



Climate Change: Preferred Policy for the Agricultural Sector

Agriculture remains a key economic driver for New Zealand, generating more than half our exports. New Zealand is also unique among developed countries in that more than 55% of our greenhouse gas emissions come from agricultural methane and nitrous oxide emissions. For other developed countries, the dominant emission is carbon dioxide produced by burning fossil fuels.

These two features mean climate change policy presents special challenges for New Zealand in that:

- we must take action to address agricultural greenhouse gases or we risk increasing emissions with consequent costs for the economy
- at the same time, we must be careful not to impose policies that might damage the international competitiveness of the farming sector.

The Government's preferred policy for agriculture addresses both these objectives. It acknowledges our dependence as a nation on a stable and equable climate.

Summary of Preferred Policy

Emissions

No emissions charge will be imposed on methane or nitrous oxide emissions for at least the first commitment period of the Kyoto Protocol, 2008-2012.

However farmers, like all other New Zealanders, will pay for the extra fuel and energy costs resulting from a charge on carbon dioxide that will be introduced from 2007. But these costs will be offset by revenue recycling (refer overleaf).

Research

Increased research is proposed to find ways to reduce agricultural methane and nitrous oxide emissions. This should result in a win-win outcome - reduced emissions and a gain in productivity for farmers. Currently, the most direct way farmers could reduce emissions would be to reduce their stock numbers, but this would make no sense.

Research will be implemented through a negotiated partnership approach with the agricultural sector.

- The level of research funding will be established in discussion with the sector and experts in the field, and will be reviewed from time to time. The Government estimates that funding in the order of \$20 million per annum would be needed. This would be equivalent to a cost of 20 cents per stock unit per annum.
- It is expected that the sector will agree to invest in the research effort. Only as a last resort would a research levy be imposed to fund the work.

Research: benefiting farmers and the environment

- Research into reducing methane emissions is currently being conducted in New Zealand and overseas in four main areas - developing animal feeds that are more easily digested, using a vaccine to reduce methane emissions, breeding to find animals that are naturally more efficient converters of forage (thereby reducing methane emissions), and finding ways of modifying rumen microflora to reduce methane emissions.
- Research of this nature could help animals use fodder more efficiently, gaining extra weight and producing more meat, wool or milk.
- Research partnerships have already begun, on a small scale. \$800,000 funding has been approved by the Foundation for Research, Science and Technology to look at methane mitigation research and this sum has been matched by key agricultural organisations including Fonterra, Dairy Insight, Wrightson Ltd, Meat NZ, the Game Industry Board, Wool NZ and the NZ Fertiliser Manufacturers Association.
- Recent estimates suggest that any new methane-reducing technology which resulted in improved animal performance (through improvements in the conversion of feed to energy) could be worth up to \$125 million per year.
- Research into more effective use of nitrogen fertiliser may lead to reduced costs to farmers, reduced nitrous oxide emissions and reduced run-off into waterways.

Energy

Energy used on farms, such as fuel and electricity, will be subject to the emissions price that will be applied to the New Zealand economy as a whole from 2007. This price will approximate the international emissions price, but will be capped at \$25 per tonne of carbon dioxide.

Revenue Recycling

The Government has undertaken that all revenue gathered from this charge will be recycled back into the economy, for example through tax cuts – after funding climate change programmes such as the National Energy Efficiency and Conservation Strategy. Projects-based incentives for emissions reduction will also be funded. In deciding how best to recycle the funds raised, the Government will take into account the impact of the emissions charge on different sectors of the economy.

What this charge on energy will mean for farmers

Table 1 below illustrates the potential gross impacts of an emissions price on carbon dioxide. These figures do not take into account the impacts of an emissions price on other input costs (such as fertiliser).

	\$10/tCO₂	\$25/tCO₂
Petrol	3c/l	6c/l
Diesel	3c/l	7c/l
Electricity	0.4c/kwh	1.1c/kwh
Gas	\$0.52/GJ	\$1.30/GJ

If the price rises are translated into cost increases for a sheep or beef farmer with energy demands of 25 000 kwh of electricity and 9 000 litres of diesel per annum:

- at \$10 a tonne of CO₂, annual electricity/diesel costs would increase by approximately \$370
- at \$25 a tonne of CO₂, annual electricity/diesel costs would increase by approximately \$905

For a dairy farmer with 65 000 kwh of electricity and 8 500 litres of diesel per annum:

- at \$10 a tonne of CO₂, annual electricity/diesel costs would increase by approximately \$515
- at \$25 a tonne of CO₂, annual electricity/diesel costs would increase by approximately \$1310

Note that these figures do not take into account the benefits of revenue recycling, discussed on the previous page.

Negotiated Greenhouse Agreements

Processors of agricultural products and potential new investors in processing, who meet the criteria for being competitiveness-at-risk¹, would be able to enter into Negotiated Greenhouse Agreements (NGAs) with the Government. These agreements would exempt that business from all or part of an emissions

¹ The competitiveness-at-risk group is made up of sectors of the economy and particular industries that are high energy users and exporters, and would find it difficult to adjust if they were expected to face a cost on emissions in the first commitment period.

charge, in return for moving toward international best practice in managing their emissions. The negotiated emissions timeline would be consistent with the individual circumstances of each business.

Projects

The Government will provide incentives for projects in any sector of the economy, including agriculture, that will deliver defined reductions in greenhouse gas emissions - these could be from new technologies and practices. Incentives could include money or the allocation of emission units. To qualify for an incentive, projects must be additional to 'business-as-usual', and will be subject to a competitive, bid-in process.

Methane and ruminant animals

- Regurgitation by cows and all other ruminants, such as sheep and deer, produces a lot of gases which leave the animal (90% through belching, 10% through flatulence) mostly as methane.
- The average dairy cow produces about 80kg of methane a year, which is equivalent in energy to 107 litres of petrol (sheep produce only a seventh of this, but there are a lot more of them). For a 200-cow dairy herd, the petrol equivalent to its methane emissions is 21,400 litres a year, enough to drive the family car approximately 180,000km.
- Latest projections suggest that methane emissions from ruminant animals could be 15% higher than in 1990. Although sheep numbers are decreasing compared to 1990 levels, sheep productivity is increasing. Also, the number and productivity of dairy cows and deer is increasing, resulting in an overall increase in methane emissions from all ruminants.

For further information: *Climate Change: The Government's Preferred Policy Package, A Discussion Document, April 2002*, is available at www.climatechange.govt.nz. See especially the full Working Paper on the preferred policy for the agriculture sector on pages 43 - 46 of this document.

The Government is inviting submissions on its preferred policy package up to Friday 14 June.

The above document includes a feedback form and details of where to send it.

Suggested Issues for Feedback

- Governance and setting research priorities.
- Research funding: how much, who pays and how?
- Should funds and governance be managed on a sector-specific or sector-wide basis?
- Structure of the research purchaser and ownership of the intellectual property.
- What should the Government's role be?