

Fonterra and Climate Change

New Zealanders take immense pride in our farming sector, and so we should. Farming is part of who we are as a nation and it comprises a crucial slice of our economy.

But agriculture also makes up half of all New Zealand's greenhouse gas emissions, with the ongoing intensification of the dairy sector by far our biggest contribution to global climate change.

Fonterra is owned by almost 11,000 dairy farmers – some 95 per cent of all dairy farmers in New Zealand. Therefore the majority of the climate emissions being caused by intensive dairy farming are Fonterra's responsibility. Fonterra is the country's biggest greenhouse gas emitter, responsible for around 16 million tonnes of emission each year¹ (over 20 per cent of New Zealand's total emissions), but this increases to a whopping 36 million tonnes when indirect emissions are included². Fonterra is also the biggest block to strong climate policy in New Zealand.

Even worse, emissions have risen as hundreds of thousands of plantation pine trees in New Zealand are cut down to make way for high intensity farming. New Zealand's agricultural emissions have increased by 15 per cent since 1990. The dairy sector is responsible for this entire increase³. By 2010, these emissions could be up as high as 40 per cent above 1990 levels⁴.

Fonterra is pushing dairy farming down the commodities route. Over the past decade, New Zealand's dairy sector has shifted from traditional pasture farming to a more intensive, corporate model. This is having a huge impact on the environment, rapidly increasing greenhouse gas emissions, eroding the clean and green brand on which New Zealand relies, and lowering economic returns to farmers⁵.

Greenpeace has been working closely with farmers to find solutions to our soaring agricultural emissions. The good news is, solutions do exist. There are smarter ways to farm than the high input, intensive model currently being promoted by Fonterra.

Greenpeace is in no way anti-farming. Far from it. We want New Zealand to be farming into the future and passing on truly sustainable, healthy farms to future generations. This is unlikely to occur, however, if we continue down the road of expansion, intensification and deforestation. This approach comes at proven environmental cost, and poses a real threat to New Zealand's clean, green image.

On 16 September 2009, 14 Greenpeace activists blockaded a shipment of palm kernel from Indonesia entering the Port of Tauranga. The kernel was destined for Fonterra dairy farms. James Bellamy, one of the activists: "We're taking action today because companies like Fonterra and all governments have to wake up to climate change, which is the biggest threat facing humankind."
© Greenpeace/Fraser Newman

GREENPEACE

www.greenpeace.org.nz

Fonterra's Climate Crimes

Palm based animal feed

Indonesia's forests are being destroyed faster than any other forest on earth. In total, Indonesia has already lost 72 per cent of its large intact ancient forests⁶. A major driver of this deforestation is the expansion of palm plantations. It is essential to stop deforestation as it contributes around 20 per cent of global greenhouse gas emissions annually⁷. Recent estimates from the World Bank rank Indonesia as the third largest greenhouse gas emitter on the planet after China and the United States⁸.

Fonterra is now importing palm kernel animal feed to supplement grass which marks a change in dairying from pastoral to industrial. Palm kernel animal feed imports have increased 2,700 fold since 1999, with over one million tonnes imported into New Zealand in 2008⁹ – this is almost a quarter of the world's palm kernel animal feed supply¹⁰.

Agriculture in New Zealand is responsible for 49 per cent of New Zealand's domestic greenhouse gas emissions. These emissions do not include indirect emissions from rainforest destruction in Indonesia to grow supplementary feed for Fonterra's dairy herds.

During 2008 the palm kernel animal feed which New Zealand imported had a carbon footprint of over 20 million tonnes¹¹. This is officially unaccounted for. It is more than the entire dairy sector's emissions from New Zealand.

In 2008 Fonterra's joint venture subsidiary RD1 entered into a joint venture with one of the world's biggest rainforest destroyers for palm oil and kernel production, Wilmar International¹².

Clearing rainforests for palm, timber and pulp plantations is having a devastating impact on biodiversity and communities. It is the main cause of the decline of the orangutans and Sumatran tiger, of which less than 400 are estimated to be left in the wild¹³. Indigenous peoples who rely on rainforests for their livelihood are also suffering.

