Clean water, great farming

For a cleaner environment

Green

GREEN PARTY ELECTION PRIORITY

Summary

New Zealanders want rivers we can swim in, and that means tackling the causes of pollution.

Our rivers, lakes and streams are important to New Zealanders. But sadly, gone are the days of popping down to your local swimming hole for a quick dip on a sunny day. Years of carelessness have left more than 60 percent of our monitored river swimming sites unsafe to swim in.[1]

It is not enough to address the symptoms of dirty rivers, we must also address the causes. Agricultural intensification over the last 25 years is responsible for much of the harm to our waterways in rural areas, but not all.[2] In many parts of New Zealand, cow numbers are at their limit. Urban pollution is still a problem, but "there is a clear link between expanding dairy farming and increasing stress on water quality," according to the Parliamentary Commissioner for the Environment. By moving to more sustainable, less polluting forms of farming, we can address the problem that nitrogen and animal effluent cause to our waterways.

The Green Party will clean up our waterways and protect our climate, and help the primary sector to thrive. That means recognising that there are environmental limits to how we use land, and that cow numbers are at their limit.

Here's how we're going to do it:

1. Help farmers move to more sustainable and profitable farming

    a. Extend the Sustainable Farming Fund to reach more farmers and help them farm with the environment, not against it, by investing $20 million a year.

    b. Create a Transformational Farming Partnership Fund to focus on farming for clean water, adaptation to climate change, soil research, dryland research, and drought-proofing farms, by investing $210 million over the first three years.

    c. Increase funding for the Landcare Trust to $16 million over three years, to work more closely with farmers and councils on environmentally-friendly farming projects.

d. Reward tree planting by farmers and landowners

e. Allow accelerated depreciation of dairy farm equipment to help farmers transition.

f. Support organic farming by introducing a national certification scheme, and sector funding of $5 million a year for three years.

2. Implement a levy on nitrogen pollution to help protect our rivers, lakes and aquifers, which will raise around $136.5 million in the first year to fund sustainable farming projects, prevent pollution in our waterways, and reduce risk for farmers wanting to transition to organic and environmentally-sustainable production. The remaining $20 million will be used to fund clean-up work.

3. Put a moratorium on new dairy farm conversions to stop the creation of more pollution.

4. Wind up Crown Irrigation Investments Ltd and the millions in subsidies it provides for big irrigation.

5. Phase out the import of Palm Kernel Expeller/Extract (PKE), beginning in 2018.

6. Establish a 'Good Food Aotearoa New Zealand' national sustainability accreditation scheme for food products, processors and farmers so those who work with the land, not against it, can prove it to consumers at home and overseas to fetch a higher price on export markets.

Situation

New Zealanders have made it clear – we want clean water

But our rivers, lakes and aquifers are under immense pressure from polluting land uses, and nearly two thirds aren't safe to swim in. Recent reports have shown that nitrogen in particular is increasing in rivers and aquifers, harming our waterways, and putting human health at risk. This is something that we can fix.

"It's disgusting, it really is. We used to have boat races every year. Now that's out of the question."

- Steve Curtis, who lives at Selwyn Huts on the Selwyn Waikirikiri River, which was once a popular swimming spot.[3]

Clean rivers benefit the long-term health of our economy. Protecting our rivers is an investment in our clean, green, 100% Pure image, and the revenue that our reputation generates. According to PWC, 80 percent of New Zealand's export revenue relies on our clean green reputation.[4] The flipside is that if we allow our rivers, lakes and aquifers to continue to degrade we will lose this competitive and marketing advantage.

Rather than spend millions on water clean-up initiatives only to have them undone by increasing agricultural intensification, we need to stop the pollution at its source; and that means we need to decrease the number of cows on our farms.

This is an opportunity for the agricultural sector; the primary sector relies on New Zealand's '100% Pure', clean and green reputation to market and sell our butter, milk, cheese, wine, kiwfruit, wool, fruit, and vegetables internationally but our dirty rivers undermine that brand. The latest KPMG Agribusiness Agenda report makes it clear that we must pursue sustainability first, meet New Zealanders' demand for swimmable rivers, and take action to reduce greenhouse gas emissions.

