Emissions Trading Scheme – Agriculture Sector

Regulatory Impact Statement

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Ministry of Agriculture and Forestry
Te Manatū Ahuwhenua, Ngāherehere

Contents

Page

Agency Disclosure Statement

This Regulatory Impact Statement has been prepared by the Ministry of Agriculture and Forestry (MAF). Its purpose is to support a Cabinet paper seeking agreement to decisions that will form the basis for the proposed Regulations.

It provides an analysis of options for exemptions from being a participant in the New Zealand Emissions Trading Scheme (NZ ETS), and options for methodologies for calculating emissions.

Under the Climate Change Response Act, agricultural processors are made responsible for greenhouse gas emissions that occur on farms. Regulations are required to specify how processors must calculate the emissions they are responsible for, and the information they must collect and provide. This involves identifying the level of emissions to be assigned to each agricultural output (or input in the case of nitrogen fertilisers). Emission factors represent the average emissions per unit of output for the purposes of NZ ETS compliance. In designing these regulations, there is a need to balance accuracy and comprehensiveness with practicality, the risks of unintended effects, and a recognition of the limits of our knowledge. The science on agricultural emissions is constantly evolving, but has tended to focus on the greatest sources, being ruminant animals and synthetic fertilisers containing nitrogen. Activity definitions in the Climate Change Response Act (such as which meat processors are "participants" in the Emissions Trading Scheme) are taken as fixed for the purposes of the proposed regulations. The accuracy of methodologies to calculate emissions is limited by the information available to participants. For example, meat processors do not know the exact date when a lamb was born.

The science underlying the proposed ETS methodologies is the same as that used in calculating New Zealand's Greenhouse Gas Inventory (the Inventory). However, an obligation placed on an animal at the end of its life needs to be calculated in relation to its lifetime emissions in order to send the intended price signal to producers. In contrast, the Inventory must report emissions that occur in a given year, based on the living population of stock during that year, and there is a two-year lag before the Inventory emissions are finalised. This difference in approach limits the extent to which the proposed methodologies can align with the Inventory. However, our analysis suggests that total agricultural emissions counted under the scheme will be within a 95 percent confidence interval of the Inventory total for the same year.

The legislation requires any methodology to avoid double-counting of emissions. Another consideration in designing the methodologies is that the choice of where to assign emissions (and liabilities) has potential to lead to unwanted behaviour, such as on-farm slaughter of low-value products (such as bobby calves).

Participants will take on a liability corresponding to the level of their greenhouse gas emissions, as intended under the primary legislation. The additional compliance costs as a direct result of the regulations will be minimal, because they already hold the required information on product quantities. These costs will include the time spent on one-off registration, annual collation of the required product data, calculation of emissions and liabilities, and filing of emissions returns. The regulations will not significantly impair property rights or market competition, or override fundamental common law principles. The proposed exemptions will relieve a number of businesses from the costs of participating in the ETS. Before recommending an exemption, the Minister for Climate Change Issues

must, under section 60 of the Climate Change Response Act, be satisfied that the order will not materially undermine the environmental integrity of the scheme, and that the costs of making the order do not exceed the benefits. The Minister must also have regard to five other matters (these are listed in the Regulatory Impact Statement).

Officials did not see it as the intention of the Climate Response Act to provide for exemptions for an entire activity as defined in Schedule 3 of the Climate Change Response Act. Rather, the question related to sub-sets of the defined activities, such as a minor ruminant species or persons processing a small number of a species.

Exemptions from regulatory responsibilities carry a risk of favouring an exempted activity or person and thereby impairing the normal operation of the market. Avoiding any undue risk of this kind has been a key consideration in determining whether the costs of each proposed exemption outweighs the benefits.

We do not consider that the proposed regulations will override fundamental common law principles.