Under Parliamentary questioning Finance Minister Bill English (standing in for Prime Minister John Key) stated with regards to the impact of palm kernel animal feed on rainforest destruction, "Of course, it has some impact; the Government does not deny that."¹⁴



Above: Palm oil kernels are still in a bushel, freshly harvested and en route to a mill for processing. © Greenpeace / Natalie Behring-Chisholm

An orphaned orang-utan eats his breakfast. The rehabilitation centre where he lives works to return orangutans into the surrounding national park. © Greenpeace / Oka Budhi



Intensification and fertiliser use

Fonterra is the economic driving force behind dairy intensification which is changing how farmers are working with their pastures.

To meet Fonterra's demand for intensification fertiliser companies are replacing a traditional reliance on legumes (such as clovers) to provide the pasture's main source of nitrogen, with a reliance on fossil fuel manufactured chemical fertilisers such as 'urea'¹⁵. Farmers are unwittingly creating a fertility time-bomb in their soils. The more fertiliser used, the more the natural sources of soil fertility are destroyed, and the more fertiliser needed each year just to maintain production levels for pasture growth. It's a treadmill which farmers are finding very hard to get off¹⁶.

Chemical nitrogen fertiliser use in New Zealand has increased by over 1,200 per cent since 1989¹⁷, mainly in the form of urea. Chemical fertiliser use is a large driver of emissions of the greenhouse gas nitrous oxide which is 300 times more potent than carbon dioxide at causing climate change. Since 1990 nitrous oxide emissions in New Zealand have increased by 27 per cent and now account for 16 per cent of all New Zealand's greenhouse gas emissions – that's more than all our road transport emissions¹⁸.

Using the chemical fertiliser short cut to achieve short bursts of pasture growth is also allowing farmers to increase and maintain high stocking numbers per hectare which has a direct impact on soil structure through compaction.

This produces much greater quantities of greenhouse gas emissions and also damages soil, animal and pasture growth and pollutes waterways and groundwater.



Above: Overstocking on farms leads to increased methane and nitrous oxide emissions. © Greenpeace / Suzette Jackson

Below: Fonterra's dairy processing factory at Edendale uses lignite coal from the nearby New Vale coal mine. © Greenpeace / Joe Fountain



Coal

Fonterra is one of the biggest users of coal in the country, burning well over 400,000 tonnes a year at its dairy processing factories¹⁹.

Most coal is burnt in the process to turn milk into milk powder to be sold on the international commodities market to companies like McDonalds and is added into processed foods.

Fonterra's use of fossil fuels such as coal at its dairy processing factories gives rise to 1.87 million tonnes of carbon dioxide emissions per year²⁰. This is almost double the emissions from domestic air travel in New Zealand each year²¹.

There are alternatives. Biomass (wood) is being used by other New Zealand industries²², but Fonterra has failed to adopt this renewable energy alternative in favour of climate polluting coal.

Deforestation in New Zealand

The Ministry of Agriculture and Forestry (MAF) says some 455,000 hectares of forestry land is at risk of being deforested and converted into pastoral use – the majority for dairying²³. This is equivalent to 910,000 rugby fields and is over 25 per cent of the nation's pine plantation area.

Converting forestry land for intensive dairy farming functions as a 'double whammy' on the climate. This is because plantation forests, that absorb carbon dioxide, are destroyed and replaced with intensive dairy farming which is one of the most greenhouse gas producing forms of land use.



*Above: Government-owned Landcorp is clearing 25,000 hectares of forest to make way for 10 corporate farms in the Central North Island.
© Greenpeace / Cowpland.*

*Below: Solid Energy's New Vale lignite coalmine in Southland, near Gore.
© Greenpeace / Joe Fountain*



The risk to New Zealand's clean and green reputation

Agriculture generates the bulk of our export earnings and has an international reputation not only for quality products, but also for being clean and green.

