

GGAA2007 SUMMARY

OVERVIEW

Greenhouse Gases and Animal Agriculture 2007 was held in Hotel Grand Chancellor, Christchurch New Zealand on 27–29 November 2007 as an activity under the Australia New Zealand Climate Change Bilateral Agreement. The conference was attended by 233 delegates from 46 countries and sought to present the latest research findings on the biology, measurement and management of greenhouse gas (GHG) emissions from animal agriculture, as well as policy approaches to facilitate mitigation and livestock industry perspectives on GHG management.

All invited and offered full papers were refereed and are published in the *Australian Journal of Experimental Agriculture* (Volume 48, Issues 1–2). The text of unrefereed posters and/or abstracts are also available from <http://www.publish.csiro.au/nid/72.htm>.

GGAA2007 was structured to encourage delegate participation through in-conference workshops and a suite of ancillary pre- and post-conference workshops. These covered specialist issues including measurement technologies, urinary nitrogen loss, biogas production and development of extension messages and methodologies. A synopsis of conclusions and recommendations arising from GGAA2007 as noted by committee members is provided.

CONCLUSIONS

- GHG emissions generated in activities associated with livestock production from clearing land through to transporting animal products to sale, constitute 18% of global anthropogenic GHG emissions (Steinfeld *et al.* 2006). Emissions from animal production are the largest agricultural GHG source in a diverse range of countries.
- Effective management of livestock GHG emissions will require recognition of the full array of sources and sinks of GHG that exist in livestock farming systems.
- Mitigation at source (e.g. lowering system nitrogen inputs or providing feedstuffs of low-methanogenic potential) offers scope for reducing GHG emissions from livestock enterprises.
- Commitment by both New Zealand and Australia to include agriculture in future national Emissions Trading Systems, brings an increased urgency and anticipated financial incentive to develop techniques to mitigate GHG emissions from livestock production systems.
- Release of nitrous oxide from pastures and manures can potentially be managed by nitrification inhibitors, by reducing dietary nitrogen intake and by management of fertiliser type levels and timing.
- There is a lack of widely proven technologies with potential to immediately reduce enteric methane emissions, except for changing livestock numbers and feed type. Recent research in this area which was expected to demonstrate clearly defined effective abatement options has rarely done so. This leaves most livestock producers with few options and provides little guidance for policy developers.
- There is a lack of capacity in extension services in Australia and New Zealand for delivery of GHG mitigation messages.

RECOMMENDATIONS

- Capacity in modelling of emissions using both whole farm systems and life cycle analysis approaches should be expanded to fully evaluate the broad impact of all potential mitigation strategies.
- Measurement and accounting procedures should be developed in partnership to ensure mitigation is verifiable and readily recognised in national inventories.
- Potential GHG mitigation strategies should be evaluated for their impact on all GHG emissions from the livestock production system, in order to determine the net mitigation achieved and to identify pollution swapping.
- Total mitigation achievable from use of two or more mitigation technologies in combination should be quantified to identify additivity and complementarity.

- Development of mitigation technologies for enteric methane from ruminants should be allowed time and considerable strategic science investment to understand the microbial ecology, biochemical processes and alternative fermentative pathways in the rumen which will enable development of specific mitigants.
- A commitment should be made now to facilitate the on-farm adoption of available technologies which reduce losses of nitrogenous GHG. This will reduce emissions and will provide experience in extension of GHG mitigation advice. This will enable more rapid adoption of tools for enteric methane mitigation when they become available.

The next “Greenhouse Gases and Animal Agriculture” conference will be held in Canada and suggestions on conference content, linkages and sponsorship can be made to the organising committee by contacting Sean McGinn (McGinnS@agr.gc.ca).

REFERENCE

Steinfeld H, Gerber P, Wassenaar T, Castel V, Rosales M, de Haan C (2006) Livestock’s long shadow: environmental issues and options. pp 112-113. Food and Agriculture Organisation/ Livestock Environment and Development, Rome, Italy.