



Non-CO₂ greenhouse gas mitigation in New Zealand

**SBSTA 27 in-session workshop
7 December 2007
Bali**



**Hayden Montgomery
Ministry of Agriculture and Forestry
New Zealand**

Outline

- Global context for non-CO₂ greenhouse gases
- NZ context for non-CO₂ greenhouse gases
- NZ policy context
- NZ research efforts
- New Zealand international efforts to mitigate greenhouse gases from agriculture
- Concluding remarks



Global context for non-CO₂ gases

- Non-CO₂ greenhouse gases are 23.3% of global anthropogenic greenhouse gas emissions:
 - methane - 14.3%
 - nitrous oxide - 7.9%
 - other - 1.1%

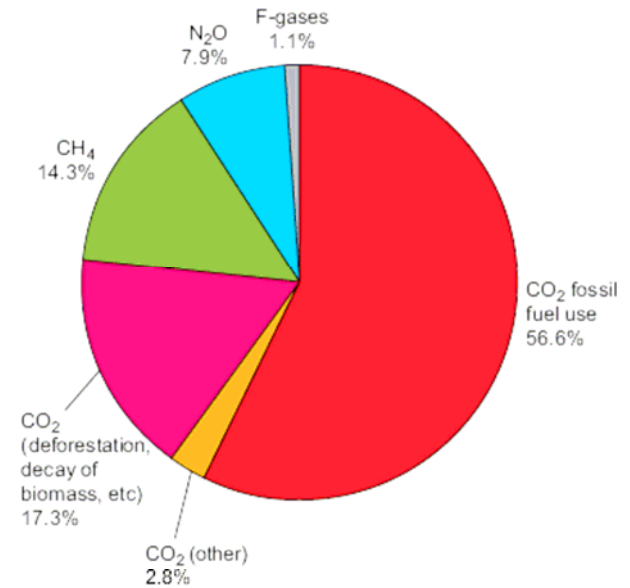


Figure 1.1b Global anthropogenic greenhouse gas emissions in 2004.
Source: Adapted from Olivier et al., 2005, 2006

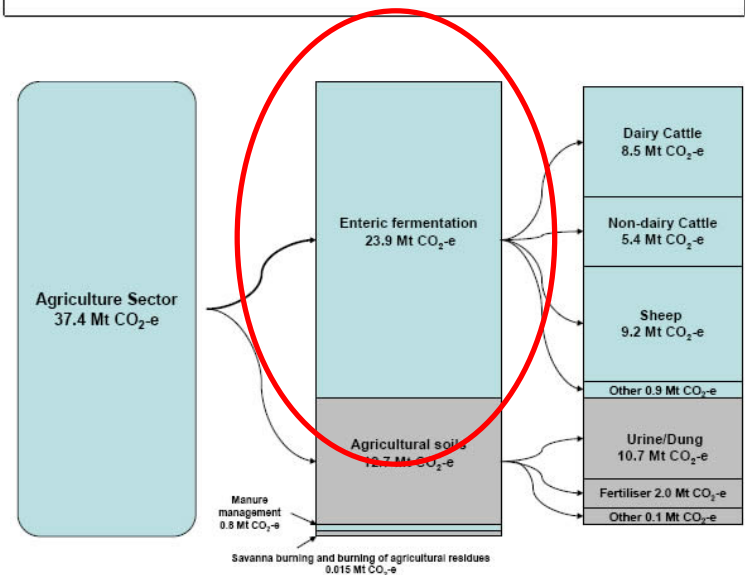
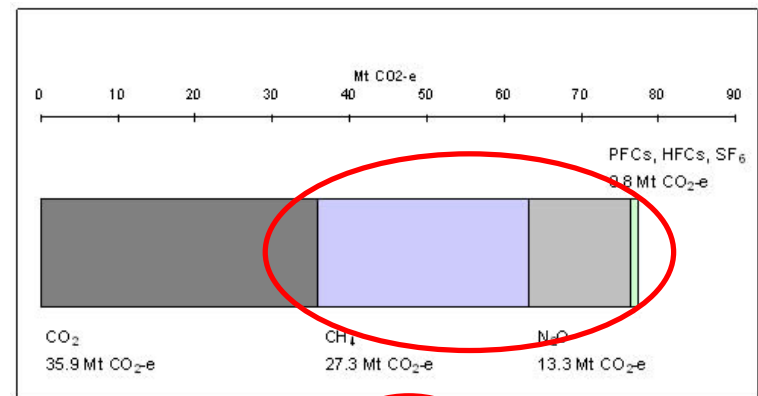
Agriculture as source of global non-CO₂ greenhouse gases