Mike Jebson
Director Natural Resources Policy Date

Status quo and problem definition

The Climate Change Response Act 2002 (CCRA) establishes the framework for the agriculture sector's participation in the New Zealand Emissions Trading Scheme (NZ ETS), including the point of obligation, and assistance to the sector in the form of free allocations of emission units (from 2015). From that perspective, the impact of the NZ ETS on the agriculture sector is already established in law. The Act requires that:

1. A person undertaking any of the following five activities associated with agricultural methane and nitrous oxide emissions is a "participant" in the Emissions Trading Scheme:
   - Importing and manufacturing synthetic nitrogen fertilisers. These participants must report on their emissions and surrender units for N_2O emissions attributable to the quantity of nitrogen fertilisers imported or manufactured. Participants need not surrender units for fertiliser used for non-fertiliser purposes;
   - Slaughtering ruminant animals, pigs and poultry. Participants must hold a Risk Management Programme (RMP) under the Animal Products Act 1999 and must not be a retail butcher. The RMP sets a de facto threshold that excludes home-kill;
   - Dairy processing of milk or colostrum;
   - Exporting live cattle, sheep and pigs in accordance with an animal welfare export certificate;
   - Producing eggs while holding an RMP (which sets a de facto threshold).

2. Participants must monitor and report their emissions annually from 2012, may do so from 2011, and must surrender units to cover their reported emissions from 2015.
3. Participants will receive an allocation of units on an intensity basis. Average emissions per unit of output in a year or years to be defined will determine a "baseline" intensity level. The 2015 allocation will cover 90 percent of the emissions implied by the baseline intensity level and the reporting year's level of output. This percentage will reduce by 1.3 percent per annum (for example, by 90% × 1.3% in 2016).

Cabinet made a number of decisions on the proposed regulations in April 2010. However, since these have been subject to further consideration as a result of the consultation process, the issues raised are considered in this RIS.

The proposed regulations to which this RIS applies address two policy problems:

EXEMPTIONS FROM PARTICIPATION

The CCRA captures every person who carries out the activities listed above and every production species in New Zealand. Some of these emissions sources may be very small and the cost of including them in the scheme may outweigh the benefits. Regulations developed under section 60 of the CCRA seek to resolve this problem by specifying any exemptions from being a participant.

METHODOLOGIES AND INFORMATION REQUIREMENTS

The CCRA does not specify the methodologies for how participants must calculate their emissions, or the information that participants must collect and report. In the absence of government provision of methodologies and exemptions, there may be market failure where the agriculture sector could develop its own methodologies which may not be robust. It is therefore incumbent on the Government to provide these methodologies so that participants can meet their obligations. This work develops regulations under Section 163 of the CCRA.

Objectives

EXEMPTIONS FROM PARTICIPATION

The Minister must have regard to the following when making an exemption or setting a threshold:

a) the need to maintain the environmental integrity of the scheme;
b) the desirability of minimising any compliance and administrative costs;
c) the relative costs of giving the exemption or not giving it;
d) any alternatives that are available for achieving the objectives of the Minister in respect of giving the exemption; and
e) any other matters the Minister considers relevant.

METHODOLOGIES AND INFORMATION REQUIREMENTS

The proposed regulations seek to:

- align, as closely as practicable, the principles and methodologies used to calculate the Inventory with the methodologies that participants will use to calculate their emissions under the NZ ETS;
- reflect the biological nature of agricultural systems;
- minimise transaction and compliance costs to participants in terms of the information that must be collected and reported;
- provide the best price signal (with reference to minimising compliance and transaction costs) including, if possible, incentives for improved emissions efficiency;
- avoid creating perverse incentives;
- avoid double counting emissions and reflect the integrated nature of modern farming systems (i.e. movement of animals from the dairy herd to the beef herd);
- provide participants with certainty so that the methodologies are known ahead of time;
- facilitate verification of emissions.

The methodologies must be in effect by 1 January 2011 to facilitate voluntary reporting of agricultural emissions. Under the Climate Change Response Act, the required Order in Council will not come into effect until three months after it has been reported in the Gazette, so it needs to receive the royal assent by the end of September 2010.