The 2008 State of the Environment report reveals that there is already a risk that New Zealand's 'clean and green' brand will lose value if we are not vigilant in dealing with the problems that could threaten the image.

The Ministry for the Environment suggests this clean green brand is worth \$500 million per year to the dairy industry alone and worth billions of dollars a year to the nation²⁴.

Consumers in key overseas markets are becoming more concerned with where their food comes from and the environmental impact of its production. Agriculture in New Zealand must stay ahead of the game, and to do so, it must improve its environmental performance.

As intensification of New Zealand dairy continues, the carbon footprint advantage that New Zealand dairy produce has historically held over the world is being lost unnecessarily and to the detriment of future generations of New Zealand dairy farmers.

New Zealand has always prided itself on being ahead of the pack in this regard. But we're losing our edge. Reports indicate that by the early part of this decade, low emission farming in Europe was already almost equal to - and in some cases ahead of - New Zealand in terms of emissions performance²⁵.

More worryingly is that New Zealand's performance is becoming close to that of the UK²⁶, a market highly sensitive to climate issues. UK supermarkets are beginning to implement "carbon lifecycle" labelling on products.

Our clean, green branding is already being questioned internationally²⁷. If we don't quickly take steps to reduce emissions, we could lose our advantage in these markets forever.

New Zealanders paying for Fonterra's climate crimes

Agricultural greenhouse gas emitters are currently receiving a \$1.1 billion subsidy from Kiwi taxpayers through being exempt from the Emissions Trading Scheme (ETS) until 2015²⁸. Even if agriculture comes into the ETS in 2015, the New Zealand taxpayer will still pay for 90 per cent of agriculture's climate bill. This is a direct subsidy that will allow Fonterra to continue to increase its greenhouse gas emissions at the expense of the taxpayer.



Devastated Indonesian rainforest and peatlands. Canals dug into the carbon rich peat soils are used to transport logs out of the forests. Afterwards the land is drained of water and all that remains is burnt. This releases huge amounts of greenhouse gases into the world's atmosphere. Monocultures of palm plantations follows deforestation. This is the origin of palm kernel animal feed that Fonterra imports into New Zealand.
© Greenpeace / Oka Budhi

Solutions that are good for New Zealand and farmers

So what can be done? Well the news is good. There are solutions that are not only better for the climate and the environment, but also good for farmers' bottom lines. Some New Zealand farmers have already cottoned on to this and a growing number are changing practices. There are important lessons here for Fonterra. Greenpeace is not saying "stop farming" we're advocating a win-win way forward with smart farming, or what's known globally as '*bio-logical*' farming.

Smart farming is about returning to more traditional farming practices. It's about less input, and better output. It's about cutting down on chemicals, cutting back on herd numbers and looking after soil so that pasture thrives and lasts. Generations of farmers have successfully used this method in New Zealand.

Bio-logical farming takes advantage of natural processes which promote good soil, healthy crops, and healthy animals. These natural processes include: best tillage methods, proper livestock manure use, promoting soil life, reducing compaction from overstocking of livestock, using rotational grazing to maintain pasture root health through leaving residual pasture cover, and balancing the soil's minerals through the use of soil conditioners.

Lower stocking per hectare has been shown to increase milk and meat production from each animal. As well, lower costs for inputs such as fertilizers and the resulting reduction of expensive animal health problems allows farms to become more profitable and sustainable.

This was all outlined in a study by AgResearch²⁹ which studied different demonstration dairy farms in New Zealand. The study found that milk produced and delivered per cow, per year, was highest under the 'low input' farming system. It also demonstrated that the low input system was the least risky, financially, for the farmer and more profitable when milk-price payouts were low - which was the norm from 1987-2006.

New Zealand is ideally positioned to lead the world on lower-emission pastoral farming. What are we waiting for? Greenpeace is calling for Fonterra and the New Zealand Government to adopt and promote this type of farming, for the sake of the climate, the environment and generations of farmers to come.