Vivid Economics, in their report on tackling climate change, showed it may be necessary to reduce pastoral agricultural livestock by 20 to 35 percent by 2050.[5]This will reduce effluent and nitrogen pollution from animals and fertiliser use as well as bring down greenhouse gas emissions.

A range of recent scientific reports have identified intensive dairying as a significant cause of water pollution in pastoral catchments. As NIWA has said, "There is no doubt that our declining river water quality over the last 20 years is associated with intensification of pastoral farming and the conversion of drystock farmland to dairy farming, particularly in Waikato, Southland, and Canterbury. For example, between 1992 and 2002, the number of cows in Waikato increased by 37 percent; during the same period nitrogen levels in the region's streams increased by 40 percent and phosphorus levels went up by 25 percent."[6]

The Ministry of Environment and Statistics New Zealand's report 'Our Freshwater 2017' showed nitrate-nitrogen concentrations are worsening at more monitored river sites than improving.[7] Nitrogen leaching from farms into waterways has increased by 29 percent over the period 1990-2012.

"I don't think it's okay in 2017 that contact with recreational water can kill you."

- Dr Michael Baker, speaking at the launch of the Freshwater Rescue Plan, June 2017

Phosphorus in our waterways is also an issue, but that is improving – likely from fencing stock out of waterways and riparian planting. However, these mitigation measures don't help much with nitrogen losses to water.

The biggest source of nitrogen in New Zealand's waterways is urine from farm animals.[8] Urine contains urea which is rich in nitrogen. Reducing the number of animals we farm, especially animals such as cows, which excrete a lot of urine and nitrogen, can help reduce the nutrient pollution going into rivers and aquifers. Currently, New Zealand has more than 6.6

million dairy cows and 3.5 million beef cattle, each producing the same amount of waste as 14 humans.[9] The waste they produce is equivalent to a human population of 141 million, but without the same standards of sewage treatment. That's not sustainable.

Animals impact the environment in other ways besides the effect their urine and faeces have on waterways. Soil compaction, greenhouse gas emissions and habitat loss to make way for more pasture and bigger farms are just a few. It has been estimated that the cost of environmental impacts in 2012 exceeded dairy export revenue.[10]

A report by the OECD into New Zealand's environment concluded that "Water quality in some regions (Canterbury, Otago, Southland, Waikato, Taranaki, Manawatu, Whanganui and Hawkes Bay) has suffered from diffuse pollution associated with the steady expansion of intensive farming (most notably dairy farming) and urbanisation. The pollutants of most concern are nutrients, pathogens and sediments. In particular, nitrogen levels from diffuse agricultural sources have continued to increase ... the nitrogen balance (the difference between nutrients entering and leaving the system) worsened more than in any other OECD member country from 2000-2010."[11] Total nitrogen levels in rivers rose by 12 percent from 1990-2012.

Nitrogen/nitrate in our water is bad because it impacts the health of humans and freshwater fish, causes excessive weed growth, and can lead to potentially toxic algal blooms.

1. Human health: Nitrate in bore water impacts haemoglobin in the blood, particularly for bottle-fed babies and unborn babies whose mothers consume water with high levels of nitrate. Nitrate cannot be removed by boiling, so parents must rely on other water sources. It is a risk, but not widespread in New Zealand.

   Proposed water standards in the National Policy Statement for Freshwater Management (NPS-FM) give grades according to the amount of *E. coli* in water – a blue grade is excellent but still allows *E coli* up to 540 cu per 100ml – enough to make you sick if you swallow the water.

New Zealand has one of the highest rates of gastro-intestinal illness in the OECD.[12] According to the research by the Institute of Environmental Science and Research (ESR) 9 percent of environmental outbreaks of disease were from exposure to recreational water from a total of 1,955 cases. That's 176 cases of people getting sick from our rivers and lakes who reported to their local DHB or GP.[13] It's estimated that for every one person who reports with an illness, there are another 222 who do not report it[14], so the number is possibly closer to 39,000 people – the population of Whanganui[15].

