

Carbon tax on farming to reduce carbon emissions? New Zealand is pioneering this new policy. Here's why its touted benefits may not be a sure thing

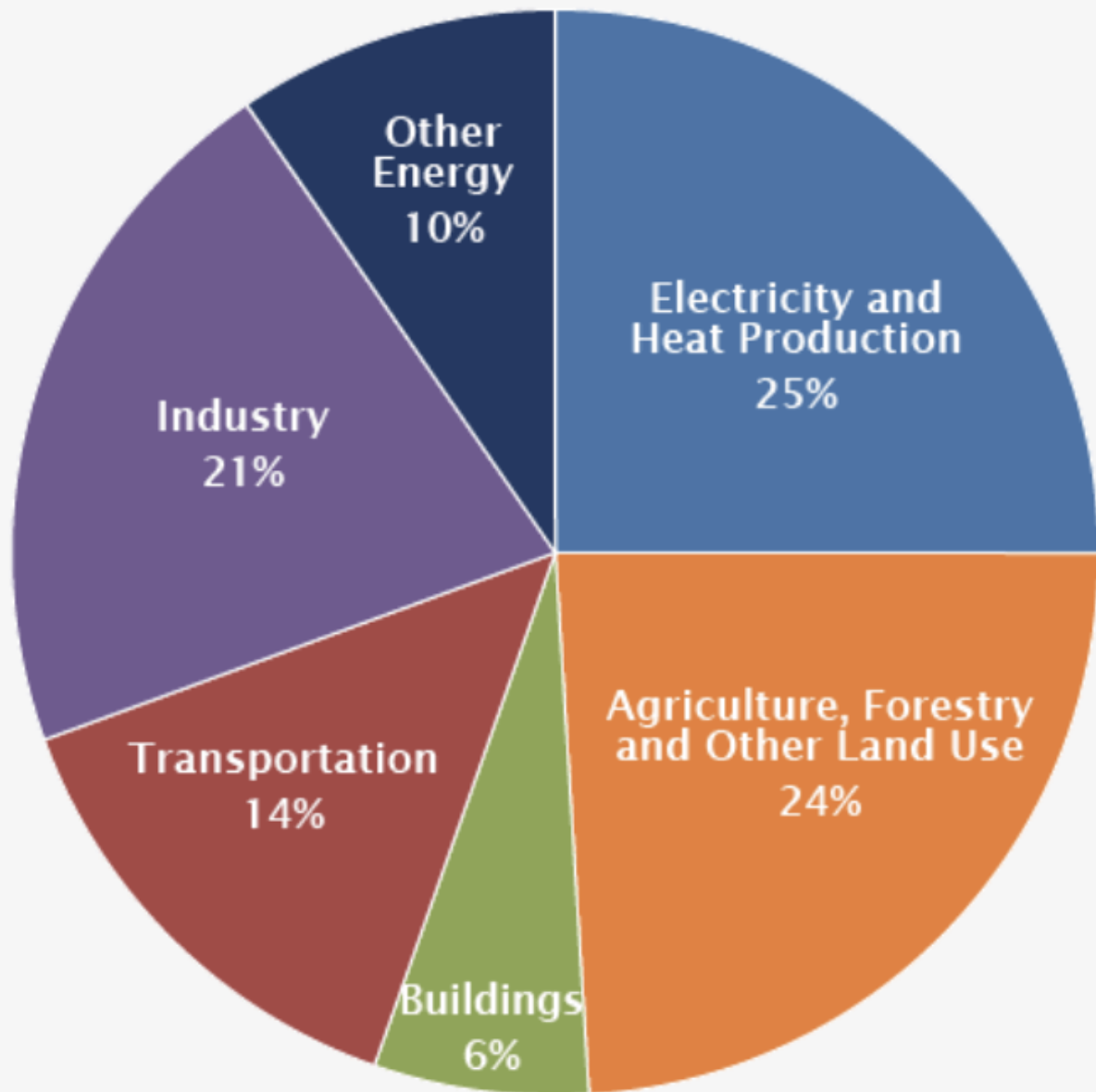
Agriculture contributes an estimated one-quarter of global greenhouse gas emissions. The economy in New Zealand, a tiny country at the bottom of the world, relies on its vast natural resources such as fishing, forestry and mining, and most critically agriculture. More than 80% of money coming into the country is from these primary sector exports. So why is it initiating the world's first agricultural farming carbon tax, which some say will damage its critical farming sector?

New Zealand has [announced](#) it will become the first country globally to put a price on agricultural greenhouse gas emissions. Although the actual price has yet to be determined, effective January 1, 2025 it will begin levying (farmers see it as a tax) the producers of food – farmers.

