Comparing agricultural emissions reduction targets, strategies and policies internationally

Summary report

November 2024

B+LNZ commissioned a scan of the agricultural greenhouse gas (GHG) reduction targets, strategies and policies in a cross-section of 16 international jurisdictions including New Zealand.

This document provides a summary of the key findings of the report, and B+LNZ's views on the policy implications for New Zealand.

Executive summary

High-level summary of the report's findings

- Most jurisdictions analysed specifically acknowledge the important **role of food production** and want to use **technology and improved farming practices** to achieve emissions reduction goals, instead of reducing production or overall animal numbers.
- No country has put biological emissions (methane and nitrous oxide) from their agricultural sectors into their Emissions Trading Scheme (ETS).
- Only one other country, Denmark, is currently intending to put a **price on agricultural emissions**. However, under the Danish policy proposal the impacts of this price on farmers will be offset with billions of dollars of additional subsidies and an intensity-based rebate.
- Rather than pricing agricultural emissions, the majority of jurisdictions analysed plan to use **subsidies and incentives** to support emissions reductions in the future.
  - Most governments are investing heavily in **R&D technologies** to reduce emissions from food production.
- All jurisdictions analysed acknowledge the agriculture sector's complex nature and seek to reduce agricultural GHGs while **maximising co-benefits**.
  - Nearly all jurisdictions analysed are incentivising farmers to **integrate trees** into their farms and reward the wider environmental benefits.
  - Many jurisdictions have policies that reward farmers for retaining or improving their **soil carbon**.
- All jurisdictions (except New Zealand) have **limits on the amount of forestry offsets** available to fossil fuel emitters and many have policies aimed at limiting the conversion of productive farms into carbon forestry.
- Many countries have a net-zero carbon dioxide target. While countries differ in how they approach methane in their domestic or international targets there is precedent for New Zealand adopting a **split-gas Nationally Determined Contribution** in alignment with our split-gas domestic targets, an approach used by Uruguay.

Summary of B+LNZ views on the policy implications for New Zealand

As a result of the report's findings, B+LNZ make the following policy recommendations:

- Clearly place the importance of maintaining food production at the heart of climate change policy.
- Commit to no pricing of agricultural emissions or inclusion in the ETS.
- Create ways to incentivise and reward farmers for taking action to reduce their emissions and warming impact.
- Reward activities that lower agriculture emissions and deliver wider environmental benefits alongside food production.
- Continue investment in R&D to reduce agricultural emissions.
- Place limits on forestry offsets for carbon emitters.
- Amend New Zealand's NDC to take a split-gas approach.
- Develop policies that preserve and rebuild soil carbon.

There is currently a narrative in New Zealand that agriculture has been "let off the hook" by excluding biological agricultural emissions from being priced in the ETS. This study shows no jurisdiction with an ETS has put biological emissions into their ETS, and all have instead focused on reducing fossil fuel emissions. New Zealand is therefore in line with other countries in excluding agricultural emissions from its ETS.

The New Zealand Government still, however, intends to introduce a price on agricultural emissions by 2030.

While there is an expectation that further progress is made in reducing agricultural emissions from food production, this report shows there are alternatives to an emissions price that can achieve the desired outcomes and B+LNZ strongly encourages the Government to look at these alternatives.

We support market-led or other creative ways being explored to support the adoption of new technologies by farmers as these technologies come on board and would like a more holistic approach being taken to what farmers can be recognised for.