2. Freshwater fish: Nitrogen changes the oxygen levels in water, and can make it toxic for fish. Three quarters of our native freshwater fish are already either 'at risk' or 'threatened' with extinction, nitrate toxicity levels in water is just one factor affecting them. Temperature, sediment, low flows and exotic pest fish also affect native freshwater fish.

3. Plant growth and algal blooms: nitrogen in tandem with phosphorus can cause weed growth, changing the composition of water and habitat for fish, macroinvertebrates that they live on and flows. Nitrogen is thought to contribute to algal blooms.

If we are to make a dent in the amount of nitrogen pollution going into our rivers and aquifers, addressing the increased leaching from agriculture will have the biggest benefit. As it is the intensification of animals on the land, particularly dairy cows whose urine is high in nitrogen and leaches into soils and aquifers bypassing riparian plantings, that is degrading our water, the most sensible way to reduce nutrient pollution is to reduce the number of animals we farm.

Putting a price on nutrient pollution and using the revenue to invest in more sustainable farming practices can encourage the shift to fewer cows.

Right now the environment is subsidising intensive farming by bearing the cost of its pollution. Communities like Hurunui are going to have to foot the bill to chlorinate their drinking water, and there is even discussion that Christchurch's drinking water could become contaminated with

nitrates.[16]

Encouraging agribusinesses to reduce cow numbers will help avoid burdening waterways with more nutrient and faecal pollution, and we could one day see swimmers once again at Coe's Ford in Canterbury's Waikirikiri/Selwyn River and in many of the other rivers that are too dirty to swim in.

A polluter-pays levy on nitrate recognises that the environment can no longer afford to subsidise intensive agriculture. It will generate revenue to help make the change to more sustainable, lower-impact farming.

And we also know that farming less intensively, with less nitrogen fertiliser and fewer dairy cows, and lower input costs with less supplementary feed such as PKE, can be more profitable for farmers than intensive dairy farming, as shown by research at Massey University.[17]

Solution

Help farmers move to more sustainable and profitable farming

Extend the Sustainable Farming Fund

There is currently only one government source of funding for farmers wanting to undertake projects that explore the possibility of farming less intensively and more in tune with the environment, while retaining profitability: the Sustainable Farming Fund.

The current goal of the Sustainable Farming Fund is "to support grass-roots, science-based initiatives to protect and grow primary production businesses and rural community resilience."

The Green Party will reshape the Fund to ensure it is promoting a major shift in land management and farm practices to more environmentally-focussed land and water management. Grants of up to $200,000 a year for three years are currently available, with 20 percent of funding coming from the applicant. At present, there is only $9 million of funding available.[18] We will commit another $60 million over three years to ensure thousands of farmers have the means to change land use.

Increasing funding and putting more emphasis on farming with the environment, not against it will open up opportunities for farmers to trial new technologies, techniques and tools that would otherwise be too risky or expensive to try.

"Our future has more crops and trees in our soil and fewer hooves on it."

- Steve Carden, CEO of New Zealand's largest farming company. Landcorp/Pāmu[19]

Create a Transformational Farming Partnership Fund

The Green Party will create a Transformational Farming Partnership Fund (TFPF) which functions in a similar way to the Primary Growth Partnership (PGP) run by the Ministry for Primary Industries[20]. Where the PGP focuses on growth, the TFPF will focus on sustainability and farming with the environment as its priority emphasis.

The Crown has put $345 million into the PGP since 2010, which requires at least 60 per cent funding to come from the sector for each project it undertakes.[21] The TFPF would require only 40 percent funding from the sector, to show the emphasis we place on environmentally sustainable farming and how urgently we want to reduce pollution for the climate and for our freshwater. We will put $210 million over three years into this fund.