Is it good policy? Will it set a standard for the rest of the world to emulate? Are farmers being unfairly targeted? What are potential benefits?

Human activities are responsible for almost all of the increase in greenhouse gases in the atmosphere over the last 150 years. Agriculture is estimated to be among the biggest contributors, at 24%, just behind energy used for electricity and heat.

Global Greenhouse Gas Emissions by Economic Sector



Source: [IPCC \(2014\)](#) [Exit](#) based on global emissions from 2010. Details about the sources included in these estimates can be found in the *Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*.

New Zealand's GHG profile is unusual in that half of its emissions come from agriculture. Over 80% of energy generation is already from renewable sources, and the country is heavily reliant on road transport (and hence fossil fuels) for freight. A decrease in agricultural emissions is considered vital for meeting international agreements. Tax proponents maintain that GHG emission reductions spurred by the tax could help make the country carbon neutral by 2050.

But the tax will have considerable implications for farmers and potentially for the public. Farming is the country's biggest industry, generating 12% of the gross domestic product. Many economists believe that taxing food emissions will reduce farm income, and impose restrictions around innovation and choice. Taxation might also reduce food production, with implications for the economy and possibly for food security.

Challenging that belief, the government maintains the tax will help the farm economy. Prime Minister [Jacinda Ardern said](#) the farm levy would be invested back into the industry to fund new technology, research and incentive payments for farmers, giving them a "competitive advantage ... in a world increasingly discerning about the provenance of their food."

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Farmer frustration rife

Farmers here are not happy about the tax. The increased regulations are viewed as nonsensical by many farmers, particularly in the animal sector. They are being asked to reduce emissions, they note, when research has shown that New Zealand farmers lead the world as [efficient producers of animal protein](#) from meat and dairy products on a per kg of product basis. A [2021 study](#) found that New Zealand dairy has the lowest carbon footprint of 18 countries examined, including the US, Denmark and the Netherlands.

New Zealand beef and lamb among the most carbon efficient in world - research

The Country

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AgResearch has been studying the carbon footprint of New Zealand beef and sheepmeat. File photo / Mark Mitchell

A [life cycle assessment study](#) of meat released in 2022 found that Kiwi on-farm footprint was about half the average of the other countries. Certainly other countries are catching up, and certainly nobody is resting on any laurels in the effort to reduce impact on the environment, but it is difficult to do much better when you are already at the top, farmers say.

Farm-level greenhouse gas reduction system: Here's how it will work

Prime Minister Ardern claims that farmers support this tax. When the program was formalized in December, she said: "After listening to farmers and growers through our recent consultation, and engaging over recent months with industry leaders, today we have taken the next steps in establishing a proposed [farm-level emissions reduction system](#) as an alternative to the Emissions Trading Scheme (ETS – New Zealand's carbon trading system designed to encourage businesses to clean up their act; businesses that participate in ETS can buy and sell units from each other, and must surrender one NZ Unit for each ton of carbon dioxide equivalent (CO₂-e) emissions they produce.

The plan calls for the introduction of an emissions levy in 2025 at the 'lowest price possible' to achieve the outcome of a 10% reduction in methane emissions compared with 2017 by 2030. Once the price is decided, a 5-year price pathway will be established, providing certainty to 2030. Money raised will be recycled (minus administration costs) into incentivising good practice, and the agriculture sector will help to oversee the allocation of funds. In addition, the government appears to have agreed to take social, cultural and economic impacts into account when setting the prices.

How fair and efficient is the carbon tax?

Prices will be set by the Minister of Agriculture Damien O'Connor and Minister for Climate Change James Shaw, after advice from the Commission for Climate Change. Although the government has indicated that an Oversight Board, which would be skills-based and include Māori membership, will have a role in providing advice on the price, it is not clear how appointments to the Oversight Board will occur and how much weight will be given to its advice. Some farming leaders are skeptical about what might happen this year.

The current proposal is less punitive than one suggested in October, but farmers remain dubious and are already calculating the cost and considering their options. They note that money taken in a GHG levy (aka tax) won't be available for investing in developing their businesses, such as paying down debt, or investing in environmental technologies, or in environmental plantings.

Another key issue: Will farmers be better off if they sell out to foresters? Forestry for carbon credits has resulted in a three-fold rise in the price of land above that for meat production. The prospect of the GHG levy may push already stressed farmers further to the edge financially. For some, it will make sense to sell their farms.

Although the agricultural emissions plan is being blamed as the last straw, in reality it is the settings on the Emissions Trading Scheme that are the problem – no other country is so generous with offsetting. Every tonne of carbon dioxide equivalents emitted by a fuel intensive company can be 'offset' by buying trees – hence claims of carbon neutrality.