Regulatory impact analysis

EXEMPTIONS FROM PARTICIPATION

Participants will take on a liability corresponding to the level of their greenhouse gas emissions, as intended under the primary legislation. The additional compliance costs as a direct result of the regulations will be minimal, because they already hold the required information on product quantities. These costs will include the time spent on one-off registration, annual collation of the required product data, calculation of emissions and liabilities, and filing of emissions returns. However, when a participant's emissions are very low, even these costs of participation may exceed the benefits of inclusion.

Within the scope of each of the defined activities, the key options were whether or not to exempt a particular variation of the activity (such as the slaughter of a particular species), and the level of possible "threshold" exemptions to exclude small producers. Exemptions for an entire activity (such as importing or manufacturing synthetic fertilisers containing nitrogen) were considered to be outside the scope of the regulatory exemptions contemplated under the Act.

The CCRA establishes de facto thresholds for meat and egg processors by limiting participants of both types to those with a Risk Management Programme (RMP) under the Animal Products Act 1999, and by excluding retail butchers. An RMP is not required if the product is not intended for human consumption, and egg producers do not generally need an RMP if they have fewer than 100 layer hens.

The proposed thresholds and exemptions applying to the five participant categories are described below. A table summarising the fiscal costs of the recommended exemptions follows.

1. NITROGEN FERTILISERS

Most imported fertiliser is imported in bulk for re-sale to farmers, since importing small amounts for on-farm use is not generally economic. However, there are occasional imports of sample bags, the emissions from which are well below material levels. Therefore, officials considered threshold exemptions for this activity. A threshold set in terms of a quantity of fertiliser rather than its nitrogen content or greenhouse gas effect was chosen to minimise the cost of applying the threshold.

The options considered were thresholds of either one tonne or 50 tonnes per year.

Option 1 (preferred option)

A threshold of one tonne would exceed the annual imports of sample bags by any person in the last ten years. It is likely to be uneconomic to import amounts of less than one tonne for ordinary use. The value of the exempted emissions would be about $150 per annum. The cost of collecting information on the quantity of imported fertiliser is low, since it is already collected by the Customs Service. This supports the case for a relatively low threshold.

Option 2

A threshold of 50 tonnes would not exempt the bulk fertiliser imports of existing importers, based on the years officials considered. However, this threshold could make it viable for a farmer or group of farmers to import less than 50 tonnes in one year, for their own use, when liabilities are incurred for larger amounts from 2015. As a result, this option could distort economic behaviour and undermine the environmental integrity of the scheme, particularly when liabilities commence in 2015.

No exemption was considered for nitrogen fertiliser manufacturers, since the large fixed costs of manufacturing this type of fertiliser would not be incurred unless a material level of production was intended.

2. MEAT PROCESSING

Officials developed four questions for the development of exemptions at the species level that give effect to criteria within the primary legislation:

- Does New Zealand account for the species under the Kyoto Protocol?
- Is there competition or substitution with/between the products of other species (e.g. as can occur between pork and poultry in the retail meat market)?
- Is it practical to include the species in the NZ ETS?
- Are the emissions from this species material (guideline: over 5,000 t CO2-e per annum)?

Exemptions were not considered for the major species, which are slaughtered in large numbers by a relatively small number of processors. Retail butchers are already excluded from the scheme under the Act.

Ostriches, emus, and ruminants other than sheep, cattle and deer

The option of exempting ostriches, emus, and ruminants other than sheep, cattle or deer is preferred over the option of including these species in the scheme. The small size of these industries, practical problems in implementation, and the lack of significant competition between these sectors and those included in the NZ ETS made it unlikely that the benefits of including them would outweigh the compliance and administration costs for the time-being. Of the emissions from these species, only those from llamas and alpacas will be reported in the Inventory from 2010 onwards. There is a very small degree of substitution between alpaca fibre and sheep wool, and between buffalo and other animals' cheeses. However, officials do not consider the potential economic impacts significant. A practical alternative to exemption was not evident.

Horses

Cabinet previously determined that horses should be exempt from being participants in the scheme, on the basis of inadequate information on the numbers of horses, the variety of roles that horses play in the economy (with no single centralised body), and the low level of competition between horse meat and the meat of other animals.