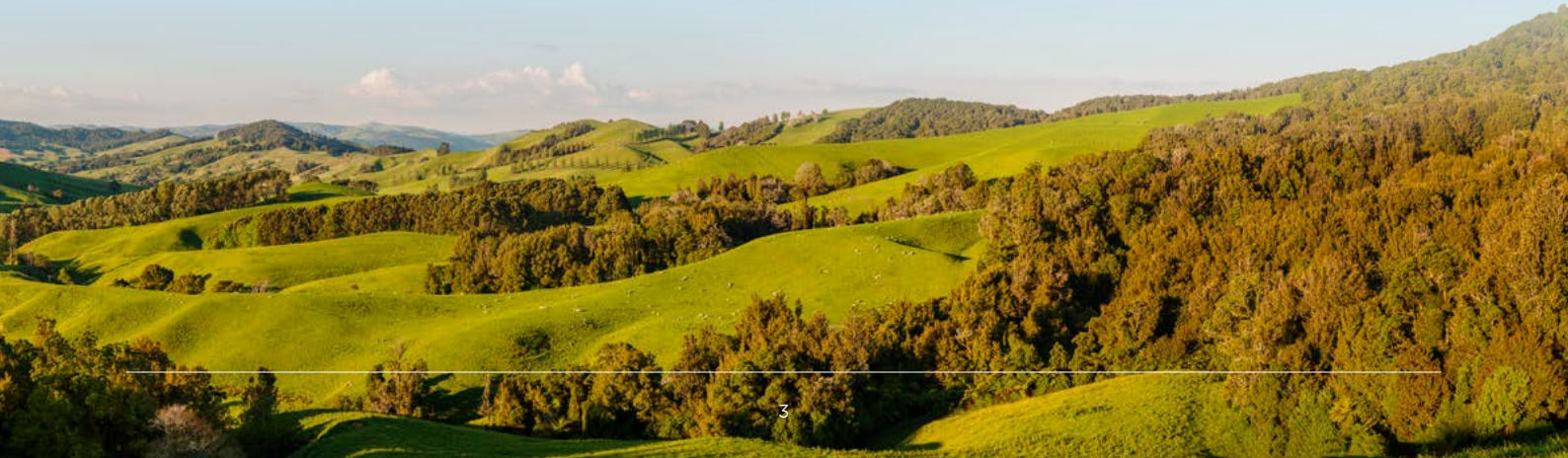
Another critical area for reconsideration is how New Zealand's split-gas domestic targets are applied.

New Zealand's world-leading decision to have a split-gas target under the Climate Change Response Act has not been followed through into our international commitments, and in particular New Zealand's Nationally Determined Contributions (NDCs) and emissions budgets do not take a split-gas approach.

While many other countries haven't worried about this issue because agricultural methane is not a relatively large source of emissions in their inventories, there is a precedent for New Zealand to adopt a split-gas NDC in alignment with our split-gas domestic targets – this approach is used by Uruguay.

A split-gas target for biogenic methane in New Zealand's NDC would, in addition to following this precedent, be science-based and consistent with the Paris Agreement.

For more detail on all these issues, see the policy implications section below.



Background

In 2023, B+LNZ commissioned research by independent consultant Macaulay Jones exploring the relationship between emissions pricing and forestry internationally. It showed New Zealand and Kazakhstan are the only countries in the world to allow 100 percent offsetting through forestry sequestration in their ETS.

We wanted to build on this and again commissioned Jones to gain a more detailed understanding of the following in a range of international jurisdictions in order to help inform policy discussions with Government:

- agricultural GHG reduction targets
- strategies and policies to reduce agricultural emissions (including pricing, incentives, R&D and other mechanisms)
- wider approaches to the recognition of sequestration within farms.

Sixteen jurisdictions were chosen as case studies including New Zealand. These jurisdictions are a combination of developed and developing jurisdictions and were chosen because:

- they were referred to by the New Zealand Climate Change Commission (NZ CCC) as implementing targets more ambitious than New Zealand, and/or
- are jurisdictions commonly used by New Zealand policymakers and/or
- are jurisdictions that are large livestock producers in geographically diverse regions.

(The term jurisdictions is used, rather than countries, as the European Union is included in the report, along with Australia, Canada, United States, United Kingdom, Ireland, Netherlands, Denmark, Norway, Israel, Uruguay, Brazil, Japan, South Africa, India, and New Zealand).

