensive soil characterisation within each plot is now taking place. It is anticipated that these results will enable us to tease out some of the spatial variability within the data. Water soluble carbon analysis is currently being carried out on all soil samples taken from the site over the measurement period (since sept 2003). These analyses will be used to develop a greater understanding of the processes contributing to N₂O emissions.

The Grains Nitrous oxide team have been out telling the story:

- Dr Will Gates from GIA grains team presented a poster at the GRDC Crop Update, Wagga Wagga in February.
- Fiona Barker-Reid will be presenting the work at the Non-CO₂ Greenhouse Gas Conference in Utrecht, Netherlands in July 2005.



Fiona Barker-Reid adjusting the automatic chamber at the Rutherglen grains site.