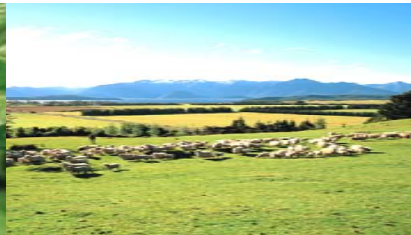




Why is New Zealand so interested in agricultural GHG?



- Agriculture 50% of New Zealand emissions
- Agriculture 52% of total merchandise exports
- Produces 40% of world's tradeable dairy products, 66% of tradeable lamb products
- Developed & developing country problem

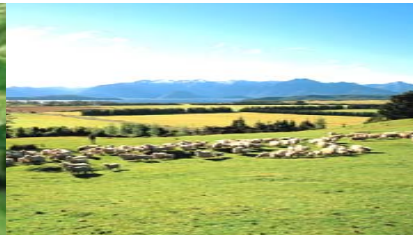




Background to agricultural non-CO₂ emissions



- CH₄ & N₂O
- Emissions vary over time –hourly, daily, weekly, monthly & annually
- Emissions vary in space – patch, paddock, farm & region
- Multiple influences on emissions – environmental, physical, biological
- Complex problem and not all processes influencing emissions are fully understood
- Mitigating emissions from **grazing** animals particularly challenging

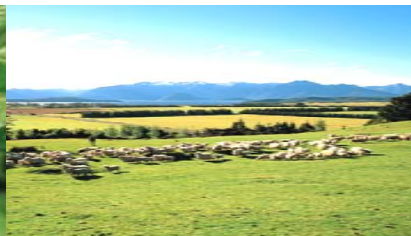




Routes for CH₄ mitigation



Short	Medium	Long
Reduce animal numbers Manipulate diet Increase productivity per animal	Rumen modifiers Plants with low CH₄ yield	Targeted manipulation of rumen ecosystem Breed animals with low CH₄ yield

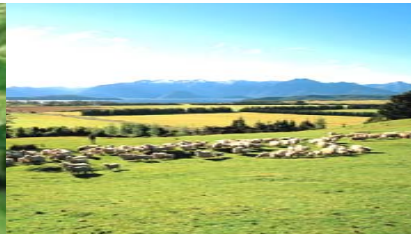




Routes for N₂O mitigation



Short	Medium	Long
<p>Reduce animal numbers Manipulate diet Increase productivity per animal Cattle winter management Soil management Type, quantity & timing of N fertiliser applications</p>	<p>Nitrification inhibitors Improved plant germplasm</p>	<p>Increase efficiency of N utilisation by ruminants Targeted manipulation of soil microbial processes</p>

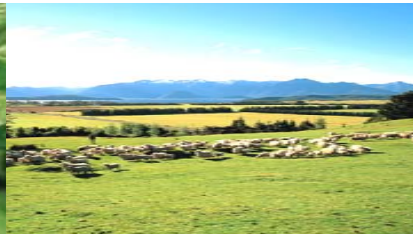




Barriers to achieving mitigation potential



Short	Medium	Long
Mitigation potential low Practicality Cost Measurement, estimation & inventory issues Lack of incentive to adopt without co-benefits Delayed adoption No net GHG mitigation benefit	Technical failure Adverse side effects Practicality Cost Consumer acceptability	Technical failure Adverse side effects Practicality Cost Consumer acceptability





New Zealand domestic policy initiatives



LONG-TERM OPTIONS

Research, technology transfer and voluntary reporting

1. Research
Research into adaptation, mitigation and measurement technologies and practices for methane and nitrous oxide

2. Technology transfer
Use of demonstration farms to promote adoption of mitigation technologies e.g. nitrogen inhibitors, nutrient budgeting, improved forage crops

3. Voluntary reporting
Voluntary reporting of emissions at the farm level

OPTIONS FOR ENCOURAGING EMISSIONS REDUCTIONS NOW

Price-based measures

Government pricing mechanisms

4. Incentive for nitrification inhibitors
Pay a financial incentive to encourage the use of nitrogen inhibitors

5. Charge on nitrogen fertiliser
Impose a charge on nitrogen fertilisers

Market-based mechanisms

6. Tradable permit regime for agriculture emissions
Devolution of agriculture greenhouse gas emission obligations and permits to farmers

7. Offset schemes for agricultural emissions
Farmers required to offset emissions by emission reductions elsewhere i.e. tree planting, biofuels etc

Regulation

8. RMA standards to control agricultural greenhouse gas emissions
Development of a National Environmental Standard to control agricultural greenhouse gas emissions: i.e. input and/or output controls

Options focusing on land use change from forestry to agriculture

10. Charge where deforested land is used for agriculture
Impose a charge on agriculture emissions created when land is converted from forestry to agriculture

9. RMA standards to control new agricultural land use after deforestation
Controlling the greenhouse gas emissions and other effects arising from land use change from forestry to agriculture