What the report found

All the jurisdictions examined have policies in place to reduce agricultural GHGs. These policies sometimes intend to reduce GHGs on an absolute basis, sometimes on an intensity basis, and at other times are designed to reduce agricultural GHGs below business-as-usual scenarios.

There are a range of approaches being followed by countries to reduce agricultural emissions. There are, however, many common themes which are captured below.

Protecting food production

The importance of ensuring food security and domestic food production is commonly cited in policy documents and strategies throughout the 16 jurisdictions examined, although there are differences in the importance of this aim and how it is defined.

- Uruguay has specifically stated they will not reduce food production, particularly livestock numbers, to meet climate targets.
- Similarly, the Netherlands has committed to maintaining food production levels and is focused on using technology to reduce its agricultural emissions.

While there are differing approaches among the developed jurisdictions examined, all developing jurisdictions, such as India and South Africa, clearly note the importance of improving domestic food security.

While New Zealand's approach notes its role as a food exporter, it is unclear how much priority is placed on maintaining food production, if GHG reduction targets cannot be achieved without reducing livestock numbers.

Modelling by the Government during He Waka Eke Noa in 2022 for example showed the prices being considered would have a significant negative impact on exports, including a 20 percent reduction in beef and sheep meat production. No jurisdiction examined is considering any policy approach that would reduce their production by this much, if at all.

Pricing agricultural emissions

No countries with an ETS have put ruminant animal emissions into their ETS. Some jurisdictions with an ETS also exclude emissions from the energy and transport sectors that occur within farm systems.

Denmark is the only other country in addition to New Zealand that is currently intending to put a price on agricultural emissions. This would be outside of their ETS.

Denmark's Government, however, is also intending to spend billions of additional dollars into subsidising and incentivising farmers with intensity-based rebates, which will largely offset the cost of the emissions price they will face and will have a relatively small impact on food production.

Incentives and rewards

There is a strong theme internationally of jurisdictions looking to incentivise and reward farmers for undertaking activities on-farm to reduce emissions, using a range of approaches.

Jurisdictions (such as many EU members) are repurposing existing subsidies to subsidise farmers to adopt GHG-reducing farming practices or technologies that could reduce their agricultural emissions.

- California provides substantial grants to farmers to reduce their agricultural emissions covering the cost of biodigesters and farmers can also apply for carbon credits for using these technologies.
- Canada is working on policies to allow farmers to apply for carbon credits for taking actions that reduce their agricultural biological emissions.

Jurisdictions that do not subsidise their agriculture sector (like Australia, Brazil and Uruguay) are implementing a diverse range of policies to reward their farmers for on-farm activities related to emissions reductions or removals. This includes the allocation of carbon credits based on the adoption of GHG-reducing farm-practices or technologies as well as better access to finance.

In a number of jurisdictions, farmers can also apply to receive carbon credits for undertaking activities that reduce emissions below business-as-usual levels based on total emissions or the use of innovative technologies and practices.

Recognising and rewarding co-benefits

While the IPCC has a strict definition around what constitutes an 'agricultural' emission, most jurisdictions are taking a much broader approach by including practices in their policies that farmers can be rewarded for, such as:

- no-till cropping
- cover cropping
- rotational grazing
- the use of feed additives and inhibitors
- plant-based agriculture
- the reduced use of fertilizers
- the use of biochar
- better animal health and genetics
- soil carbon testing
- organic farming
- the reduced use of pesticides
- electrifying farm vehicles and machinery
- precision farming.

A number of jurisdictions take this broader approach because they are looking to encourage activities that simultaneously reduce emissions and deliver wider environmental or social benefits including:

- climate resilience
- biodiversity and water quality
- improving food security
- fostering economic development
- maintaining culturally significant areas.

New Zealand's policies currently place relatively low importance on maximising co-benefits as agricultural emissions are reduced. A prominent example is the reliance on exotic monocultural afforestation. (See also 'Forestry and vegetation' below)

Investment in R&D

Most of the jurisdictions analysed are investing heavily in research and development to deliver technologies to reduce agricultural emissions.

