

Deforestation, Agriculture and the Climate – October 2008



Intro:

The agricultural sector is responsible for almost half of all New Zealand's greenhouse gas emissions (49 per cent), with the dairy sector by far the biggest contributor. One third of all agriculture's emissions are from nitrous oxide gas (from chemical fertilizer use, livestock urine and manure) and two-thirds come from methane, emitted when cows burp.

Methane is a greenhouse gas 25 times more potent than carbon dioxide, while nitrous oxide is 300 times more climate-damaging than CO₂. It's one of the most climate-changing gases on the planet.

New Zealand's agricultural emissions have already increased by 15 per cent since 1990. The dairy sector is responsible for this entire increase. There has been a 58 per cent rise in dairy cow numbers from 3.39 million to 5.28 million over that period ¹

¹ 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.

Government figures project that the number of dairy cows in New Zealand will increase dramatically, by up to a further 21 per cent by 2010, to 6.4 million dairy cows.²

According to the Ministry of Agriculture and Forestry (MAF) some 455,000 hectares of forestry land is at risk of being deforested and converted into pastoral use – the majority for dairying.³ This is over a quarter of the nation's total forest plantation, and over seven times the size of Lake Taupo. The Labour Government claims the emissions trading scheme has put a stop to deforestation, but this is demonstrably untrue. For example, 25,000 hectares is currently being cleared on Carter Holt Harvey land in the Central North Island.

Dairy conversion of forestry land functions as a 'double whammy' on the climate, as it destroys forests and replaces them with dairy farming which is one of the most greenhouse gas intensive forms of land use.

The agricultural sector is exempt from taking real action to reduce its greenhouse gas emissions until 2013, as it is not until this time that the sector comes into the Emissions Trading Scheme (ETS). Currently nothing is being done to prevent the rapid expansion and industrialisation of the dairy industry.

Even when brought into the ETS, the sector will be subsidised by the taxpayer to the tune of 90 per cent of its emissions (due to the amount of free permit allocations given to it by the government).

Under the Kyoto Protocol, New Zealand must buy credits to cover any increase in emissions over 1990 emission levels. A recent Sustainability Council report⁴ estimated the likely cost to the New Zealand taxpayer of covering agriculture's increased emissions would be around \$1.3 billion up until 2012; a direct subsidy to the sector.

New Zealand agriculture is in fact one of the industries most at risk from the effects of climate change in New Zealand. The drought of the late 1990's for example cost our economy \$1 billion, and according to MAF, this year's drought in the Waikato cost the farming sector over \$1.24 billion, while Fonterra estimates the cost to dairy farmers alone will be over \$500 million.

Agriculture generates the bulk of our export earnings and has a reputation not only for quality products, but also for being clean and green. This image - along with the sector's economic sustainability - is under threat. Consumers in key overseas markets are becoming more concerned with where their food comes from and the environmental impact of its production and non-tariff trade barriers are a possibility. Agriculture in particular should be itching to get out in front of a new wave of opportunity fuelled by consumer concern over climate, and doing everything it can to corner and monopolize that high end of the market. Instead, the sector is following a kind of boom and bust cycle involving a high input, high output, and commodity-driven model.

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 direction comes at proven

² MFE, Appendix A. Agriculture Emissions Projections provided by Ministry of Agriculture and Forestry, September 2007

³ MAF, Area of forest 'at risk' from deforestation, August 2006, <http://www.maf.govt.nz/climatechange/forestry/ets/area-at-risk/page-04.htm>

⁴ <http://www.sustainabilitynz.org/docs/TheCarbonChallenge.pdf>

environmental cost, and greatly increases the risk of economic damage by destroying New Zealand's clean and green image.



