



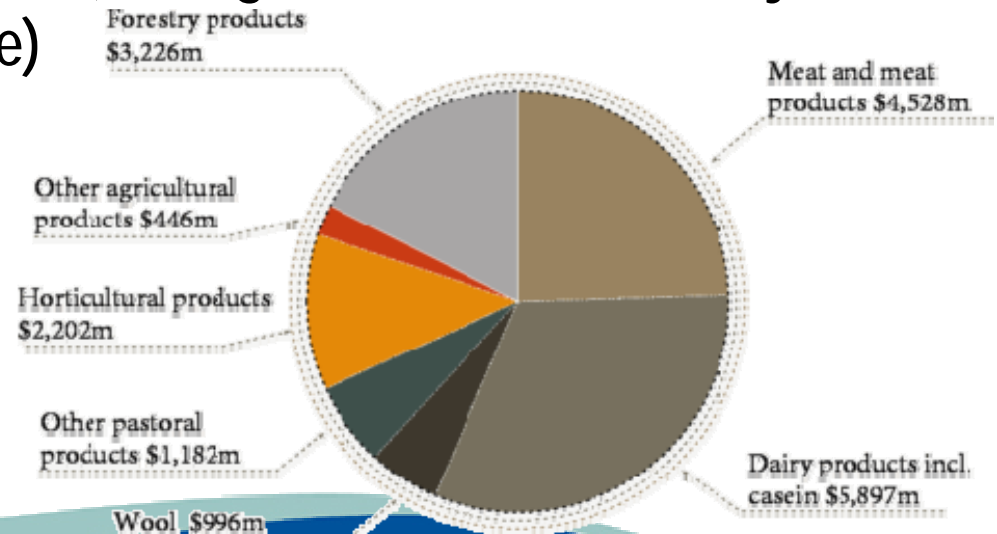
New Zealand Agriculture & Forestry Sectors and Climate Change