Increase funding for Landcare Trust to $16 million

Landcare operates in more than 20 countries around the world, encouraging land managers to adopt more environmentally sustainable farming practices. The New Zealand Landcare Trust is an independent charitable trust established in 1996 to work with farmers, landowners and community groups to encourage and support sustainable land and water management. It builds relationships with landholders and rural communities to promote integrated catchment and landscape management.

Increasing the Trust's annual funding of $800,000 in 2017/18 to $16 million over three years will allow the Trust to significantly expand and upscale its work. It will be able to employ many more co-ordinators and field staff to work directly with farmers and landholders around New Zealand to implement projects similar to the award winning Aorere River Project[22] and significantly improve land management and water quality.

Rewarding tree planting

The Green Party will make changes to current regulatory incentives to ensure that farmers who plant erosion prone land and riparian strips along waterways are properly rewarded for the environmental benefits of that planting. We will announce more detail about this in our climate change policy.

Accelerated depreciation

Agricultural debt now tops $60 billion,[23] so it is difficult for some farmers to find the capital to change their way of farming when they are locked into intensive farming in order to keep paying off their debt.

The Green Party will increase the depreciation rate on agricultural equipment and infrastructure such as dairy sheds, irrigators, and effluent ponds to assist farmers switch from dairying to less intensive and polluting land uses. This will enable farmers who are already in dairy to free up capital, help pay down debt and transition to other land uses.

The exact rate will be set in consultation with farmers and the Inland Revenue Department.

Farmers will only be eligible for accelerated depreciation if they sign up to become certified as organic or join the Good Food Aotearoa New Zealand scheme (see later in this paper).

Support for organic farming

Organic farming is more energy efficient and produces fewer greenhouse gases than conventional farming, so has benefits in fuel cost savings and reduced climate change problems as well as improved water quality, animal welfare and biodiversity.

The Green Party set up an Organic Advisory Programme[24] with the previous Labour government, which was administered by the former Ministry of Agriculture and Fisheries. It helped farmers convert to organic farming and supported small organic producers. We will reinstate this programme and funding to ease the risk for farmers wanting to convert to organic.

One problem the organic sector faces is a lack of national standards, which is making it hard for our products to make it into the US market. We will develop national standards and unique New Zealand certification so that our organic sector can continue to reap premium export returns for its producers and processers.

Both initiatives will be supported by $5 million funding a year.

Nitrogen pollution levy

The Green Party wants to ensure that land uses such as intensive dairying take account of their environmental impacts, such as water and climate pollution, and don't freeload on the environment.

A levy on the nitrate leached by dairy cows will send a price signal to farmers, help reduce pollution, and generate revenue to be cycled back into the Transformational Farming Partnership Fund, Sustainable Farming Fund, support for organic production, and the Landcare Trust mentioned earlier in this policy.

> "New Zealand's revenue from environmentally-related taxes is among the lowest in the OECD."
>
> - OECD 2017 Environmental Performance Review New Zealand[25]

The Green Party will implement a nitrogen pollution levy, calculated using the nutrient management tool OVERSEER (see below), to incentivise farmers to pollute less.

The purpose of the levy is to discourage nutrient pollution by putting a price on pollution and ensuring that polluters pay. This will help generate the funds to clean up our rivers and lakes rather than the public being expected to contribute all the revenue. The levy should help discourage land uses that cause significant nutrient pollution and encourage a shift to more diverse and less polluting land uses – fewer cows and more crops, forestry, and horticulture.

The nitrogen pollution levy will be charged to dairy farmers for the first three years. Over time, it will be extended to include beef and sheep farming, other agriculture, horticulture, and other sources of nitrogen pollution.

We have suggested setting the levy at $2 per kilogram of nitrate leached each year per hectare. Our modelling using Dairy NZ's data on average Nitrogen leaching and 5-year profit suggests this could impact average farm profitability by five percent.[26]

We estimate this could generate $136.5 million in the first year. Revenue would gradually decrease over time as farmers respond to the price signal to become more environmentally sustainable, efficient, and productive.