***Landcorp is currently converting former forestry land into large-scale intensive dairy farms in the central North Island.
© Greenpeace/Cowpland 4 April 2008.***

Intensification, commoditization and risk to market advantage

Over time, New Zealand's dairy sector has shifted from traditional and less intensive pasture farming to a more intensive, corporate model. This is having a huge impact on the local environment, rapidly increasing greenhouse gas emissions, eroding the clean and green brand on which New Zealand agriculture is built, and lowering economic returns to farmers.

Fonterra is the economic driving force behind this intensification, but other key players are reinforcing unsustainable farming practices. Top of the list are the fertiliser companies, which are changing how farmers are working with their pastures. Essentially these 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. In adopting this high-input farming model, 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 you need each year just to maintain production levels for pasture growth. It's a treadmill which is very hard to get off.

Chemical nitrogen fertiliser use in NZ has increased 617% since 1990 - mainly in the form of Urea. Since 1990 nitrous oxide emissions have increased by 27% and now account for 16% of all NZ greenhouse gas emissions – more than total road transport emissions⁵.

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

Allowing high numbers of stock to graze on degraded high fertilized soils produces much greater quantities of greenhouse gas emissions, and also damages soil, animal and pasture growth. Herds are also more prone to rumen digestion problems and a host of other animal health/veterinary issues. Rumen digestion problems are directly linked to increased methane production from the rumen.

The intensification of New Zealand dairy farming practices is also eroding the sector's advantage over international competitors when it comes to emissions performance. New Zealand has always prided itself on being ahead of the pack in this regard, with its traditionally low emission, energy efficient farming methods. But we're losing our edge. Reports indicate that even in the early part of this decade, low emission farming in Sweden and Denmark was already starting to draw equal to (and in some cases ahead of) New Zealand in terms of emissions performance – this is without 'food-miles' being taken account for our produce's transportation to Europe.

More worryingly is that New Zealand's dairy farming greenhouse gas emissions performance is becoming uncomfortably close to that of the UK. This increases the risk of future market erosion, particularly in light of UK supermarkets' push to implement "carbon lifecycle" labelling on products. 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 NZ dairy farmers.

New Zealand now focuses more on commodity exports than finished dairy products. This increasing reliance on milk powder production for the international mass market over and above traditional finished products of butter and cheese, risks undermining our brand image and our prime position in valuable markets such as the UK, EU and USA.

UN report slams intensification; backs more traditional farming methods

Touted as to agriculture what the Intergovernmental Panel on Climate Change's reports are to climate, a five year scientific assessment of global agriculture was recently undertaken by multiple stakeholders including the UN, and released in April 2008. (<http://www.agassessment.org/>)

The report's findings slam intensive, high input based approaches to food production and find that traditional, holistic farming practices increase productivity and benefit communities.

⁵ <http://www.mfe.govt.nz/publications/climate/nir-jul07/nir-jul07.pdf>

Social costs of boom and bust dairying

On top of the loss of thousands of jobs in the sheep and beef industry (partly thanks to a rush to dairy) many more are losing jobs within the forestry sector (our third biggest export sector).

Landcorps' clearing of 25,000 Ha of pines in the Central North Island is seeing hundreds of forestry jobs axed to make way for 10 corporate dairy farms that will only employ only around 30 -40 people.

Forest land owned by Graeme Hart and Carter Holt Harvey just out of Tokoroa is also being converted (conservative estimates of 22,000 Ha) into corporate dairy – again at the cost of hundreds of forestry jobs. The company laid off more than 300 workers in mid-October, with the closure of the Putaruru mill.

In 2007 when dairy prices reached an all time high Fonterra axed 1 in 10 employees, mainly in cheese factories.

As Fonterra strives to consolidate and centralise its corporation, New Zealanders are losing out. Many hundreds of jobs have been lost:

- About 120 jobs were lost from Fonterra's cheese processing plant in Panmure
- about 100 jobs were believed to have been lost at its Palmerston North innovation centre
- there were also job losses at Eltham, Tirau and Lichfield.
- About 120 jobs have gone at Fonterra's cheese processing plant in Dunedin
- about 60 jobs have been cut at the Tip Top plant in Christchurch.