Each year, about 2500 horses are slaughtered by a meat processor from a total horse population of about 60-80 000. However, it is unclear what proportion of horses is slaughtered in this way over time (the age profile of slaughtered horses is unknown).

Submitters argued that horses should be included in the NZ ETS on the basis of equity with other species and to support the environmental integrity of the NZ ETS. The compliance costs of inclusion are low, since processors would already be participants with respect to other species. However, there have been no direct discussions of this issue with representatives of the equine sector.

On balance, officials prefer the option of exemption for horses for the time-being. Further research, consultation with affected parties, and consideration of the activity definition for horses is required. This may lead officials to recommend including horses in the scheme by 2015.

3. DAIRY PROCESSING

There are some very small dairy processors for whom reported emissions would not be material, so that the costs of including them in the scheme would exceed the benefits. Many of these are "farm dairies", already excluded under the Act, but officials believe there may be a number of other small producers who should be exempt.

An exemption for dairy participants who are not required to operate a Risk Management Programme (RMP) under the Animal Products Act 1999 will capture nearly all milk production and avoid including some very small processors. Applying this exemption is straightforward, and a practical alternative was not evident on the basis of current data. However, officials recommend further research into this matter before participants face surrender obligations in 2015.

4. LIVE EXPORTS

The CCRA includes the export of live cattle, sheep or pigs as an activity subject to obligations under the Emissions Trading Scheme. The Customs Service will make exporters aware of their obligations and its records will provide a way of verifying exporters' returns. Matching shipments to participants will be straightforward given the small number of significant exporters (fewer than ten in the last ten years).

A threshold was needed to exclude a small number of people who occasionally ship a few animals overseas for a show and generally return the animals to New Zealand. A threshold set in terms of the number of animals was preferred, to minimise the cost of applying it. Three options were considered.

Option 1 (preferred option)

A minimum threshold of 20 animals (of any species) per participant per annum would capture virtually all exports of live animals, which are generally only profitable when large numbers of animals are involved. The emissions from 20 animals would vary from a minimum of about six t CO2-e for a young pig to about 160 t CO2-e for cattle. Since the observed exports of live animals have either been in single figures or in the thousands, this is not expected to have unwanted equity or efficiency effects.

The use of Customs Service data that is already collected would help to ensure that the compliance and administration costs of including exporters of relatively low numbers of animals are justified by the benefits.

Option 2

This option was for a minimum threshold of 725 cattle, 4700 sheep or 2560 pigs exported, equating to around 1500 t CO2-e for each species. Based on 2008 live animal exports data

this threshold would have resulted in the emissions of six participants being included, covering 99.99 percent of emissions from this activity. However, this option was rejected by submitters on the basis that farmers will (indirectly) face emissions charges when they send smaller numbers of animals to slaughter. In addition, there appeared to be a risk that exports of smaller numbers of animals would become economic as a result of liabilities commencing in 2015.

Option 3

A higher threshold than that described under Option 2 was considered at an early stage. It would have excluded most exporters and undermined the environmental integrity of the scheme.

Alternatives to the basis for the exemption were also considered, for example, a shipment-based rather than participant-based threshold. However, a shipment-based threshold could incentivise participants to undertake multiple small shipments and would not achieve significant cost savings.

5. EGG PRODUCTION

The Poultry Industry Association of New Zealand suggested during consultation that the point of obligation for egg production should be changed to the two hatcheries that supply nearly all hens to the industry, instead of the 114 egg producers with a Risk Management Programme. This proposal merits further consideration but would require a change to the activity definition in the Act. Such changes can not be considered and implemented before 1 January 2011 when the regulations must be in place.

Option 1 (preferred option)

Given this possible change to the activity definition, a threshold of 2,290 hens (which corresponds to 16 tonnes of CO2-e at current levels of emissions) is proposed for 2012 and 2013, reducing to 860 hens (equivalent to six tonnes of CO2-e) from 2014. This will ensure that compliance and administration costs are not incurred for the 38 smallest producers until it is clear they will be participants in the scheme when liabilities commence in 2015.

