



# Consultation Document: Updating the Regulations for Agriculture in the New Zealand Emissions Trading Scheme

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## PURPOSE OF THIS DOCUMENT

The Government is consulting on proposed changes for agriculture in the Emissions Trading Scheme (ETS). This includes:

- changing the way agricultural emissions are calculated;
- amending the existing emission factors in regulation;
- exempting the following activities: the slaughtering of calves and vealers, and the dairy processing of milk or colostrum from goats and sheep.

The Government has announced it has indefinitely delayed the start date for surrender obligations for biological emissions from agriculture. As the Government has not proposed to defer reporting of agricultural emissions, it is still appropriate to update the emission factors for reporting.

## HOW TO SUBMIT

The Ministry for Primary Industries invites comments on proposed changes to regulations for agriculture in the Emissions Trading Scheme.

**The closing date for submissions is 5pm Friday 10 August 2012.**

You can make a submission by sending the form attached to the back of this document to:

Agriculture Regulations Consultation

Resource Policy

Ministry for Primary Industries

PO Box 2526

Wellington 6014

Or email your submission to [agets@mpi.govt.nz](mailto:agets@mpi.govt.nz).

## Release of Submissions

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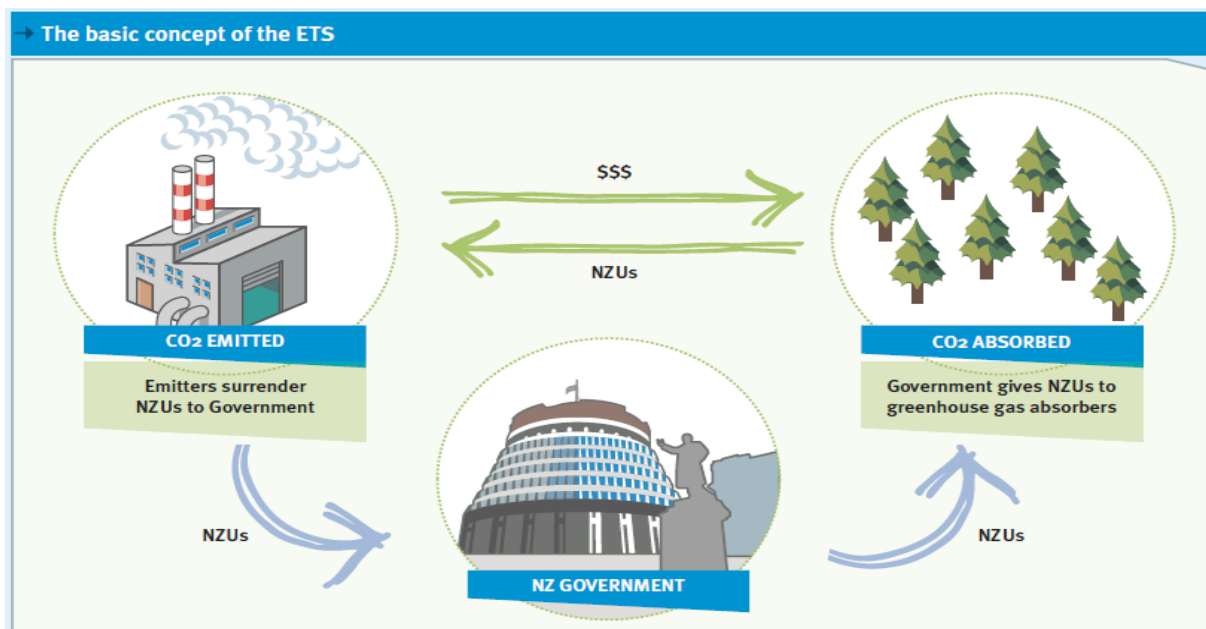
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## INTRODUCTION

### New Zealand Emissions Trading Scheme

The Emissions Trading Scheme (ETS) is New Zealand's primary tool to reduce its greenhouse gas emissions. The scheme puts a price on emissions from sectors like industry, transport, electricity and agriculture. It also provides New Zealand Units (NZUs) for eligible forests that absorb emissions. In this way, the ETS creates a price on emissions and a market for reducing them.