All the revenue raised from the levy will be used to fund sustainable farming programmes and the clean-up of our waterways.

Levies for other purposes in the agricultural sector are well established. The pollution levy will be collected through milk processors, not individual farmers. Levies collected by processors already fund industry organisations such as Beef and Lamb and Dairy NZ and have helped fund possum and pest control for bovine tuberculosis through OSPRI.

Potential levy impacts on average dairy farms

Region	Average N loss (kg N/ha/yr	Levy per ha per year	Total levy based on average farm size (144ha), per year
Northland	23	$46	$6,624
Waikato	34	$68	$9,792
Taranaki	51	$102	$14,688
Canterbury	64	$128	$18,432
Average nationally	39	$78	$11,232

Calculated using figures from Dairy NZ's *Sustainable Dairying: Water Accord Three Years On*

What is OVERSEER?

Many regional councils require farmers to have nutrient management plans and use OVERSEER as a nutrient planning tool. These plans map land management units, describe soil type, stock, pasture, farm and cropping management practices, fertiliser inputs and identify nutrient status and the nutrient pollution losses. These plans and the calculations

of nutrient pollution losses would have to be independently audited. The levy would be collected from milk processors, not individual farmers.

Box 3.4. Nutrient modelling in New Zealand

OVERSEER®, a national model for farm-scale nutrient budgeting and loss estimation, calculates nutrient flows in a productive farming system and identifies risks of environmental impacts through nutrient loss, including run-off and leaching. The model was originally developed as a tool for farming to create nutrient budgets and has been adapted to overcome barriers that arise from an inability to clearly identify diffuse source polluters. It is recognised as the best tool currently available for estimating nitrate leaching losses from the root zone across the diversity and complexity of farming systems in New Zealand. A summary of the model inputs and outputs are summarised in the table below.

Inputs: Farm level	Inputs: Management block level (i.e. paddock/field scale)	Outputs
Farm location	Topography	*Nutrient budget.*
Types of blocks and block areas (e.g. pastoral, fodder crop, house, scrub, wetland, riparian)	Climate	Nitrogen (N) sources: atmospheric, fertiliser, animal transfer, supplements fed on block, irrigation and nutrients out
Types of enterprises (e.g. pastoral, cropping)	Soil type	N losses: produce (e.g. milk), animal transfer, supplements (e.g. hay), leaching/ runoff, atmospheric (e.g. N_2O).
Stock	Drainage	*Farm-level and block-level reports.*
Stock numbers, breed	Soil fertility tests	e.g. Total N lost to water for blocks and farm; Average N concentration in drainage based on N leached; N surplus per block.
Production	Pasture type	*Advisory reports.*
Placement (grazing off, wintering pads)	Supplements made on the block	e.g. N conversion efficiency (%); total GHG emissions; maintenance fertiliser requirements.
Types of structures	Fertiliser applied	
Effluent management of structure	Irrigation applied	
Stock management on structure	Effluent applied	
Type of effluent management system	Animals (type, timing) grazing the block	
Supplements imported and where they are fed	Crop rotation; crops grown – yield, fertiliser applied, harvesting method	
Wetlands		

Source: *Diffuse Pollution Degraded Waters, Emerging Policy Solutions: OECD 2017*, page 75

A moratorium on new dairy farms

Our land, rivers, lakes, and aquifers cannot accommodate more dairy farms. It's time to take a breather from ongoing dairy intensification.

We can do this by strengthening the National Policy Statement for Freshwater and national environmental standards to prevent further consents being granted for dairy conversions and restrict increases in herd sizes on existing farms.

It makes sense to take a break from converting other land uses to dairy farming, the land use with the most impact on our water and climate.

Wind up Crown Irrigation Investments Ltd

Publicly funded irrigation schemes should not be used to create dairy farms on land that is not naturally appropriate for intensive agriculture.