This includes research into:

- methane-reducing livestock feed additives
- improving GHG inventories
- reducing emissions from fertilisers.

As breakthrough emissions-reducing practices and technologies are developed and accounted for in national GHG inventories, many jurisdictions examined also strongly support adoption and uptake.

Emissions reduction targets

Most jurisdictions have domestic and international targets that take a bundled approach to the three gases coming from farming activities (methane, nitrous oxide, and carbon dioxide).

For example, many jurisdictions have domestic targets to achieve net zero for all of the gases by 2050, and international commitments (called Nationally Determined Contributions – or NDCs) to reduce all emissions by a certain percentage by 2030 or 2050.

Uruguay has taken a split-gas approach to both its domestic targets and international targets in that it has separate targets for carbon dioxide, methane and nitrous oxide.

New Zealand has taken a split-gas approach for its domestic targets, but an all-GHG approach to its NDC. This differing approach lacks coherence and New Zealand is also unusual in having domestic targets that differ significantly in ambition from the international commitment they have made through their NDC.

Forestry and vegetation

While there are different approaches used, jurisdictions have mechanisms in place to increase the integration of forestry and vegetation within farms as standard policy.

New Zealand relies heavily on forest planting as the primary economy-wide tool to offset long-lived gases, as there are net zero targets for long-lived gases and a gross target for methane. New Zealand is also unusual in having no limit on the amount of carbon that can be offset through forestry activities.

In all of the jurisdictions analysed there are strict limits on how much fossil fuel emitters can offset their emissions through forestry.

In these jurisdictions there are much greater incentives and rewards to farmers for the integration of woody vegetation (particularly native vegetation) within farms. These rewards also go beyond the sequestration provided by the actual vegetation and take account of wider environmental benefits such as biodiversity and water quality improvements. There is also greater focus on ensuring farmers are able to access funding or support to undertake these activities.

Soil carbon

Improving soil health and soil carbon levels is a key goal in many of the agricultural emissions reduction strategies examined. New Zealand is unusual among the jurisdictions examined, with a relatively small focus on this.

Some of the practices supported in other jurisdictions encourage improved soil health, such as no-till cropping and rotational grazing. These practices are common in New Zealand agricultural management but are not incentivised.

B+LNZ views on policy implications

The findings of the report have a range of significant implications for New Zealand's approach to managing agricultural emissions.

Following are our recommendations and the rationale for them.

Recommendation: Clearly place the importance of maintaining food production at the heart of climate change policy

Rationale:

- New Zealand stands out in how it is applying the Paris Agreement goals around food security and food production.
- Other countries have placed domestic food security and preserving domestic food production at the heart of their climate change policies.
- This means placing high importance on the use of technologies to achieve emissions reductions and trying to achieve objectives without reducing stock numbers.
- New Zealand needs to clarify the value of domestic food production when seeking to achieve emissions reduction targets. If the only way to achieve emissions targets is through stock reductions, this goes against objectives to maintain, or improve, food production and security.

Recommendation: Commit to no pricing of agricultural emissions or inclusion in the ETS

Rationale:

- No country is looking to include biological emissions in their ETS and price them.
- New Zealand is therefore in step with the rest of the world in deciding not to put agriculture into its ETS.
- Only one other country is intending to price their agricultural emissions, but they intend to do this with significant financial support for their farmers.
- Other jurisdictions have looked at pricing and appear unlikely to proceed.
- New Zealand would therefore be in step with many other countries if it decided not to price agricultural emissions.
- B+LNZ also does not think a price on agricultural emissions is necessary for a variety of reasons.
  1. Significant progress towards the existing 2030 methane reduction target has already been made by our sector. Since 1990 the red meat sector has reduced its emissions by over 35 percent. Recent reductions have been driven by a decline in stock numbers, primarily as a result of land-use change into forestry. As a result of this land-use change, sheep and beef methane emissions reductions are likely to go beyond the current methane target in the Zero Carbon Act of a 10 percent reduction from 2017 by 2030.
  2. Pricing our emissions, while our competitor farmers are being subsidised or receiving other forms of incentives will put our farmers at a major disadvantage. This will lower their costs of production, while our farmers' cost of production will increase. Also, while New Zealand is currently one of the most carbon efficient red meat producers, we could well be overtaken as other countries put major money behind technology uptake, further undermining our positioning in the market with consumers.
  3. The complete lack of control of carbon forestry activities in New Zealand is already driving emissions reductions in our sector due to land-use change. Although we support the integration of forestry activities within farming systems, there have been too many whole farm conversions. Placing a price on agricultural emissions, without addressing the unabated drive for carbon forestry, would further accelerate the conversion of sheep and beef farms into carbon forestry.