### Agricultural emissions

Agriculture is a source of methane and nitrous oxide, which account for nearly half of New Zealand's greenhouse gas emissions. Methane emissions come from ruminant animals and animal waste. Nitrous oxide emissions come from urine, dung and nitrogen fertiliser. Agricultural processors are the participants for agriculture in the ETS. These include meat and milk processors, fertiliser companies and live animal exporters. These participants must report agricultural emissions on annual basis from 2012.

Amendments to the ETS were consulted on during April and May 2012. The Government recently announced it has indefinitely delayed the start date for surrender obligations for biological emissions from agriculture. As the Government has not proposed to defer reporting of agricultural emissions, it is still appropriate to update the emission factors for reporting. More information on the amendments can be found on the climate change website at [www.climatechange.govt.nz](http://www.climatechange.govt.nz).

### Calculating agricultural emissions

Agricultural emissions are calculated using emissions factors in the ETS. Emission factors are prescribed in regulation and define the emissions per tonne of product processed (e.g. emissions per tonne of milk solids or per tonne of carcass weight). Emissions are expressed in carbon dioxide-equivalents (CO<sub>2</sub>-e). In the ETS, one NZU represents one tonne of CO<sub>2</sub>-e.

## Updating the methodology and the emission factors

Updates to the regulations are required to refine the approach for calculating emissions in the ETS and ensure the emission factors for agriculture reflect the most up-to-date data. Any changes that are made to the emission factors in 2012 will come into effect in-time for the first year of mandatory reporting.

### AGRICULTURAL PARTICIPANTS IN THE ETS

This page describes the current participants for agriculture in the ETS.

#### Who is a participant?

The Act defines four categories of agricultural participants in the ETS based on their activities. A participant is a person or organisation that does one or more of these activities. The activities (and exemptions for these activities) are set out below.

#### Dairy processor:

Dairy processing of milk or colostrum. Exemptions apply to persons who are not required to have a risk management programme for dairy processing under the Animal Products Act 1999.

#### Meat processor:

Operators of a Risk Management Programme registered under the Animal Products Act 1999 for the slaughter of ruminant animals, pigs, or poultry. Exemptions apply to bobby calves, horses, layer hens and ruminant animals other than cattle, sheep, deer and goats.

#### Live animal exporter:

Exporting from New Zealand live cattle, sheep, or pigs in accordance with an animal welfare export certificate. Exemptions apply to persons who export: in the case of cattle, less than 20 cattle per annum; in the case of sheep, less than 20 sheep per annum; and in the case of pigs, less than 20 pigs per annum.

#### Fertiliser processor:

Importing or manufacturing synthetic fertilisers containing nitrogen. Exemptions apply to persons who import or manufacture less than 1 tonne of synthetic fertiliser per annum.

#### Who is not a participant?

#### Wool processors:

A policy decision was made in 2008 not to include wool production in the Act due to both administrative and practical issues.

#### Egg producers:

Government recently announced it intends to amend the Act to remove egg producers from the ETS, to reflect the compliance costs of including this very small emissions source.

# PROPOSED CHANGES TO THE CLIMATE CHANGE (AGRICULTURE SECTOR) REGULATIONS 2010

Climate Change (Agriculture Sector) Regulations were established in 2010, which describe the information that participants need to collect for the ETS and how to calculate annual emissions for processed meat, milk, nitrogen fertiliser, etc.

This section sets out the rationale for proposed changes to these regulations. Changes relate to the emissions for livestock in the ETS. No changes are proposed for emissions related to nitrogen fertiliser.

## Issues to be addressed

Three major issues are addressed by the proposed changes, namely:

- the current approach for calculating agricultural emission factors in the ETS is overly complex, lacks transparency and relies on multiple assumptions which are difficult to follow and verify;
- emissions are misallocated between the beef and dairy sectors;
- all emissions from sheep are placed on meat at slaughter and none on wool.

In 2011, a technical group<sup>1</sup> was established to resolve the first two issues above. They identified the third issue during the course of their work. The group made a number of recommendations, which form the basis of the proposed changes.