Big irrigation schemes subsidised by the Crown contribute to water pollution by incentivising intensive farming. They enable the environment to be pushed beyond its limit, when we should be focussed on how to drought-proof our farms through soil enrichment, plantings and water conservation.

All appropriated funding for Crown Irrigation Investments Limited that has not yet been committed to a specific project will be cancelled.

Stop the import of Palm Kernel Expeller/Extract

One way in which farmers can overstock their farms and push the environment beyond its limit is by feeding cows palm kernel expeller/extract (PKE) as a supplementary feed. PKE is a product of the palm oil industry, which involves clearing large areas of rainforest in Indonesia and Malaysia to grow palms.

New Zealand imported a record 1.95 million tonnes of PKE in the year to June 2015, undermining our clean, green, 100% Pure brand, and helping fuel intensive dairy beyond what our ecosystems can naturally support.

Yet in August 2016, Landcorp decided to phase out using it, a decision that signalled a welcome shift to more sustainable farming and a recognition of the major flaws in ever-increasing dairy intensification.

The Green Party in government will phase out the importation of PKE, starting in 2018.

Good Food Aotearoa New Zealand scheme

New Zealand's "clean green, 100% Pure brand" has been estimated as worth $20.17 billion a year[27] as a marketing tool for our food and tourism industries.

We need to give integrity to our clean, green brand. A national sustainability programme for farmers, food growers and producers can help do that. The Green Party in government would provide the strategic and funding support to establish the Good Food Aotearoa New Zealand programme and use this programme to develop targets for dairy, horticultural, meat, wool, and other sectors in consultation with farmers, growers, and stakeholders.

We cannot expect international consumers to want to buy our dairy, wine, fish, fruit and meat products when our rivers are too shallow or polluted to swim in, nitrate-laden groundwater regularly makes the news, and town tap water causes major gastro outbreaks. Yet that's the reality of brand New Zealand. As the OECD said recently, New Zealand's economic growth "has come partly at the expense of environmental quality, a dynamic that puts the country's "green" reputation at risk."[28]

Ireland's Origin Green programme

Origin Green is a scheme in which food producers and growers gain certification for taking sustainability measures, a bit like how organic producers gain organic certification. The scheme was launched in 2012, and set out to "have every farm and food and drink manufacturing business throughout Ireland on the road to sustainable production by 2016." By November 2015, more than 55,000 Irish farms and 122 food and drink companies had become members of the scheme. Today, that number is 272 members, accounting for 90 per cent of Ireland's total food and drink exports portfolio. Members must commit to targets in the areas of water, climate emissions, energy use, waste, biodiversity and corporate responsibility.

Good Food Aotearoa New Zealand will help shift significant parts of our agri-food industry from being focused on low-value commodities to a greater focus on consumers, being a world leader in the market for premium products, and capturing a bigger share of those markets.

Good Food Aotearoa New Zealand is inspired by Ireland's Origin Green- a voluntary, national scale sustainability accreditation programme established in 2012 involving the Irish food board, Irish farms, and food producers and processors.[29]

Good Food Aotearoa New Zealand would include sustainability plans for farm and food processing organisations with targets to reduce environmental impacts such as waste, greenhouse emissions and nutrient leaching, and improve energy and water use, and environmental performance. Independent assessors would audit the plans and report annually on progress towards targets.

A Good Food Aotearoa New Zealand scheme with measurable goals around producing quality food and fibre while protecting our climate, land, biodiversity, soils, water and air can help make our farming systems and practice less stressed, and potentially more profitable.

Fiscal implications

	Year 1	Year 2	Year 3
Revenue (pollution levy)*	$136.5	$130	$125
Sustainable Farming Fund	20	20	20
Transformational Farming Partnership Fund	75	70	65
Landcare Trust	4	6	6
Organics sector funding	5	5	5
Good Food certification	10	10	10
Freshwater clean-up funding	22.5	19	19
Total expenditure	**136.5**	**130**	**125**

*Levy revenue is expected to decrease over time as farmers respond to the price signal to become more environmentally sustainable, efficient, and productive.

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