- While B+LNZ does not support a price, we do support market-led or other creative ways being explored to support the adoption of new technologies by farmers as these technologies come on board. (See following point)

Recommendation: Create ways to incentivise and reward farmers for taking action to reduce their emissions and warming impact

Rationale:

- The report clearly shows that the main way the 16 jurisdictions are planning to encourage farmers to reduce their emissions is through a wide range of different types of subsidies or incentives that will reward farmers for taking action to reduce their emissions.
- New Zealand has to take this into account.
- Market demand for more emissions-efficient animal-based products is steadily increasing and countries are providing direct support to their farmers to meet this demand. Without matching support, New Zealand will be at a distinct disadvantage to our competitors.
- Instead of being so focused on a 'price' on emissions as the main way to drive change, the alternative approaches being considered and adopted in other countries should be explored by the Government and officials.
- New Zealand traditionally does not subsidise its farmers, but alternatives could include:
  - rebates for the use of technologies when they come onstream (like the Electric Vehicle rebate)
  - allowing farmers to apply for credits through the ETS for undertaking certain farming practices or technologies that reduce agricultural emissions, or
  - working with banks to encourage better access to lines of credit for emissions reduction action.
- Overall, there are many options to consider and evaluate that would not breach WTO agricultural subsidy restrictions.

Recommendation: Reward activities that lower agriculture emissions and deliver wider environmental benefits alongside food production

Rationale:

- Other countries, such as Denmark, clearly state multiple goals in their climate change policies to maximise the environmental and social co-benefits and design their policies to match and encourage this.
- New Zealand's current system of dividing policy by environmental domain with different approaches to management and incentives needs to be reviewed, because it does not strongly encourage or reward co-benefits.
  - For example, for a New Zealand farmer to plant native bush for biodiversity and carbon will cost approximately $10,000/ha-$40,000/ha, but they will only get around $300/yr/ha in carbon credits for the carbon sequestration from those natives.
- New Zealand should consider ways that farmers could be rewarded for the wider environmental benefits provided by their on-farm activities. Options include increasing the amount farmers receive for the sequestration of natives in the ETS to account for biodiversity benefits, reduced regional council rates for land that has been retired or planted, and/or grants for pest management of native vegetation areas.
- New Zealand should prioritise investigating ways to include a wider range of native vegetation in its ETS such as pre-1990 native vegetation and smaller blocks.

Recommendation: Continue investment in R&D to reduce agricultural emissions

Rationale:

- Most of the governments in the jurisdictions analysed are investing heavily in R&D to reduce agricultural emissions. Some technologies have already been approved in some countries for use, such as Bovaer.
- New Zealand should continue to invest in R&D to reduce agricultural emissions and look to adjust to its legislation to enable fast but robust approval of these technologies.