## Summary of proposed changes

Key changes include:

- a simpler approach is proposed for calculating agricultural emissions in the ETS;
- a single per tonne emission factor replaces the two-part charge on slaughtered livestock;
- the emissions assigned to the beef, dairy and sheep sector align more closely with the Inventory than the current approach.

## Current approach for calculating emissions in the ETS

Emissions can be allocated to activities in the ETS (i.e. slaughtering, dairy processing etc) in a number of different ways. This section provides background information on the current approach.

At present a “bottom-up” approach is used to assign emissions to activities. This approach estimates the emissions for each livestock class (using data from the Greenhouse Gas Inventory) and assigns these to outputs (e.g. processed meat or milk). Appendix 1 outlines current livestock classes and their emission factors. Of note, slaughtered livestock receive a two part emissions charge – one “per tonne” of meat processed and the other “per animal” slaughtered (see Figure 1). All other activities have a single emissions charge (i.e. either “per animal” or “per tonne”).

The emissions for dairy and non-dairy cattle are currently split between:

- a. an emissions charge per tonne of processed meat that accounts for emissions to get to slaughter weight over a 1-2 year period;

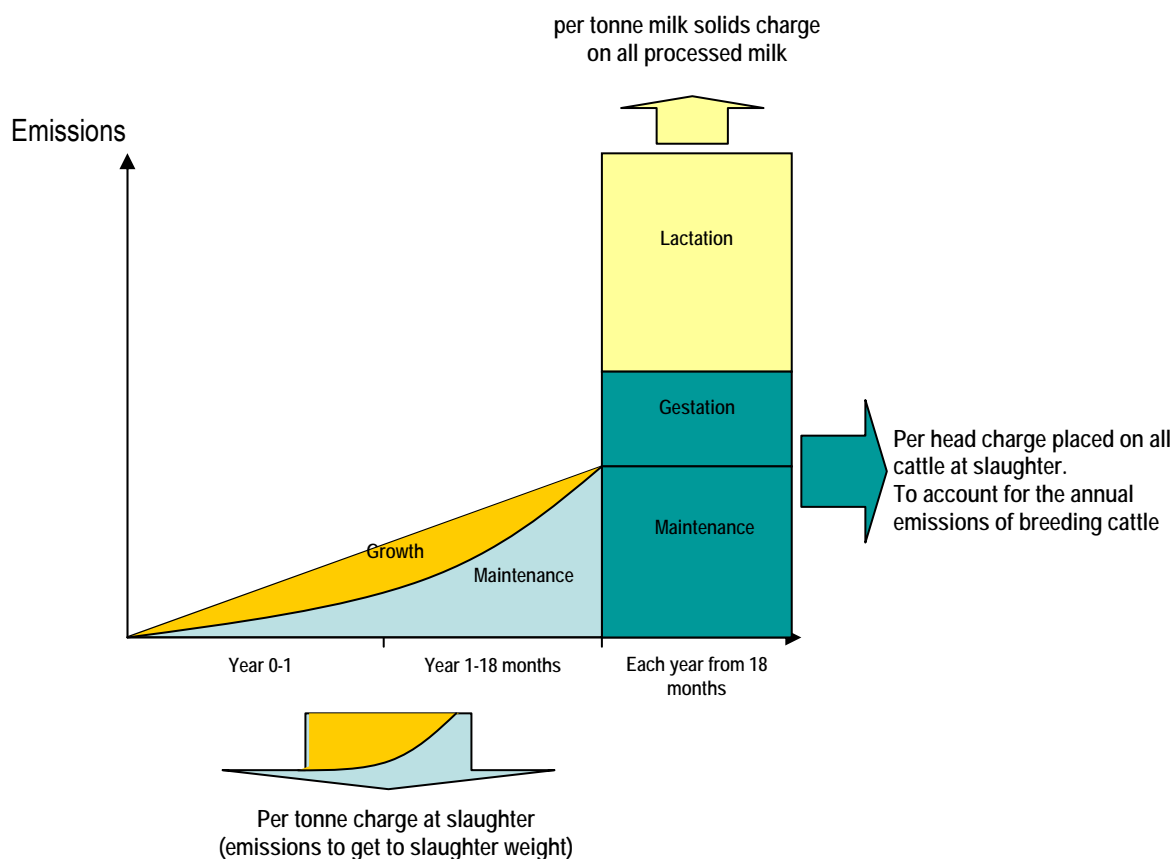
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<sup>1</sup> The technical group included representatives from the red meat and dairy sectors, the pastoral science sector and the Ministry for Primary Industries

- b. an emissions charge per animal at slaughter that accounts for the annual gestation and maintenance emissions of all mature milking cows/heifers and all breeding beef cows; and
- c. an emissions charge per tonne of processed milk solids that accounts for the annual lactation emissions of a dairy cow.