A 2290 hen threshold does not undermine the integrity of the NZ ETS, given the low level of the excluded emissions (about 1.2 percent of the emissions from egg producers with a Risk Management Programme). It does not raise equity concerns given the low level of the emissions liability relative to the value of the eggs produced (about 0.2 cents per dozen eggs in 2015, after a 90 percent free allocation, if the NZU price is $50 per t CO2-e). This threshold has no fiscal cost since it applies during the reporting phase only.

If egg producers remain the point of obligation, the lower threshold from 2014 will ensure they are not included in the NZ ETS unless they have a net liability of at least one tonne CO2-e in 2015 after the 90 percent allocation. This threshold will have a fiscal cost of $150 in 2015 and will exclude 19 egg producers.

Option 2

An alternative higher threshold equating to 60 t CO2-e of emissions was considered. This would have eliminated the administration and compliance costs of a further 24 egg producers, but it would have excluded over 700 t CO2-e of emissions annually. This higher threshold risked raising equity, efficiency and environmental integrity concerns, by advantaging smaller producers who would not need to comply with the scheme. This is because a high proportion

of producers are just above or just below the possible thresholds – a fact that distinguishes egg producers from, for example, fertiliser importers and live animal exporters.

FISCAL COSTS OF EXEMPTIONS

The table below presents details the costs of meat- and dairy-related exemptions and thresholds, estimated on the basis of a carbon price of $50 per t CO2-e and recent levels of production and emissions.

Fiscal costs of exemptions before and after allocation at $50 tonne CO2-e

Species exemption	Annual cost to the Crown of exempted emissions	Annual cost to the Crown in 2015, after 90% free allocation
Horses*	$610 000	$61 000
Llama/Alpaca	$100 000	$10 000
Ostriches/Emus and Other Ruminants (bison, giraffes, buffalo etc)	Not accounted for under Kyoto Protocol, therefore exemption has no cost to Crown	
Dairy processing where the person does not operate a Risk Management Programme	Proposed to prevent double counting of emissions. Expected to have nil cost as all processors either operate an RMP or purchase milk from a processor who operates an RMP	
Exporting fewer than 20 cattle, sheep or pigs per participant per annum	$2000	$200
Importing less than one tonne of synthetic nitrogen fertiliser per participant per annum	$1500	$150
Producing eggs by a person who operates a Risk Management Programme	$1500	$150

* Note the activity definition would not capture the majority of horses, therefore the fiscal costs of exempting them is the foregone NZUs that the Crown would receive if they were included.

METHODOLOGIES AND INFORMATION REQUIREMENTS

Regulations are required to protect the integrity of the NZ ETS and to achieve the purposes of the NZ ETS. In the absence of government provision of methodologies and exemptions, there may be market failure where the agriculture sector could develop its own methodologies which may not be robust. The development of methodologies involves assigning the emissions associated with an emissions source (such as a species of farm animal) to the outputs (or inputs in the case of nitrogen fertilisers) of that source. Emission factors represent the average emissions per unit of output for the purposes of NZ ETS compliance.

Emissions can be assigned across sector outputs in a number of ways, but the biological nature of agricultural emissions, the integrated nature of agricultural sectors, and the complexity of emission pathways, limit the practical options for calculating emissions. In all cases, emission factors were calculated to be consistent with the assumptions used in calculating the Inventory in 2010, which in turn reflect the available peer-reviewed scientific research.

6. NITROGEN FERTILISER

The proposed methodology of applying an emission factor to the nitrogen content of the fertiliser is consistent with the Inventory, and was accepted by submitters.

The options considered involved determining how best to avoid double counting fertiliser purchased for resale by a participant, or fertiliser that does not result in emissions in New Zealand because it is used for non-fertiliser purposes, including being embedded in a lasting product or is exported.

Option 1 (preferred option)

The preferred option was to incorporate a narrower definition of fertiliser into the regulation, and to alter the point where manufactured fertiliser was counted from "point of sale" to "point of manufacture". These changes result in a simpler calculation for participants without reducing reported emissions. It addresses concerns raised by submitters regarding the alternative approach.

