

# Action on Agricultural Emissions: Discussion Document from the Ministry for the Environment

Submission by Catherine Leining, 13 August 2019

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## Submitter type

Independent non-profit research organisation

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## Questions

### 1. What is the best way to incentivise farmers to reduce on-farm emissions?

The IPCC identified three main approaches to reduce agricultural emissions: mandatory farm environment plans, emission limits, or emission pricing. I agree with the IPCC that pricing of biogenic agricultural emissions (methane and nitrous oxide) should be the central element of the government's policy approach. Emission pricing provides the flexibility for farmers to pursue least-cost approaches to mitigation and better enables alignment of sectoral ambition and action with broader mitigation targets.

However, emission pricing will not be sufficient by itself to drive transformation. It should be part of an integrated policy portfolio. Motu's research has identified barriers to adoption of no-cost options for improving agricultural productivity and reducing biogenic emissions. Farmers who are not responding to profitable mitigation opportunities now may not respond to future emission pricing. Therefore, additional policies will be needed to overcome non-price barriers to mitigation and optimise the effectiveness of emission pricing. Key among these will be information sharing and training and extension programmes. Farm environment plans would be a very effective complementary tool for helping farmers identify and evaluate mitigation opportunities within the broader context of their operations. In addition to supporting ongoing research and development, the government may also need to provide technical, administrative,

and regulatory support to facilitate the commercialisation and uptake of new mitigation technologies and practices by farmers and facilitate market development for new products.

Changing market drivers will also be a powerful incentive for on-farm change. Educating consumers (both domestic and international) about the emission and broader environmental impacts of their dietary choices will help to build market demand for lower-emission options and incentivise farmers to change. Government policy may have a role to play in facilitating market transformation (e.g. through low-emission certification and labelling initiatives).

## **2. Do the pros of pricing emissions at farm level outweigh the cons, compared with processor level, for (a) livestock and (b) fertiliser? Why or why not?**

For livestock emissions in the long term, the pros of farm-level pricing will outweigh the cons. On-farm pricing will create more direct and clear incentives for farmers to implement mitigation technologies and practices whose emission benefits are not solely a factor of changes in production levels. On-farm pricing will require development of effective administrative systems and upskilling of farmers to monitor and report their emissions. The government should identify and implement strategies to minimise administrative costs for both regulators and farmers. For a comparable incentive to be accomplished through processor-level pricing, some additional processor- or government-led mechanism would be needed to translate a processor-level price into a farm-level incentive, and this would add its own complexities, monitoring and reporting challenges, and costs.

For livestock emissions in the near term, the pros of processor-level pricing will outweigh the cons. Neither the sector nor the government is prepared to implement farm-level pricing in the near term. It is worth capturing the benefits of processor-level pricing – which are still considerable if imperfect – while capacity building is underway.

For fertiliser emissions, the cons of farm-level pricing outweigh the pros in both the near term and longer term. As noted by the IPCC, the emissions from fertiliser application are currently assessed on the basis of the quantity applied, rather than the method of application. This means that the same price incentive will be achieved regardless of whether the obligation is at the processor or farmer level, and the processor option will reduce administrative responsibilities and costs. I agree with the IPCC that farm-level pricing or other forms of on-farm incentives to mitigate fertiliser emissions could be considered again in the future if advances in scientific understanding, mitigation technologies, and emission measurement, reporting, and verification methodologies enable farmers to be credited for emission benefits from changes in fertiliser application practice unrelated to changes in levels of use.

## **3. What are the key building blocks for a workable and effective scheme that prices emissions at farm level?**

The key building blocks are:

1. *Policy certainty backed by cross-party support.* This is essential for long-term planning and transformational investment by farmers and finance providers.
2. *Legislative mandate.* The Climate Change Response Act needs to provide a sound policy and institutional framework for implementation.
3. *Effective emission factors.* The emission factors used for pricing should reflect New Zealand conditions rather than international defaults and be adaptable to changes in technology and practice over time. The emission factors should be technically defensible both domestically and internationally, and to the extent possible should be consistent with those used in the National Greenhouse Gas Inventory and to calculate New

Zealand's Nationally Determined Contribution. Ongoing research and development will be essential for continual improvement of emission factors.