Figure 1 shows how these emissions are currently assigned to meat and milk under the ETS. Emissions for sheep, goats and deer are calculated in a similar way.

Figure 1: The flow of emissions charges for cattle using the current approach (not to scale).



The following issues have been identified at a sector level with the current approach:

- The current approach misallocates a large proportion (i.e. 26 percent) of dairy emissions onto beef cattle at slaughter, largely due to the per head emission factor.
- All sheep emissions are placed on sheep meat at slaughter, as there is currently no activity definition for wool under the ETS. As such the emissions charge on sheep meat is considerably higher than that on beef cattle.
- The alignment between the ETS and the Inventory is poor, particularly for the beef, lamb, dairy, venison and pork industries.



## Proposed approach for calculating emissions in the ETS

To resolve the issues identified above, it is proposed that a simplified “top-down” approach replaces the current approach for assigning emissions to agricultural activities in the ETS.

The top-down approach assigns livestock emissions to products by taking the total annual greenhouse gas emissions from each sector (e.g. dairy, beef, and sheep from the Inventory) and dividing these amongst the outputs (e.g. meat and/or milk) that are processed each year (see Figure 2).

The proposed emission factors are provided in Appendix 2. Emission factors are based on average emissions and average production levels (outputs) over a six year period from 2004 to 2009.

Of note, a single per tonne emission factor replaces the two-part charge currently on slaughtered livestock. Hence it is proposed, the method for determining emissions for processed meat is updated to:

$$\text{Emissions} = (\text{tonnes of meat processed by stock type}) \times (\text{emissions factor})$$

This would replace the method currently in regulation which is:

$$\text{Emissions} = [(\text{tonnes of meat processed by stock type}) \times (\text{emissions factor})] + [(\text{number of animals by stock type}) \times (\text{emissions factor})]$$

### Beef cattle, dairy cattle and sheep

It is proposed that emissions are assigned to dairy and beef products using the top-down approach (see Figure 2). With this approach:

1. All cattle face the same emissions charge per tonne of carcass weight at slaughter; and
2. All dairy herd emissions are placed on processed milk solids, except for those assigned to cull dairy cows.

The resulting emission factors are shown in Figure 2 and are also provided in Appendix 2.

It is proposed that emissions are assigned to sheep using the top-down approach, and that:

1. Sheep emissions are assigned to both meat and wool (see Figure 3). This recognises that meat and wool are separate industries and source their product from different farms.
2. The emission factors for sheep meat are the same as those for cattle meat (i.e. 12.7 tonnes CO<sub>2</sub>-e per tonne of carcass weight). This is consistent with findings from recent greenhouse gas foot-printing studies, which show that sheep are as emissions efficient as cattle per kilogram of meat produced.
3. The remaining sheep emissions are assigned to wool production. These emissions will be borne by the Crown, until a suitable point of obligation is found for wool production. Due to administrative and practical issues, wool production is currently not included as an activity in the ETS.

### Goats, deer, poultry and pigs

It is proposed that the emission factors for goats, deer, pigs and poultry are calculated using the same top-down approach that is described above for cattle and sheep. The proposed emission factors (for slaughtering) are provided in Appendix 2. Note that in April 2012, total greenhouse gas emissions from pigs and poultry halved when the Greenhouse Gas Inventory was up-dated with New Zealand specific data. These reductions have been incorporated into the proposed emission factors.

Figure 2. How emissions are assigned to dairy and beef products using the proposed approach.