Option 2

An alternative option was to use a formula that took account of all of these fertiliser quantities and to apply the emission factor to the remainder. This approach was set out in the draft regulation published in May 2010 but was not favoured by submitters.

7. EGG PRODUCERS

Submitters preferred measurement based on numbers of hens, but noted that this also does not differentiate between production systems.

Hen numbers are thought to provide a better indication of emissions than egg numbers. Furthermore, basing liabilities on hen numbers provides some incentive to reduce the emissions intensity of egg production by increasing egg production per hen.

Option 1 (preferred option)

The preferred option is to calculate emissions based on the average number of layer hens during the year, which is in line with the basis for calculating emissions for the Inventory. To balance accuracy and compliance costs, the average would be taken from the population on the first day of each month or each quarter of the year, rather than every day.

There is anecdotal evidence that the quality of records of hen numbers tends not to be as good as those for eggs produced, at least among some of the smaller egg producers. However, officials consider that monitoring hen numbers is not overly costly[1], and its cost may be offset by gains in the efficient management of an egg production operation.

While responsibility for the emissions from layer hens remains with egg producers, emissions from egg production should be calculated based on the average number of layer hens on site during the year. The emission factor of 0.007 t CO2-e per layer hen represents the average annual emissions from a layer hen. Any change to the activity definition for egg production may require a change to the emission factor.

[1] Officials estimate that up to about eight hours per year may be required to monitor hen numbers, although this is likely to vary widely with the size of the business. .At $50 per hour this amounts to an estimated cost of about $400 per year. Larger businesses are likely to have electronic records, but smaller operations may rely on paper-based records or a head count.

Option 2

The draft regulations proposed that those producing eggs would report and surrender units for the emissions via an emission factor per 1000 eggs. Records of egg sales would provide a straightforward method of calculating emissions.

Two submitters expressed concerns that a per egg emission factor would introduce double counting as some eggs are bought for resale, and noted that this methodology would not reward differences in stockmanship and production systems.

8. MEAT (AND MILK) PROCESSING AND LIVE ANIMAL EXPORTING

A number of decisions made in formulating the methodologies for meat processing and live animal exporting were straightforward, and did not require consideration of alternative options. These included:

- for live exporting of cattle, sheep and pigs, calculating emission factors based on the number of animals of each recorded class, since only this information is recorded at export;
- for milk processing, emissions should be calculated per tonne of milk solids for cow and goat milk, and per tonne of butterfat for sheep milk, since these are the standard product measurements at the processor level and are used in calculating emissions for the Inventory;

Two broad options were considered for assigning animal emissions to product quantities. The first involved assigning emissions to outputs and products based on the feed energy required to produce those outputs and products, and using "per head" and "per tonne" components for calculating emissions when cattle, deer, pigs, goats, poultry and sheep are slaughtered. The second option involved assigning national emissions, as reported in the Inventory, to stock of each type using a standard per head emission factor.

Option 1(preferred option)

The first option focussed on assigning to each product the emissions that occurred as a result of the decisions to produce and raise that product. Officials consider that this approach best meets the objectives of reflecting the biological nature of agricultural systems and avoiding double-counting or omitting emissions. It also appears to provide the best price signal for improved emissions efficiency.

Animal methane and nitrous oxide emissions tend to be functions of feed intake, and the various stages of an animal's life have different energy requirements. On this basis, the emissions associated with a slaughtered animal would include:

- Emissions by the slaughtered animal itself in its first two years, and up to the average age of slaughter for each category of animal other than ewes and cows (older female sheep and cattle, who would be expected to have had offspring);
- Its mother's maintenance, gestation (pregnancy) and milk production emissions for rearing, in the year she produced the slaughtered animal; and
- Emissions associated with the growth of wool, in the case of sheep.

Milk processors would be responsible for the additional emissions resulting from milk production (not including the milk required for rearing). At slaughter or live export, dairy animals would be subject to the same methodology and emission factors as animals raised

only for their meat. Animals move between the dairy and meat sectors, and could not be distinguished at slaughter.