4. *A clear rationale and methodology for setting the emission price for biogenic emissions.* This could consist of adjusting the NZ ETS emission price through the use of metrics and free allocation, or setting a separate emission price for agricultural emissions priced outside of the NZ ETS.
5. *A clear rationale and methodology for free allocation.* The rationale for free allocation in the agriculture sector needs to be clearly defined so the amount of free allocation can be phased out predictably and systematically over time as national and international conditions change. The methodology for free allocation (including the determination of allocation factors) needs to provide clear and predictable incentives to mitigate through changes in on-farm output, on-farm practice, and land use.
6. *Clarity, commitment, and accountability regarding the government's use of emission pricing revenue over time.* The discussion paper suggests the revenue will be returned to the sector to support emission pricing preparation and emission reduction activities. Over time, this potentially could be changed to include adaptation, or be pooled with other NZ ETS revenue and redistributed in accordance with broader revenue recycling policy.
7. *Government administrative systems that minimise complexity and cost.*
8. *User-friendly tools for on-farm emission calculation, reporting, and verification, and comparison with peers.*
9. *User-friendly tools for integrated decision making on management of GHG emissions, other environmental impacts (e.g. water quality, fossil fuels, soil conservation), and other regulatory requirements.*
10. *Training and farm extension initiatives to upskill the sector on emission pricing compliance and mitigation opportunities.* It would help if farm extension services could provide reliable and independent expert advice on opportunities and costs for mitigation of agricultural emissions.
11. *Transparent processes for ongoing consultation with Māori/iwi on emissions pricing policy and its impacts, consistent with the principles of Te Tiriti o Waitangi.*

#### **4. What should the Government be taking into consideration when choosing between Option 1: pricing emissions at the processor level through the NZ ETS and Option 2: a formal sector-government agreement?**

As discussed further below, I see clear benefits to proceeding with both options rather than assuming they are mutually exclusive. Setting that aside, the key considerations for choosing an interim policy for the period through 2024 include:

1. Administrative feasibility
2. Introduction of a price incentive for GHG mitigation through changes in land use, production levels, on-farm practices, and consumer behaviour
3. Provision of a smooth transition into emission pricing which avoids counterproductive disruption
4. Potential to generate revenue which can be returned to the sector to assist with the emission pricing transition and manage inequitable distributional effects
5. Reinforcement of policy commitment
6. Alignment with achieving additional environmental objectives, such as improved management of water quality and quantity, soil conservation, biodiversity conservation, reduced fossil fuel use, and adaptation to the effects of climate change.

5. **As an interim measure, which would be best: Option 1: pricing emissions at the processor level through the NZ ETS with recycling of funds raised back to the sector to incentivise emissions reduction or Option 2: a formal sector-government agreement? Why?**

As an interim measure, Option 1 is preferable to Option 2 when evaluated against the considerations identified in response to the prior question.

1. Option 1 is administratively feasible to implement, since processors are already reporting their emissions under the NZ ETS and the administrative infrastructure is well established. Under Option 2, it is not clear which organisation(s) would be accountable for implementation, how funding and implementation activities would be coordinated across sub-sectors, and what consequences would apply if the sector failed to deliver, as a whole or in part.
2. Under Option 1, a processor-level emission price would immediately help incentivise economically efficient changes in land use and production levels. Although a processor-level obligation would not directly incentivise changes in on-farm practice, the emission pricing revenue could be directed to support on-farm initiatives that encourage and reward mitigation action. Option 2 does not send any immediate price signals to incentivise change.
3. With a free allocation level of 95%, Option 1 would provide a low-level introduction to emission pricing, supporting a gradual transition for the sector. Option 2 would provide an even more gradual transition, but the absence of near-term price or regulatory incentives could delay the adoption of feasible mitigation options and make innovators less competitive.
4. Option 1 would generate clearly defined revenue which could be returned to the sector through transparent processes and used for defined purposes. The redirection of recycled revenue could involve collaboration between government and the sector to promote trust, transparency and effectiveness. Option 2 does not provide certainty about the level or sources of funding that would be used to support transitional activities, and this could delay or limit its effectiveness.
5. Option 1 helps to cement government policy commitment to emission pricing, which is essential to stimulate low-emission investment. This would be further supported by cross-party agreement to the policy. Option 2 would not be legislated and this would make it easier for a future government to reverse the policy decision.
6. Option 1 would provide a stronger near-term incentive for lower-emission land uses and lower levels of livestock production and fertiliser use. This could be expected to produce benefits for water quality and quantity, and reduce energy consumption associated with livestock production and food processing. Increased forestry could help prevent soil erosion. Option 2 explicitly addresses adaptation to climate change, which is an important consideration missing from Option 1.