- Agriculture contributes about 14% of global anthropogenic greenhouse gas emissions
- Agriculture accounts for 60% of global anthropogenic nitrous oxide and 50% of global anthropogenic methane
- Major sources of agriculture non-CO₂ gases include:
 - Methane from enteric fermentation
 - Nitrous oxide from agricultural soils



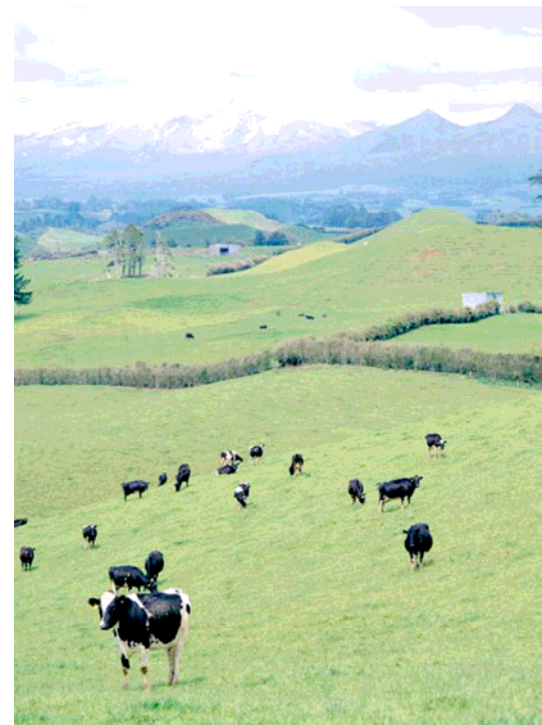
New Zealand context for non-CO₂ greenhouse gases

- 53% of New Zealand annual emissions are non-CO₂ greenhouse gases
- The agriculture sector contributes 91% of total methane emissions and 96% of total nitrous oxide emissions
 - Methane from enteric fermentation is NZ's single highest source of emissions (31%). Emissions from enteric fermentation have increased by 10% since 1990



New Zealand Policy Context - New Zealand Emission Trading Scheme (ETS)

- All sectors all gases approach
- The ETS will cover all the major agricultural sources of methane and nitrous oxide.
- Agriculture will be included from 2013 and will have requirement to report emissions from 2011
- Free allocation of permits to agriculture sector equal to 90% of 2005 emissions with progressive reduction in allocation of permits over time



New Zealand Policy Context - Sustainable Land Management Plan of Action

- Government will invest \$175 million over next 5 years on Sustainable Land Management and Climate Change *Plan of Action*
- Plan will be developed and delivered in close partnership with land based sectors
- Three pillars: adaptation, mitigation, business opportunities
- Three supporting programmes:
 - research and innovation
 - technology transfer and information
 - communication and engagement