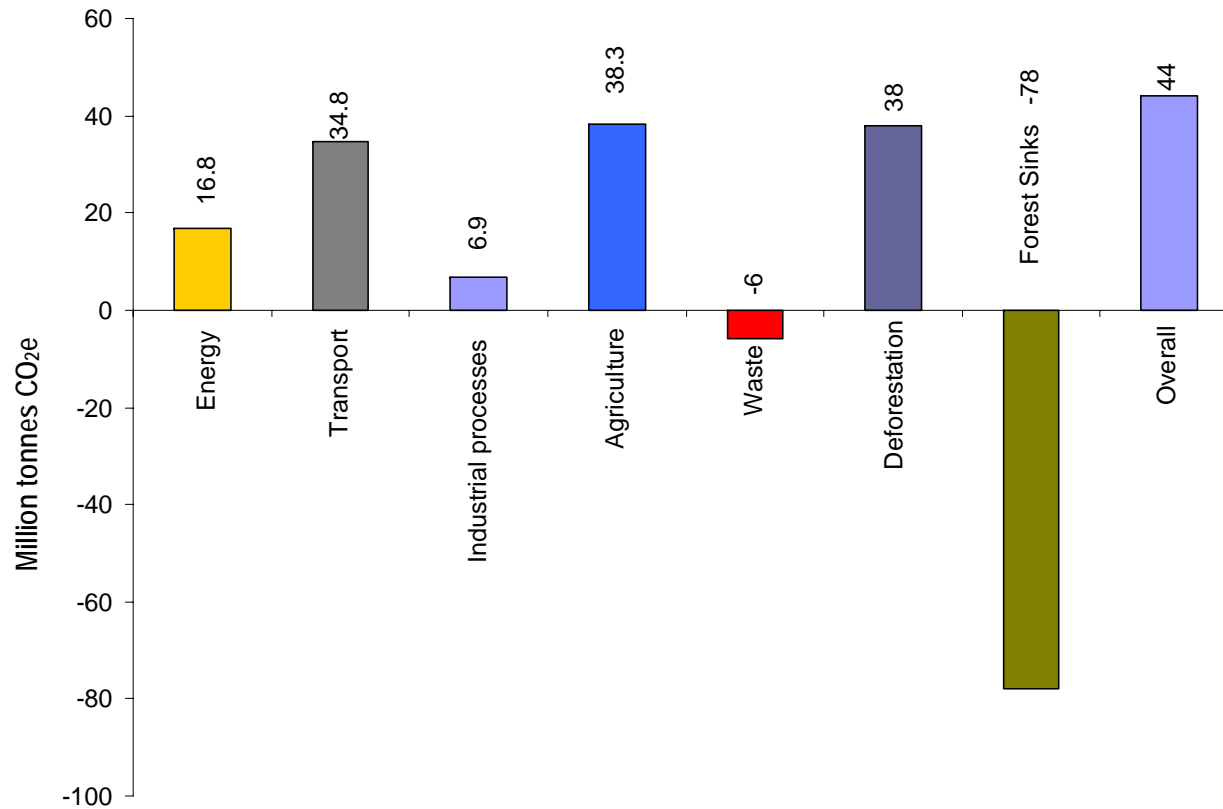
Agriculture and Forestry in New Zealand

- Agriculture, horticulture and forestry exports \$18.5 billion, or 65% of NZ's total exports
- Contribute almost 20% to GDP (incl agriculture and forestry processing and manufacture)
- Highly efficient production





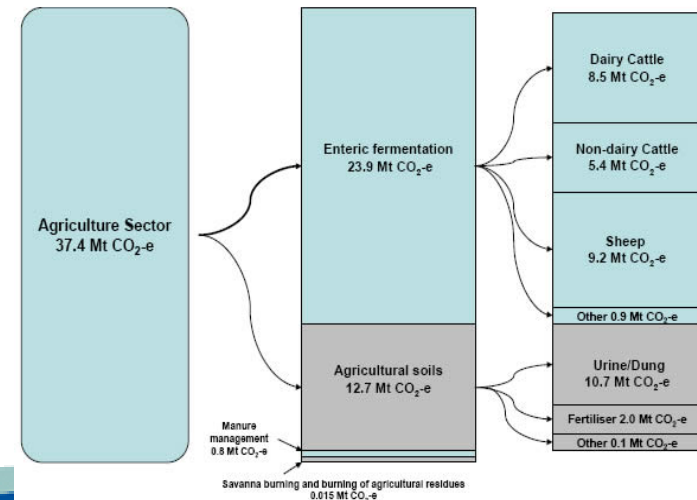
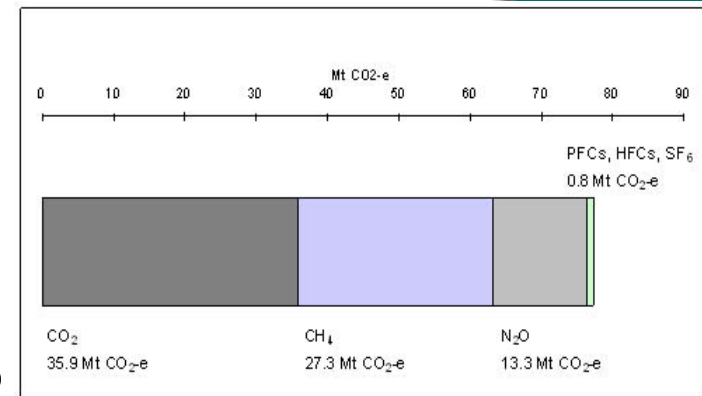
Agriculture and Forestry emissions/sinks over the first five-year Commitment Period of the Kyoto Protocol





Agriculture Emissions: 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 - Emission Trading Scheme (ETS)

- 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 Policy Context - Forest Sinks

- **Afforestation Grant Scheme**
 - a government grant scheme for the establishment of new forests on previously unforested land.
 - Participants will own the new forests and earn income from the timber
 - the government will retain the sink credits and take responsibility for meeting all harvesting and deforestation liabilities.
- **Permanent Forest Sink Initiative**
 - an opportunity for landowners to establish permanent forest sinks and obtain tradable Kyoto Protocol compliant emission units





New Zealand Policy Context: Bioenergy initiatives

- Biochar professorial positions
- co-funding of industrial scale bioenergy co-generation;
- conversion of school boilers to wood chips pilot projects;
- cost-effective ways of collecting in-forest wood residues for fuel.
- increase the pool of carbon stored in wood and wood products;
- reduce the use of more energy-intensive materials such as steel, concrete and aluminium;
- displace fossil fuels by the burning of wood waste.