References

- 1 <http://www.mfe.govt.nz/publications/climate/gas-emissions-flowchart/index.html> plus 1.87 million tonnes of carbon dioxide emissions from Fonterra's processing and manufacturing processes calculated from Fonterra's ETS submission; http://www.parliament.nz/NR/rdonlyres/F793E11E-A3EE-45D2-A983-59E8783D47D3/115724/49SCFE_EVI_00DBHOH_BILL9597_1_A14811_Fonterra_1.pdf
- 2 According to data from carbon footprint research of the palm industry (GHG emissions from palm oil production Literature review and proposals for amendments of RSPO Principles & Criteria, July 2009) rainforest destruction of peat lands for palm plantations gives rise to 96,565 kg of greenhouse gas emissions per hectare per year of production. According to carbon footprint methodology (The LCA Approach to Illustrate Palm Oil's Sustainability Advantage S.S.Chen SIRIM Environmental & Bioprocess Technology Centre, Malaysia. SIRIM Berhad is a wholly-owned company of the Malaysian Government under the Minister of Finance Incorporated) by a Malaysian Government research agency for industrial development the production of one kg of PKE gives rise to a footprint of up to 18.2 kg of carbon dioxide equivalent emissions. Therefore the 2008 import into New Zealand of 1.1 million tonnes of PKE equated to a carbon footprint of up to 20,020,000 tonnes of carbon dioxide equivalent.
- 3 MFE, Appendix A. Agriculture Emissions Projections provided by Ministry of Agriculture and Forestry, September 2007; Statistics New Zealand, 2007, Dairy Cattle Number in New Zealand as at 30 June, from 1971.
- 4 Ministry for the Environment, Appendix A. Agriculture Emissions Projections provided by Ministry of Agriculture and Forestry, September 2007.
- 5 http://www.pce.parliament.nz/publications/reports_by_subject/all_reports/primary_production/growing_for_good
- 6 World Resources Institute, The Last Frontier Forests, 1997
- 7 IPCC Fourth Assessment Report: Climate Change 2007 (AR4)
- 8 Indonesia and Climate Change: Current Status and Policies. The World Bank. 2007.
- 9 Statistics New Zealand
- 10 "Oil Seeds: World Market and Trade", United States Department of Agriculture, page 4.
- 11 Ibid 2
- 12 http://www.rd1.co.nz/web/content?in_section=2&in_item=640&in_page=6654
- 13 "The last stand of the orangutan – State of Emergency: Illegal logging, fire and palm oil production in Indonesia's national parks", Nellerman, Miles, Kaltenborn, Virtue and Ahlenius (Eds), United Nations Environment Programme, 2007 : http://www.panda.org/what_we_do/endangered_species/tigers/sumatran_tiger/
- 14 Parliament Hansard, 17th September 2009.
- 15 <http://www.treasury.govt.nz/publications/research-policy/ppp/2005/05-04/tpp05-04.pdf>; http://www.pce.parliament.nz/publications/reports_by_subject/all_reports/primary_production/growing_for_good
- 16 "Mitigating Climate Change Through Food and Land Use, Authors: Sara J. Scherr and Sajal Sthapit, Worldwatch Institute, 2009." <http://www.soiltech.co.nz/articles/article26.pdf> ; <http://stapperonsoil.blogspot.com/>; http://www.landstewardshipproject.org/pdf/myth_buster_20.pdf;
- 17 <http://www.maf.govt.nz/statistics/fertiliser/>
- 18 <http://www.mfe.govt.nz/publications/climate/nir-jul07/nir-jul07.pdf>
- 19 <http://www.infonews.co.nz/news.cfm?l=18&t=106&id=6308>; <http://www.med.govt.nz/upload/68784/coal-price-report.pdf>; <http://www.mfe.govt.nz/rma/call-in-transpower/board-of-inquiry/submitter-evidence/downloads/benjamin-coleman.pdf>; ENNR 425 : NATURAL RESOURCES ENGINEERING PROJECT, ENERGY EFFICIENCY AT THE FONTERRA BRIGHTWATER PLANT, Matthew Gardner, Third Professional Year, 5 October 2005;
- 20 1.87 million tonnes of carbon dioxide emissions from Fonterra's processing and manufacturing processes calculated from Fonterra's ETS submission; http://www.parliament.nz/NR/rdonlyres/F793E11E-A3EE-45D2-A983-59E8783D47D3/115724/49SCFE_EVI_00DBHOH_BILL9597_1_A14811_Fonterra_1.pdf
- 21 <http://www.mfe.govt.nz/publications/climate/greenhouse-gas-inventory-2009/>
- 22 Wood-to-Energy Value Chain Analysis, Prepared for the Energy Efficiency & Conservation Authority, Dr Michael Jack and Dr Per Nielsen, Submitted by Scion May 2008
- 23 MAF, Area of forest 'at risk' from deforestation, August 2006, <http://www.maf.govt.nz/climatechange/forestry/ets/area-at-risk/page-04.htm>
- 24 <http://www.mfe.govt.nz/publications/sus-dev/clean-green-image-value-aug01/index.html>
- 25 http://www.agresearch.co.nz/publications/intouch/AgResearch_News_Oct2007.pdf; Eco-efficiency of intensification scenarios for milk production in New Zealand, Claudine Basset-Mens, Stewart Ledgard, Mark Boyes, AgResearch Limited, Ecological Economics, In Press 2007.; Allen, J., Davies, T. and McCombe, E. (2007) Report on carbon emissions related to on-farm milk production. Kite Consulting, Penkridge.
- 26 The environmental, social and economic impacts associated with liquid milk consumption in the UK and its production, A review of literature and evidence, December 2007, UK Department for Environment, Food and Rural Affairs; Allen, J., Davies, T. and McCombe, E. (2007) Report on carbon emissions related to on-farm milk production. Kite Consulting, Penkridge.
- 27 <http://www.guardian.co.uk/environment/cif-green/2009/nov/12/new-zealand-greenwash>
- 28 http://www.sustainabilitynz.org/news_item.asp?sID=196
- 29 Eco-efficiency of intensification scenarios for milk production in New Zealand, Claudine Basset-Mens, Stewart Ledgard, Mark Boyes, AgResearch Limited, Ecological Economics, In Press 2007.