Forest clearance is also destroying birds' habitats, soil quality and drainage and prize hunting and fishing spots; to say nothing of what impact the cows will have on local water quality.

Meanwhile the growth and emissions output of milk drying factories continues to climb, with Fonterra factories churning through hundreds of thousands of tonnes of coal each year to run the factories.

Water quality

Greenpeace does not campaign specifically on water quality, but it is difficult to assess the impact of corporate dairying in New Zealand without acknowledging this huge and growing environmental catastrophe.

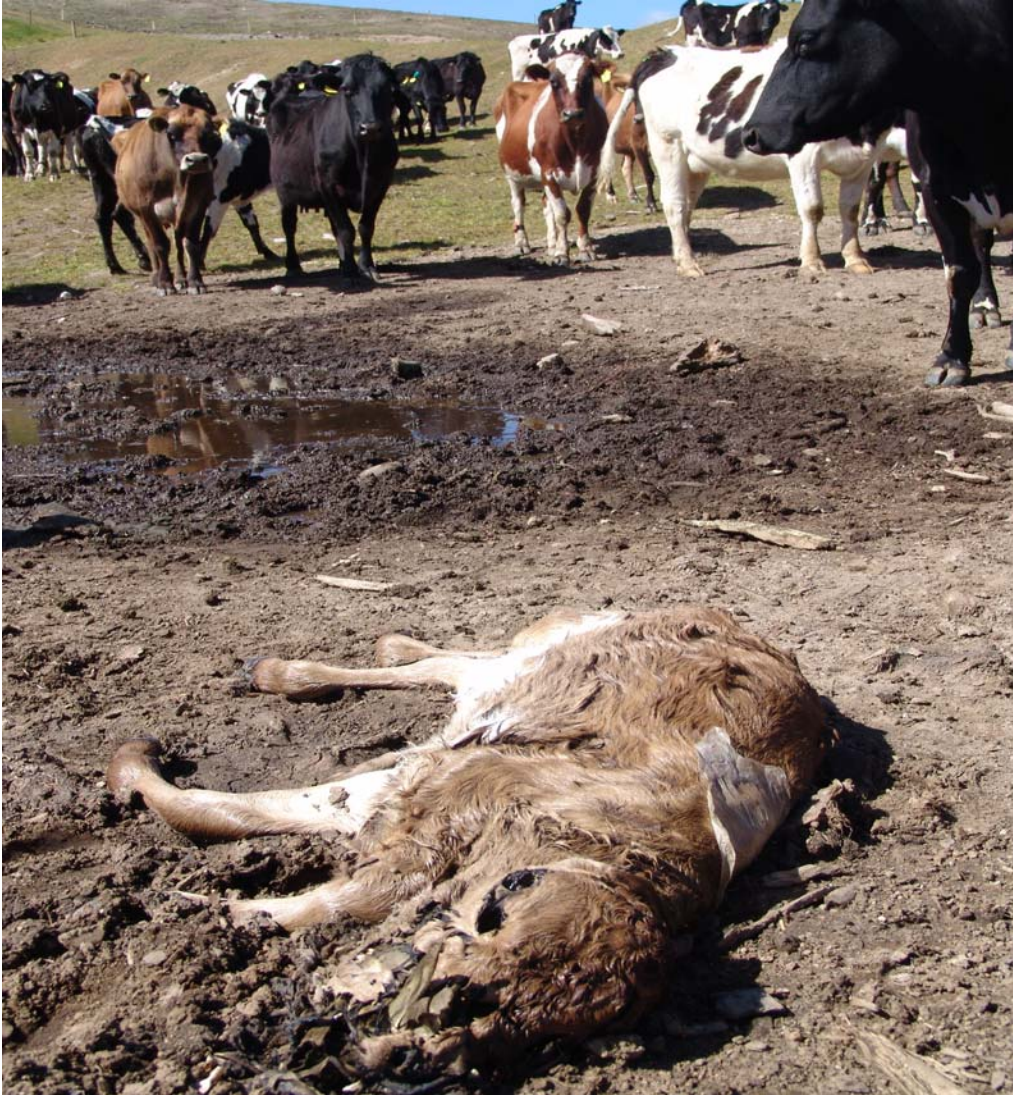
The overstocking of cows and the increased use of chemical fertiliser is causing not only large emissions of nitrous oxide into the atmosphere, but also water run-off problems in rivers and lakes, and, in turn, algae blooms and weed growth that impacts everyone's use of the water.