For bobby calves, whose value at slaughter may be less than the cost of the emissions associated with them, the emissions associated with the mother's maintenance and gestation would be applied to the emission factor for milk production to avoid incentives for on-farm disposal.

The average "maintenance" emissions from ruminant animals in a category (e.g. lamb, ewe) are relatively fixed, while the emissions from growth up to the average age at slaughter in each category vary in proportion to carcass weight. As a result, using both a per head and a per kilogram of carcass weight emission factor provides a better estimate of emissions than using only one of these factors. It also encourages the production of fewer, larger animals with lower emissions per kilogram of meat.

Officials have explored submitter concerns that a "per head emission factor" would lead to the production of fatty, heavy boned animals. The size of any such incentive appears to be modest, particularly given the planned free allocation of units to the sector, and it would be exceeded by the market premium for lean meat. In regard to dairying incentives, the income from slaughtering dairy cows, while not the primary business driver, is not insignificant and exceeds the expected cost of emissions at slaughter (and so is not expected to result in perverse incentives).

In response to submitters' concerns, the proposed methodology has been amended to more clearly reflect national lambing and dry ewe percentages. This has resulted in slight changes to the proposed emission factors, and will highlight the opportunity for the sector to reduce emissions intensity over time by making further efficiency improvements in these areas.

Option 2

An alternative option was a simple industry average emission factor that would apply to all animals of a species, for example cows:

$$\text{Cow emission factor} = \frac{\text{national cow emissions (from the Inventory)}}{\text{number of cows}}$$

Milk processors would account for all emissions from dairy production. In submissions, the dairy industry saw this as better reflecting the economic drivers for dairying (production of milk, rather than meat).

This option would involve slightly lower compliance costs than option 1, because it would require a single emission calculation in all cases, rather than the sum of two emission calculations ("per head" and "per weight").

This method does not meet the policy objectives, because:

- the Inventory has a lag of two years due to the way the animal population data is collected, meaning that the ETS emission factors would need to be based on projections of the emissions reported in the inventories of previous years;
- it does not effectively link a participant's liabilities to the emissions arising from the decisions taken in producing the animal;
- it lacks the necessary sophistication to equitably account for both dairy and beef animals, and double counts some emissions of dairy cows.

Option 2 does not address the problem of distinguishing between dairy and beef cows at slaughter. Simply reducing the emission factor at slaughter for all cows to account for this would have understated emissions from beef cows and overstated emissions from dairy cows.

PREFERRED OPTIONS - SUMMARY

Various options are available for the levels of thresholds and exemptions. The preferred options strike a balance among the criteria in terms of costs and benefits. Practicality, avoiding double counting, and avoiding the creation of significant perverse incentives were particularly important considerations. The recommended thresholds capture large proportions of emissions without imposing significant cost burdens on businesses or industries where it is less practical to measure emissions or enforce regulations.

The recommended calculation methodologies are founded on the available scientific knowledge. The recommended methodologies for slaughtered animals and milk processing provide for a much stronger correlation between the emissions assigned to a product and the emissions that resulted from its production, than the simple averaging approach preferred by many submitters.

MISALIGNMENT BETWEEN THE ETS AND THE INVENTORY

The methodology proposed for the NZ ETS is necessarily different from the methodology to determine the Inventory. This is primarily because the ETS assigns emissions to products based on the emissions resulting from their production or use, rather than calculating the emissions that occur nationally in a given year. This means that the Inventory may determine the agriculture sector's total emissions to be slightly higher, or slightly lower than charged under the NZ ETS.

From 2015 the 90 percent allocation to the agriculture sector will reduce the net (ie realised) fiscal cost of any discrepancy between the NZ ETS methodology and the Inventory methodology to approximately 10 percent of the total cost of the discrepancy. As the 90 percent allocation phases out at 1.3 percent per annum, the cost of the discrepancy will increase to 16 per cent of the total costs by 2020 and 26 percent of the costs by 2030.