The ramifications for rural communities across New Zealand are considerable. The generous still-in-place ETS system has resulted in a rapid increase in land (mostly beef and sheep farms) purchased by forestry interests — from 7,000 hectares in 2017 to 52,000 in 2021. These land sales could result in a decrease of one million stock units and the loss of A\$245 million annually in export receipts. Rural depopulation, with loss of schools, medical practitioners, shops and support services, is [feared](#).

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Activist reaction

Concerns from farmers about survivability are matched by concerns from environmentalists — but they contend that the measures don't go far enough, especially when it comes to cutting dairy emissions. Greenpeace's lead agricultural campaigner [Christine Rose has stated](#):

Action to reduce agricultural emissions means tackling the dairy industry – New Zealand's worst climate polluter – and that means far fewer cows, it means cutting synthetic nitrogen fertiliser, and it means backing a shift to more plant-based regenerative organic farming.

In a radio interview, Rose rejected arguments about food security, claiming regenerative, organic and plant-based farming were a more efficient economic use of land for food production.

But that makes no sense. If it was, farmers would have made the change themselves. But it isn't, so they haven't. The farmer's contentions are supported by research over decades which has put them in the position of being low impact producers. Farmers are left trying to fact-check campaign claims from the likes of Greenpeace. They believe they are not the problem but part of the solution, which includes continuing to produce food efficiently and supporting New Zealand's economic viability.

"We're not trying to play a get-out-of-jail-free card," said Andrew Morrison, chair of Beef+Lamb NZ, one of the 13 partner groups involved in He Waka Eke Noa (HWEN), a partnership of farmers, industry groups, and Māori. "[W]e're not trying to not take responsibility for our emissions, by the same token we want to faithfully be recognised for the behaviours on farm — like mitigations, inhibitors used, sequestrations etc."

What does current research show?

Research programs already show that attempts to reduce emissions by reducing animal numbers and cutting synthetic nitrogen have unintended consequences.

On the Canterbury Plains, on the East Coast of the South Island, the results of a comparison between conventional farming with 3.7 cows per hectare vs. regenerative farming with 3.2 cows per hectare are [publicly available](#). Fertilizer inputs were reduced on the regenerative farm, which in part resulted in a 22% reduction in milk production and 24% earnings drop before interest and tax. There were no differences reported in emissions per kg of milk solids (each litre of milk is approximately 13% solids), although total emissions were reduced on the regeneratively-managed farm.

Documenting similar findings in the North Island beyond Auckland, The Northland Dairy Development Trust released results of its trials investigating low emissions. Changing from a 'current' farm (3.0 cows per hectare) to a low-emissions farm (2.1 cows per hectare and no nitrogen or imported feed) decreased milk production by 38% in the first year. The decrease was associated with a decrease in greenhouse gases per hectare (33% reduction in methane and 47% reduction in nitrous oxides) but per kilogram of milk solids the difference was only 11%.

Further, the low-emissions farm's operating profit dropped 40%. Modeling indicated that only at NZ\$5.00/kg MS, down from the current average milk price of NZ\$9.30 MS, would the low emissions and current farming operations be equal – and [both would be losing money](#).

The proposition is not better for meat production. Results from a recent study showed regenerative farms produced 38% less meat and wool than conventional farms and earnings decreased 55%. Further, each kg of product was associated with 24% more GHG from the regenerative farms in comparison with the conventional farms.