Recommendation: Amend New Zealand's NDC to take a split-gas approach

Rationale:

- New Zealand is the only country that has split-gas domestic targets and an all gas aggregated Nationally Determined Contribution target.
- New Zealand demonstrated leadership in setting split-gas domestic targets, reflecting the science that methane is a short-lived gas and does not need to be reduced to net zero, while carbon does.
- New Zealand is also unique in that its NDC is significantly more ambitious than its domestic targets and it will need to rely on international credits to meet its international commitments.
- The current situation creates confusion as to what reductions New Zealand is actually trying to achieve from an emissions reduction perspective from each gas and creates uncertainty for farmers about what future policy objectives will be.
- It makes sense for New Zealand to have a split-gas domestic target as it recognises the different warming impact of short-lived gases.
- New Zealand should strongly consider adopting Uruguay's approach of a split-gas NDC and align our split-gas NDC target for methane with our domestic methane target, as part of the setting of a new NDC in 2025.

Recommendation: Place limits on forestry offsets for carbon emitters

Rationale:

- New Zealand's reliance on forestry for offsets to meet our climate commitments is unique and significantly out of step with the rest of the world.
- It is vital that New Zealand move quickly to place some restrictions on carbon emitters' ability to access forestry offsets and on the wholescale conversion of productive farmland into forestry.

Recommendation: Develop policies that preserve and rebuild soil carbon

Rationale:

- Other countries tend to encourage (or pay for) practices that are beneficial for soil carbon – practices that are relatively common in New Zealand.
- The report highlights examples where government funding is available for soil carbon monitoring, reporting and verification. Changes to soil carbon levels are then able to generate carbon credits, in the same manner as forestry in the NZ ETS.
- The report also highlights examples where activities that are scientifically known to be beneficial for soil carbon levels are incentivised with policies that seek to maximise benefits.
- We request that the Government accelerate efforts to explore the suitability of such policies designed to improve soil health and increase soil carbon levels in New Zealand.

Summary table of policy comparisons and implications

Policy aspect	Most of the world	New Zealand	Implications ("So what?")
Reducing food production	Emphasis on maintaining food security and production levels.	Less clear emphasis on food production preservation - expected livestock reductions to meet GHG targets.	Prioritising food production in NZ climate policy is crucial to avoid competitive disadvantages.
Pricing agricultural emissions	No countries include ag emissions in their ETS. Denmark considering standalone pricing, offset by subsidies to minimise impact on farmers.	No ETS inclusion but possible standalone pricing, potentially raising production costs and impacting export competitiveness.	Emissions pricing could place NZ farmers at a global disadvantage. Using alternatives to pricing to achieve emissions reductions aligns with international norms.
Incentives and rewards	Heavy reliance on subsidies, tax incentives, and credits for sustainable practices (eg no-till cropping, soil carbon, rotational grazing).	Limited incentives - narrow focus on exotic monoculture afforestation for carbon credits, limited recognition of broader co-benefits.	Expanding incentives to include diverse environmental benefits (eg biodiversity) and wider vegetation coverage can enhance NZ's approach and farmer support.
Emissions targets	Mix of bundled GHG targets and split-gas targets. Uruguay uses split targets for carbon dioxide methane, and nitrous oxide.	Split-gas approach domestically but all-GHG approach in NDC. Unclear focus for farmers.	Taking a split-gas approach to NZ's NDC can provide clarity and consistency and still meet best international practice.
Research and development (R&D)	Governments invest heavily in emissions-reduction R&D, often without requiring industry co-funding.	Relies more on public-private partnerships - slower technology adoption and fewer approved mitigation technologies.	Increased government investment in R&D, especially independent of industry funding, could accelerate NZ's innovation in emissions-reduction technologies.
Forestry offsets	Strict limits on forestry offsets for fossil fuel emitters, broader support for diverse vegetation in farms for environmental benefits.	NZ's ETS allows extensive forestry offsets, favours large monoculture plantations with limited environmental incentives.	Consider placing limits on forestry offsets for carbon emitters, incentivize diverse native vegetation for broader benefits (eg biodiversity, water quality).
Soil carbon and soil health	Practices like no-till cropping and rotational grazing incentivised for soil carbon.	Limited focus - common practices but not incentivised.	Recognising and rewarding soil-enhancing practices can align with international standards and support soil health and emissions goals.