According to Fish and Game and ECan, evidence shows 80 per cent of lowland streams in New Zealand are now in poor ecological health. As Fish and Game director Bryce Johnson puts it: *“being clean and green doesn't just help us differentiate ourselves in world markets, it's also who we are. It's out soul. And we're shitting on our soul”*.

One cow produces the same amount of effluent as 14 humans – so an average herd in New Zealand (300 cows) would produce the same effluent as a small town. Unlike OUR effluent, none of this is treated and much ends up running into streams with devastating consequences for New Zealand's waterways.

Dairying occupies 22% of Waikato land – but is responsible for 68% of the nitrogen and 42% of the phosphorous entering the waterways in the region.

In 2006 25% of Waikato Dairy Farmers were in breach of permits of disposing of their dairy effluent. And as more and more corporate dairy is introduced the figure is rising.



- Cows are packed onto recently converted pasture on Carter Holt Harvey land in the Central North Island. Up to 25,000 Ha of forests are being cleared to make way for farms.

Solutions

So what can be done? The good news is 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 accordingly. Greenpeace is not saying "stop farming"; rather we're advocating a win-win way forward. It's smart farming, or what's known globally as 'bio-logical' farming.

Smart farming is about reverting back 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 - they knew how to work with the land and doing so is how they survived. In a way it's time to go back to basics. This view was reiterated in the UN report mentioned on page 3.

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. Essentially it's using natural systems to improve soil structure and pasture quality and to control weeds, pests and diseases.

To some degree, bio-logical farming involves farming the soil, rather than the pasture or herd. It encourages beneficial organisms in the soil. These organisms make the soil alive and fertile, which also feeds pasture forages. As one New Zealand bio-logical dairy farmer recently told the media: "If you look after the stock below the ground, they'll look after the stock above the ground".

Sounds too good to be true. Does it actually work? Yes. Lower stocking per hectare has indeed been shown to increase milk and meat production from each animal⁶. As well, lower costs for inputs such as fertilisers 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 AgResearch¹, which was based on studying different demonstration farms in New Zealand. It showed that intensification of dairying farming is detrimental to farms' eco-efficiency in terms of both milk production and land use functions, and can greatly reduce their greenhouse gas emissions advantage compared to European systems. The study found that milk produced and delivered per cow per year was highest under the 'low input' farming system. The low-input system used no chemical nitrogen fertiliser and lower numbers of cows per hectare. This system also recorded the lowest impacts per kilogram of milk and per hectare for global warming potential, acidification, nitrogen contamination of water and energy use. The study also demonstrates that the low input system is the least financially risky for the farmer and more profitable when milk-price payouts are low – which has been the norm from 1987 – 2006.

This will come as no surprise for New Zealand farmers, who have wondered why intensification on their farm has led to myriad problems and lower economic performance.

New Zealand is ideally positioned to lead the world on lower-emission pastoral farming – what are we waiting for? Greenpeace is calling for the farming sector 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.

For more information, go to www.greenpeace.org.nz/smartfarming

Or contact Simon Boxer, Senior Climate Campaigner - +64 21 905579
Or Kathy Cumming, Greenpeace Communications - +64 21 495216

⁶ 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*.