New Zealand Forestry Research Efforts

- Forest and forest land valuation-how to value forests and forest land to include carbon costs and benefits?
- Implications of changes in albedo (reflectance) on the benefits of forests as carbon sinks
- The effect of climate change on New Zealand's planted forests: impacts, risks and opportunities.
- Life Cycle Assessment (LCA): adopting and/or adapting overseas LCA data and methodologies for building materials in New Zealand.
- Carbon trading and forestry decision making, carbon accounting and forest growth rates.
- Forest risk management strategies





New Zealand Agriculture Research Efforts

- Ministry of Agriculture and Forestry
 - Mitigation research
 - Inventory development
 - Monitoring and measuring farm emissions and mitigation
 - Technology Transfer
 - International collaboration
 - Greenhouse gas footprint strategy
- Pastoral Greenhouse Gas Research Consortium
 - abatement of pastoral agriculture's greenhouse gas emissions





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

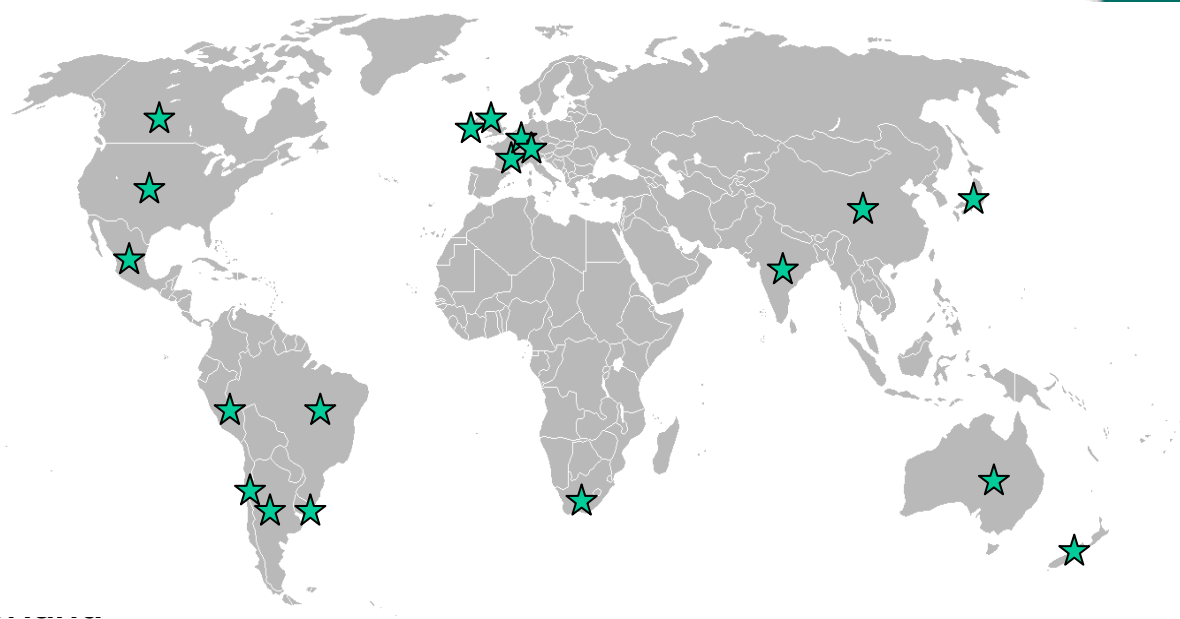
- LEARN objectives
 - To improve understanding, measuring and monitoring of non-CO₂ greenhouse gas emissions from animal agriculture at all scales
 - To facilitate the development of cost effective and practical greenhouse gas mitigation solutions
- Initial focus areas
 - Methane emissions from ruminant 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 Advisory Group

- New Zealand (Chair)
- Australia
- North America
 - USA, Canada, Mexico
- South America
 - Brazil, Argentina
 - Peru, Chile
- Europe
 - Netherlands, United Kingdom
 - Ireland, France, Sweden
- 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
- Forestry provides a large sink
- Research is critical - both measurement and mitigation
- A total system approach to mitigation and Life Cycle Assessment is important
- New Zealand is committed to working collaboratively with others





Contacts and further information

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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