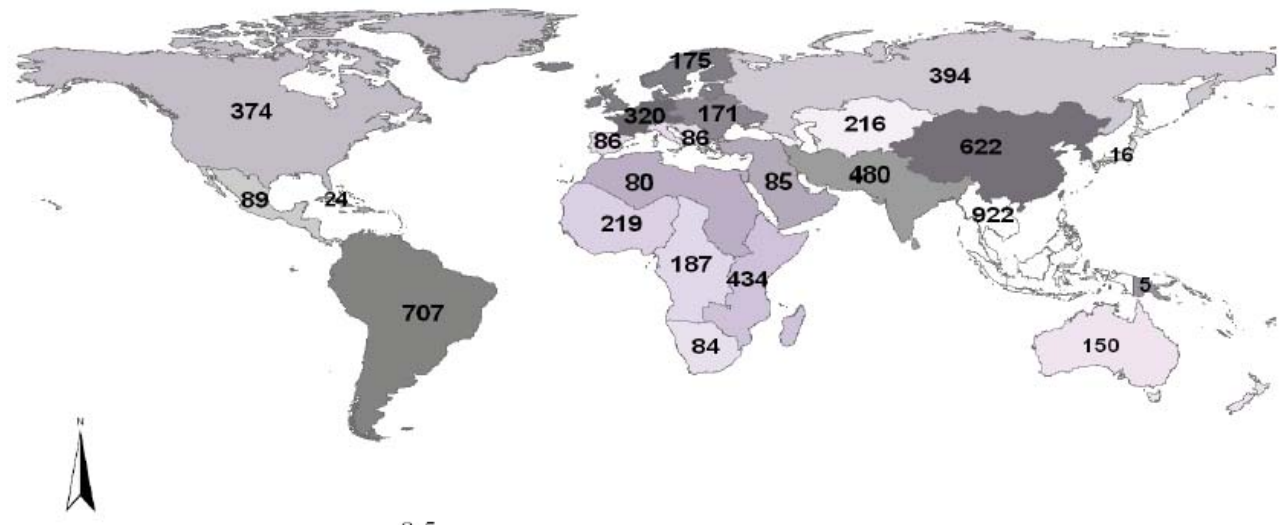
New Zealand agriculture research effort

- Ministry of Agriculture and Forestry
 - Mitigation research - NZ\$45M over 5 years
 - Inventory development – NZ\$15M over 5 years
 - Monitoring and measuring farm emissions and mitigation – NZ\$6M over 5 years
 - Technology Transfer – NZ\$41M over 8 years
 - International collaboration – NZ\$5M over 5 years
 - Greenhouse gas footprint strategy - NZ\$6 M over 5 years
- Pastoral Greenhouse Gas Research Consortium
 - NZ\$25M over 5 years



The importance of international collaboration

- The IPCC found that 70% of mitigation potential in agriculture is in developing countries
- We need to unlock this potential in order to mitigate climate change
- Global research in this area has lacked to-date relative to other sectors
 - need to pool collective knowledge and understanding and avoid duplication
- Standardised approaches to measurement and estimation will facilitate mitigation



International cooperative efforts to mitigate agriculture greenhouse gas emissions

- New Zealand hosted Greenhouse Gases and Animal Agriculture conference from November 26-29, 2007.



- Establishment of the Livestock Emissions and Abatement Research Network (LEARN)