Option 2 proposed by agriculture leaders has some very valuable suggestions for ways to prepare the sector for a smooth introduction of emission pricing, joint management of emissions and removals, and joint consideration of mitigation and adaptation. I consider that Option 1 and Option 2 are compatible and mutually reinforcing, not mutually exclusive. Emission pricing revenue generated under Option 1 could be used to fund the activities in Option 2 through collaborative arrangements between the government and the sector. A hybrid option is worth exploring further.

**6. What additional steps should we be taking to protect relevant iwi/Māori interests, in line with the Treaty of Waitangi?**

No comment.

**7. What barriers or opportunities are there across the broader agriculture sector for reducing agricultural emissions? What could the Government investigate further?**

Recent reports by the Productivity Commission and the Biological Emissions Reference Group have detailed the extensive opportunities for mitigation across the agriculture sector. A clear message from these reports is that farmers do not have to wait for future technologies in order to start reducing biogenic emissions now. There is a broad distribution of production efficiency across each subsector, and shifting the distribution curve toward the high-efficiency end could produce substantial emission reductions by 2030 using options that are technically and economically feasible on the whole (although profitability may vary across different operations).

Additional opportunities for mitigation of emissions from agricultural activities include:

- Promoting innovation in horticulture through pilot programmes and research and development
- Incentivising on-farm planting of trees and other vegetation, including native species, which are currently excluded under the NZ ETS
- Reducing food waste at all stages of the supply chain
- Investigating joint mitigation opportunities across biogenic and energy emissions from agricultural production
- Facilitating market development to reward lower-emission meat and dairy and new lower-emission plant-based or synthetic food products
- Educating consumers to change behaviour around dietary choices.

As noted under Question 1, Motu staff (in collaboration with other experts) have researched no-cost barriers to mitigation in the agriculture sector. Some key categories of barriers include:

- Farmer perceptions of costs and benefits
- Imperfect availability of information
- Market structures and institutions
- Regulations and policies
- Risks and uncertainties
- Externalities, including principal-agent or split-incentive problems
- Behavioural factors.

The researchers found that the key barriers varied by type of system and mitigation option. The government should encourage further research and sector engagement to understand and address these barriers. Improved training and extension services would help to address many of these barriers. More information on the efficiency distribution of dairy production and no-cost barriers to agricultural mitigation is available from:

- Anastasiadis, Simon, and Suzi Kerr. 2013. 'Mitigation and Heterogeneity in Management Practices on New Zealand Dairy Farms'. Motu Working Paper 13-11. Wellington: Motu Economic and Public Policy Research. <https://motu.nz/our-work/environment-and-resources/agricultural-economics/agricultural-greenhouse-gas-emissions/mitigation-and-heterogeneity-in-management-practices-on-new-zealand-dairy-farms/>

- Cortes-Acosta, Sandra, David Fleming, Loic Henry, Edmund Lou, Sally Owen, and Bruce Small. 2019. 'Identifying Barriers to Adoption of "No-Cost" Greenhouse Gas Mitigation Practices in Pastoral Systems'. Motu Working Paper 19-10. Wellington: Motu Economic and Public Policy Research. <https://motu.nz/our-work/environment-and-resources/agricultural-economics/no-cost-barriers/identifying-barriers-to-adoption-of-no-cost-greenhouse-gas-mitigation-practices-in-pastoral-systems/>.
- Fleming, David, Pike Brown, Sandra Cortés-Acosta, Cecile de Klein, Robyn Dynes, Loic Henry, Suzi Kerr, Jorie Knook and Bruce Small. 2019. 'Synthesis Report: Barriers to Adoption of No-Cost Agricultural Mitigation Practices.' Motu Note 36. Motu Economic and Public Policy Research. <https://motu.nz/our-work/environment-and-resources/agricultural-economics/no-cost-barriers/barriers-to-adoption-of-no-cost-agricultural-mitigation-practices/>.
- Jaffe, Adam. 2017. 'Barriers to Adoption of No-Cost Options for Mitigation of Agricultural Emissions: A Typology.' Motu Note 24. Wellington: Motu Economic and Public Policy Research. <https://motu.nz/our-work/environment-and-resources/agricultural-economics/no-cost-barriers/barriers-to-adoption-of-no-cost-options-for-mitigation-of-agricultural-emissions-a-typology/>.