The table below projects the −3.7 percent average discrepancy forward to 2030, and provides the estimated fiscal cost of the average discrepancy before the allocation and net of the allocation.

Estimated fiscal cost ($ millions) to Crown per annum of average discrepancy at $50/tonne CO2-e

Cost of average discrepancy	2015 to 2030 ($millions)
Before allocation	$73 increasing to $77
Net of allocation	$7 increasing to $20

CONSULTATION

The Ministry of Agriculture and Forestry (MAF) carried out consultation with all those likely to have an interest in or be substantially affected by the regulations. Advertisements seeking submissions were placed in major daily newspapers and key industry publications. Notifications were sent to MAF's email forestry bulletin (which has 4000 subscribers) as many subscribers are farm foresters, and MAF wrote to all known potential participants (drawn from the Food Safety Authority's list of RMP holders) to advise them of the

consultation and invite them to make submissions. Planned meetings in Auckland and Christchurch for potential participants were later cancelled due to lack of interest.

MAF held meetings with eight representative industry groups: the Meat Industry Association, the Dairy Companies Association of New Zealand, the New Zealand Pork Board, the Poultry Industry Association of New Zealand, the Egg Producers Federation of New Zealand, the Fertiliser Manufacturers Research Association of New Zealand (Fert Research), the Livestock and Animal Germplasm Trade Council, and Pastoral Inc.

In addition, to give effect to the Treaty of Waitangi provisions in the CCRA, MAF utilised "Te Kahui Mangai", the list of 250 iwi and Maori organisation managed by Te Puni Kōkiri. The information provided outlined the matters for consultation, the consultation process and called for submissions. Further, MAF briefed members of the Iwi Leadership Group and a representative of the Federation of Māori Authorities (FoMA).

MAF also consulted with the Ministry for the Environment, Ministry of Economic Development, The Treasury, Te Puni Kōkiri, and the Department of the Prime Minister and Cabinet.

Submitters' comments

In some cases submitters on exemptions and thresholds disagreed with the proposed draft regulations. In some such instances, after carefully considering the issues changes are recommended. These include the proposed reduction in the threshold for exporting live animals.

Submitters also raised new issues relevant to the proposed regulations, such as the treatment under the NZ ETS of feral animals, in particular goats. As a result of submitters' feedback it is now proposed to include feral goats in the NZ ETS on the basis of efficiency, equity, environmental integrity and for fiscal reasons (the revenue will contribute to offsetting the systemic undercharging).

Submitters disagreed that the emission factor methodology would provide efficiency incentives, considering that it would encourage farmers to produce heavier but poorer quality animals for slaughter, contrary to market signals. This is unlikely given the size of the premium for lean meat, and the scope for processors to signal their preferences to farmer suppliers. Submitters' concerns about the proposed emission factor methodology have been carefully considered but, given the policy objectives, only some relatively minor adjustments are proposed.

IMPLEMENTATION

These regulations will be implemented by the Ministry of Economic Development. They clarify the detailed nature of the obligations participants will face under the Climate Change Response Act, such as the information they must file annually online. To minimise compliance costs and to allow effective enforcement, the proposed methodologies utilise information that participants already collect and hold and that is verifiable. A number of persons will be relieved of compliance obligations by the proposed exemptions.

The proposed regulations are not expected to impact on existing regulations related to the agriculture sector, although officials plan further monitoring of the risk of unintended effects on compliance with regulations made for other purposes, such as food safety.

MONITORING, EVALUATION AND REVIEW

Since the recommended exemptions and methodologies are based on current information, research, and legislation, it would not be appropriate to suggest review on a simple periodic basis. Review would be more appropriately based on any scientific advances that impact on the methodology behind development of the emission factors, such as new mitigation technologies, and any relevant legislative changes, such as changes in activity definitions (which may occur as a result of the 2011 review of the ETS legislation). The population sizes, industry structures and emissions levels of exempted sectors may change.

Officials will keep abreast of these developments, maintain communication with sector representatives and, if appropriate, will recommend changes to clarify the scheme's participants and their obligations in a timely manner before liabilities commence in 2015.