Corporate dairy - killing the climate

METHANE
(25x MORE POTENT THAN CO₂)

MILLIONS OF TONNES OF CO₂

overstocking of cows

- Release of methane
- Compaction damage to soil and pasture increases nitrous oxide emissions

deforestation

- Tens of thousands of hectares of forests being felled to make way for corporate dairy. Another half million at risk (a quarter of the nation's total plantation forests).
- Soil erosion and loss of fertile soil
- Loss of habitat for native species

intensive water use

- depleting water resources due to large-scale irrigation

NITROUS OXIDE
(300x MORE POTENT THAN CO₂)

increasing use of chemical fertiliser

- Over-use of fertiliser, leading to emissions of nitrous oxide, one of the most potent greenhouse gases on the planet. Nitrous oxide emissions from NZ agriculture now exceed emissions from the entire road transport sector.
- Fertiliser run-off into rivers and lakes causing algae blooms and weed growth. 80% of lowland streams in NZ are now in poor ecological health.

Smart farming - low input, low impact

Low-input farming systems are shown to increase farm profitability

renewable farm energy

winter housing for stock during bad weather

higher milk solid production per cow

methane digester turns manure into fuel for electricity

native reforestation to preserve soil

no urea use

natural soil conditioners replace urea

lower stocking levels (maximum 2 cows per hectare) reduce compaction and nitrous oxide and methane emissions

on farm forest offsets emissions

clover for natural nitrogen source

healthy soil is drought and flood resistant

in healthy soil, micro-organisms produce a natural nitrogen source

healthy soils can absorb and deal with animal waste, and help reduce emissions

less nitrogen run-off means healthy rivers

healthy soil removes carbon dioxide from the atmosphere