## **8. What impacts do you foresee as a result of the Government's proposals in the short and the long term?**

Under the government's proposals, providing clear policy commitment to emission pricing in the agriculture sector, and to greater exposure to rising emission prices over time, will send important signals for land-use and on-farm investment decisions that otherwise could continue to lock New Zealand into high-emission agricultural production in coming decades. This will have long-term mitigation benefits and help to avoid stranded assets.

In the near term, the level of exposure to an emission price appears too low to drive significant mitigation of agricultural emissions, but the government's proposal would put the framework in place for this to happen in the future. Providing for a gradual transition could help to build sector confidence and preparedness and secure political support for enduring policy, and this could produce valuable mitigation benefits in the longer term that outweigh the short-term shortfalls in mitigation.

For New Zealand's agriculture sector to continue to thrive under global carbon constraints, it needs to reduce both its emissions intensity and absolute emissions while remaining productive and competitive. Delaying this transition by another decade would leave us exposed to more abrupt and painful adjustment in the future, and exacerbate the relative emission reduction burden shifted to other sectors and taxpayers under New Zealand's Nationally Determined Contribution. If we demonstrate how to make this transition well, our leadership could have a ripple effect on mitigating global agricultural emissions.

The cost impacts of farm-level emission pricing should be evaluated in the context of broader market drivers (e.g. commodity prices, exchange rates, climatic variability) and the value of environmental and economic co-benefits.

The potential administrative cost of on-farm pricing for livestock emissions is substantial. The government should seek to minimise this cost, and to align GHG measurement and reporting with other monitoring and reporting requirements where possible. If GHG emission measurement and reporting can help farmers identify profitable opportunities to mitigate emissions and capture a market premium, and produce other environmental and economic co-benefits, then perhaps there will be some additional return on the investment in administration.

It is premature to comment further on the impacts of the government's proposals on rural communities and Māori until more detail is provided about the methodology for free allocation and the use of revenue recycling. Both of these will affect the distribution of costs and benefits.

**9. Do you have any other comments on the Government's proposals for addressing agricultural emissions?**

The *IPCC Special Report on Climate Change and Land* drives home the vulnerability of the agriculture sector and food security to climate change and the need to reduce agricultural emissions. This reinforces the value and urgency of placing a price on agricultural emissions to incentivise mitigation.

## Additional questions on free allocation of emissions units

**A. Do you agree that the method for free allocation of emissions units at processor level should be output-based? Why or why not?**

Under a processor-level obligation, an output-based approach is preferable to a proportional approach because the former creates more opportunities to incentivise improvements in emissions intensity.

**B. Do you agree that free allocation of emissions units should be provided at the same time emissions obligations are due? Why or why not?**

Yes, I agree that free allocation for agricultural emissions should be provided at the same time emissions obligations are due. The relatively high volume of agricultural free allocation entering and exiting the market could contribute to price volatility. This is a different context from industrial free allocation. Processors (or farmers) can bank any surplus units for future compliance or trading.

**C. Do you agree with the ICCC that allocation factors should be updated in line with business-as-usual improvements in emissions intensity? Why or why not?**

Yes, I agree with the ICCC that allocation factors should be updated in line with business-as-usual improvements in emissions intensity. This will preserve the intended incentive to mitigate. The process for setting and updating allocation factors should be transparent and predictable. It should not provide a perverse incentive for farmers to delay mitigation and manipulate allocation factors.

Both allocation factors and emission factors should be updated relative to those contained in the 2010 regulations, and discrepancies with national inventory accounting should be evaluated and addressed where possible.

**D. Do you agree the process for making decisions on any phase down of free allocation of emissions units should be set in legislation and informed by the Climate Change Commission? Why or why not?**

Yes, I strongly agree that the process for making decisions on any phase down of free allocation should be set in legislation and informed by the Climate Change Commission. This will provide important policy certainty for the agriculture sector and other sectors which encourages efficient investment. As suggested above, the rationale(s) for free allocation in the agriculture sector should be clearly defined in government policy, and this will facilitate decisions on future

phase down as national and international conditions change. The range of rationales for free allocation could include the following (individually or in combination):

- Leakage
- Competiveness (including employment and regrets)
- Stranded assets
- Smooth transition
- Protecting vulnerable communities.