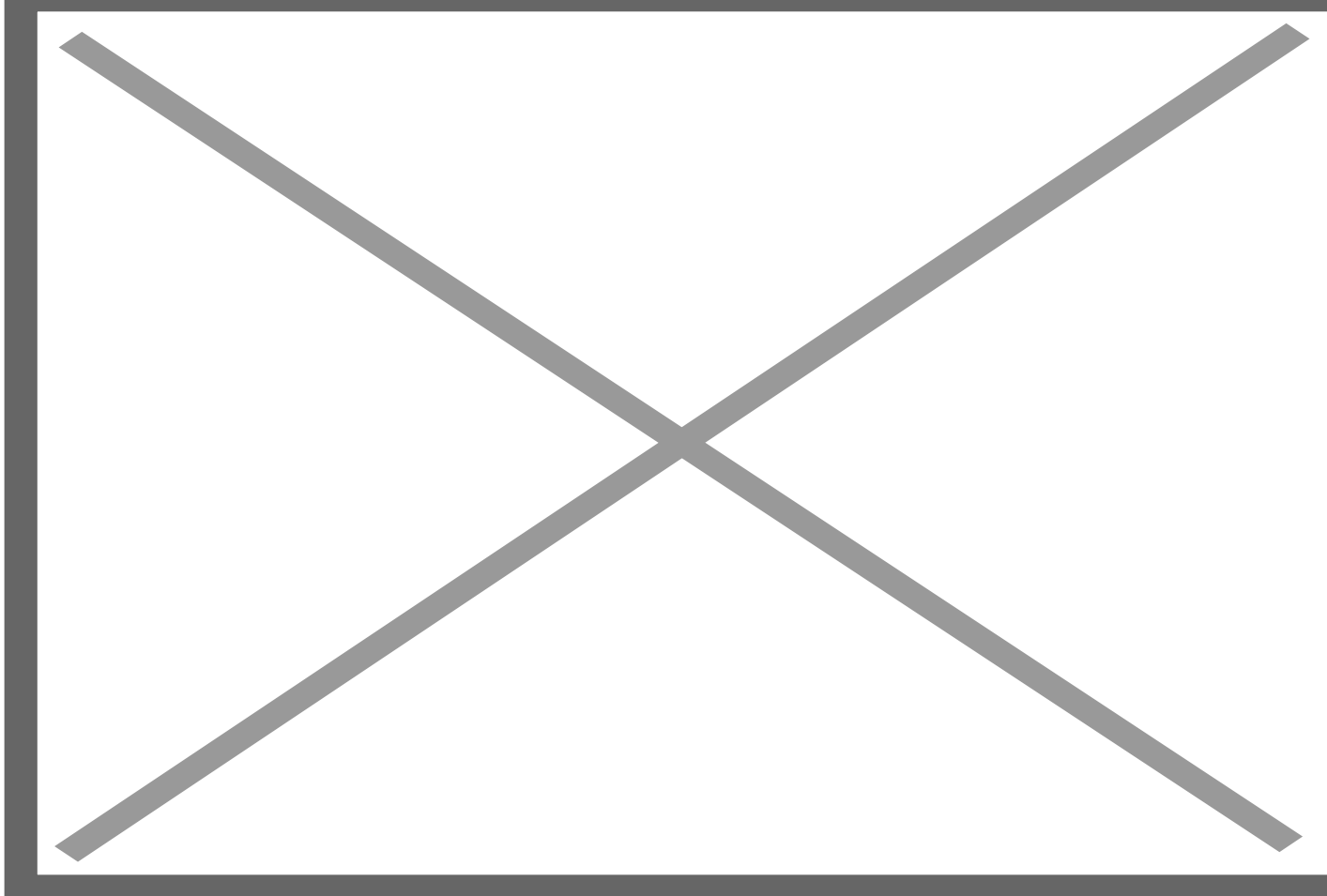
These results explain why farmers are feeling perplexed – they already run efficient systems suited to soil and climate; tinkering with the system as desired by Greenpeace does not result in the claimed benefits. And if New Zealand reduces food production and other countries associated with higher GHG pick up the slack (emissions leakage) the world will not be better off.

New Zealand as a case study?

The government's agreement to take more than GHG emissions into account by including social, cultural and economic impacts could be a model for other countries. However, factors such as the small population (5 million people in a country the size of the UK, which has 69 million), dependence on the primary sector for export revenue (over 80% when fisheries and forestry are included with horticulture and agriculture) and lack of agricultural subsidies (which has resulted in an innovative and productive primary sector that follows market signals) mean that applicability to other countries is limited.

The reverse is also true. Regenerative, organic and plant-based farming might be a more productive and efficient use of land for food production in some areas of some countries, but in New Zealand, where animals graze on pasture on land unsuitable for crops in an efficient manner enabled by decades of research, it isn't. Reducing the number of animals results in less efficient production, which reduces income as well as food, and the emissions associated with that food. This is a lose:lose:lose outcome.

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New Zealand North Island beef and sheep grazing... Credit: Ravensdown

What's next?

Advances in research focused on New Zealand pasture-based systems are already being rolled out. Low-methane sheep, for instance, will be introduced in flocks before 2030, and low-methane bulls have been identified in research, with the ability to pass the trait to progeny. Methane-reducing boluses (a slow acting release mechanism that the cow swallows, used successfully for micro-nutrients to overcome deficiencies where required) are being developed and research on vaccines continues.

Meanwhile, farmers are being encouraged to continue making their production ever-more efficient, as they are fully aware that their customers, such as Nestle, Danone, McDonalds and Unilever, expect New Zealand producers to assist them in meeting their emission reduction goals.

The penultimate [word](#) from the Prime Minister:

Our shared goal is supporting farmers to grow their exports, reduce emissions, and maintain our agricultural sectors international competitive edge into the future. By continuing to work through our different positions together, we move closer to achieving long term consensus on a plan that works.

But the question remains – will the shared goal enable good policy?

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