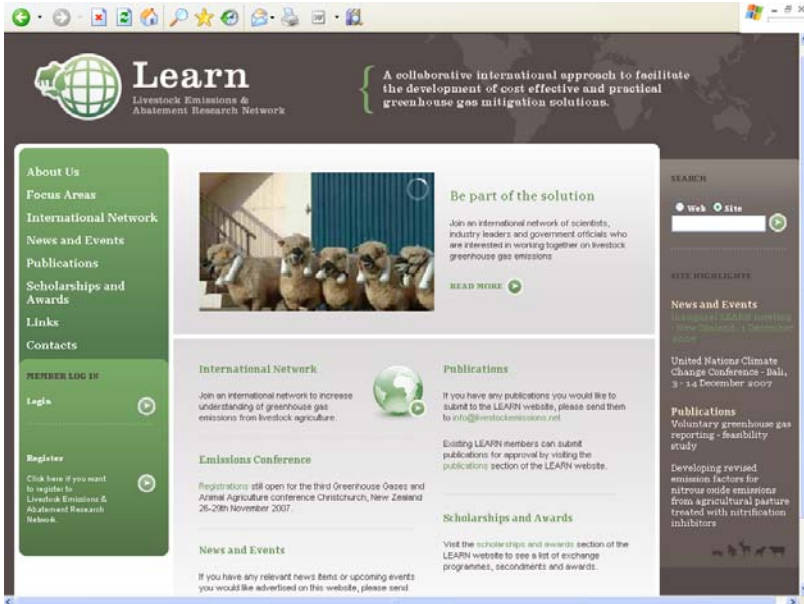


LEARN Objectives and Initial Focus Areas

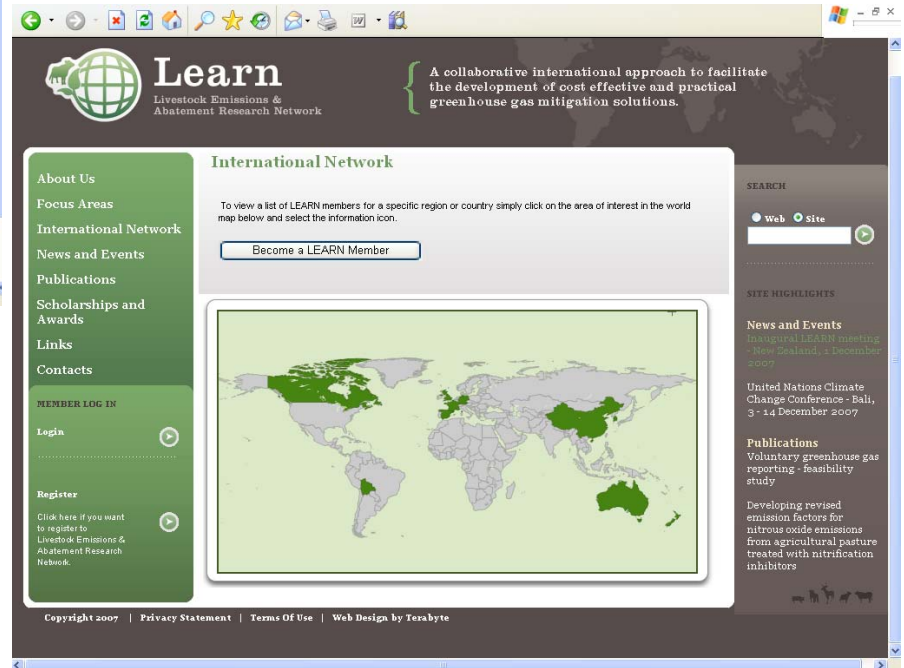
- LEARN objectives
 - To improve understanding, measuring and monitoring of non-CO₂ greenhouse gas emissions from animal agriculture at all scales
 - To facilitate the development of cost effective and practical greenhouse gas mitigation solutions
- Initial focus areas
 - Methane emissions from ruminant livestock
 - Nitrous oxide emissions from livestock
 - Integrated whole farming systems at all scales
 - National agriculture inventory development
- In future – can broaden network activities to other livestock and farm systems



LEARN website



The screenshot shows the LEARN website homepage. At the top left is the LEARN logo (a globe) and the text "Learn Livestock Emissions & Abatement Research Network". To the right of the logo is a quote: "A collaborative international approach to facilitate the development of cost effective and practical greenhouse gas mitigation solutions." Below the logo is a navigation menu with links: "About Us", "Focus Areas", "International Network", "News and Events", "Publications", "Scholarships and Awards", "Links", and "Contacts". A "MEMBER LOG IN" section is also present with "Login" and "Register" buttons. The main content area features a "Be part of the solution" section with a photo of sheep and a "READ MORE" link. Below this are sections for "International Network", "Emissions Conference", "News and Events", "Publications", and "Scholarships and Awards". A search bar is located on the right side of the page.



This screenshot shows the same LEARN website homepage, but with the "International Network" section highlighted. The "International Network" section is expanded, showing a world map with several countries highlighted in green. Below the map is a "Become a LEARN Member" button. The "Publications" section is also expanded, showing a list of publications. The "News and Events" section is also expanded, showing a list of events. The "MEMBER LOG IN" section is also expanded, showing the "Login" and "Register" buttons. The search bar is also visible on the right side of the page.

LEARN Advisory Group

- New Zealand (Chair)
- Australia
- North America
 - USA, Canada, Mexico
- South America
 - Brazil, Argentina
 - Peru, Chile
- Europe
 - Netherlands, United Kingdom
 - Ireland, France, Switzerland
- Asia
 - Japan, China, India
- Africa
 - South Africa



Key messages

- Agriculture is a large source of non CO₂ emissions and will likely continue to increase as demand for food increases
- Research is critical - both measurement and mitigation
- Mitigation potential is highly dependent on national circumstances
- A total system approach to mitigation and Life Cycle Assessment is important
- We need to work together to develop standard approaches for inventory to facilitate mitigation
- New Zealand is committed to working collaboratively with others
- Please register for LEARN and let's work together

Contacts and further information

Hayden Montgomery

hayden.montgomery@maf.govt.nz

NZ Government Climate Change Policy

www.climatechange.govt.nz

NZ Ministry of Agriculture and Forestry

www.maf.govt.nz

LEARN

www.livestockemissions.net

Pastoral Greenhouse Gas Research Consortium

www.pggrc.co.nz