	Dairy Sector		Beef Sector			
Outputs	Milk solids	Cull Cows	Cows	Heifers	Steers	Bulls
Quantity of product (Mt)	1.3	0.1	0.05	0.12	0.19	0.17
Emission factor per tonne product	8.5	12.7	12.7	12.7	12.7	12.7
ETS emissions (Mt CO <sub>2</sub> -e)	11.1	1.3	6.8			
NZ Greenhouse Gas Inventory emissions (averaged 2004-2009)	12.4 Mt CO <sub>2</sub> -e		6.8 Mt CO <sub>2</sub> -e			

$$\text{Total ETS emissions} = \sum(\text{emission factor} \times \text{tonnes of product processed})$$

Figure 3. How emissions are assigned to sheep and beef products using the proposed approach.

	Sheep Sector		Beef Sector			
Outputs	Lamb & mutton	Wool	Cows	Heifers	Steers	Bulls
Quantity of product (Mt)	0.55		0.05	0.12	0.19	0.17
Emission factor per tonne product	12.7		12.7	12.7	12.7	12.7
ETS emissions (Mt CO <sub>2</sub> -e)	7.0	4.0	6.8			
NZ Greenhouse Gas Inventory emissions (averaged 2004-2009)	11.0 Mt CO <sub>2</sub> -e		6.8 Mt CO <sub>2</sub> -e			

$$\text{Total ETS emissions} = \sum(\text{emission factor} \times \text{tonnes of product processed})$$

## Live animal exports

It is proposed that emission factors are calculated for live animal exports (cattle, sheep and pigs) using a top-down approach. The proposed emission factors are provided in Appendix 2. It is proposed that emission factors are calculated on a per animal basis, with fewer categories, for ease of reporting. The per animal emission factors are comparable to the per tonne emission factors for slaughter. As for slaughter, emissions related to wool production are not included in the sheep export emission factor.

## Nitrogen fertiliser

The emission factor for synthetic fertiliser containing nitrogen remains unchanged.

## Alignment with the New Zealand Greenhouse Gas Inventory

New Zealand is obliged to produce an annual Greenhouse Gas Inventory (the Inventory) report under the Kyoto Protocol. The Inventory is used to measure New Zealand's progress against its international obligations (under the Kyoto Protocol and/or any successor international agreements). Ideally there should be good alignment between the emissions reported in the Inventory and participant's liabilities under the ETS.

Figure 4 and Figure 5 show the alignment between the Inventory, the current approach and proposed approach for beef cattle, dairy cattle<sup>2</sup>, sheep, deer, pigs, goats and poultry.

The current approach, over-estimates emissions for the beef sector by approximately 2 million tonnes of CO<sub>2</sub>-e per year and under-estimates emissions from the dairy sector by approximately 2.6 million tonnes CO<sub>2</sub>-e per year. The current approach also over-estimates emissions for sheep by approximately 1 million tonnes per annum. These issues are not evident with the proposed approach.

The proposed approach aligns more closely with the Inventory than the current approach across all livestock types. For sheep, emissions are assigned to both meat and wool as discussed above. For pigs and poultry, reductions are primarily due to recent updates to the emission factors in the Inventory rather than improvements to the approach for calculating emissions in the ETS.

## Key benefits

The proposed approach is an improvement on the current approach, in that it:

- is transparent, robust, straight-forward, and practical;
- uses calculations and assumptions that are easy to follow and are robust and verifiable;
- is consistent with emissions reported in the Greenhouse Gas Inventory;
- resolves the misallocation of emissions between the beef and dairy sectors.

## Key impacts

Compared to the current approach in regulation, the proposed approach will have the following impacts:

- liabilities for the dairy sector increase by approximately 26 percent;
- liabilities for the beef sector reduce by approximately 24 percent;
- liabilities for the sheep meat sector reduce by approximately 40 percent;
- liabilities for venison increase by 20 percent;
- liabilities for pork, goats and poultry reduce by 45 to 55 percent.

The Crown will bear the cost of emissions related to wool production (approximately 30 percent of sheep emissions) until a suitable point of obligation is found for wool.

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<sup>2</sup> It is assumed that liabilities are not factored into sale prices when prospective bulls, heifers and steers are sold between the dairy and beef herds.

Figure 4. Alignment between the Inventory and the current and proposed approach for assigning emissions to beef cattle, dairy cattle and sheep under the ETS

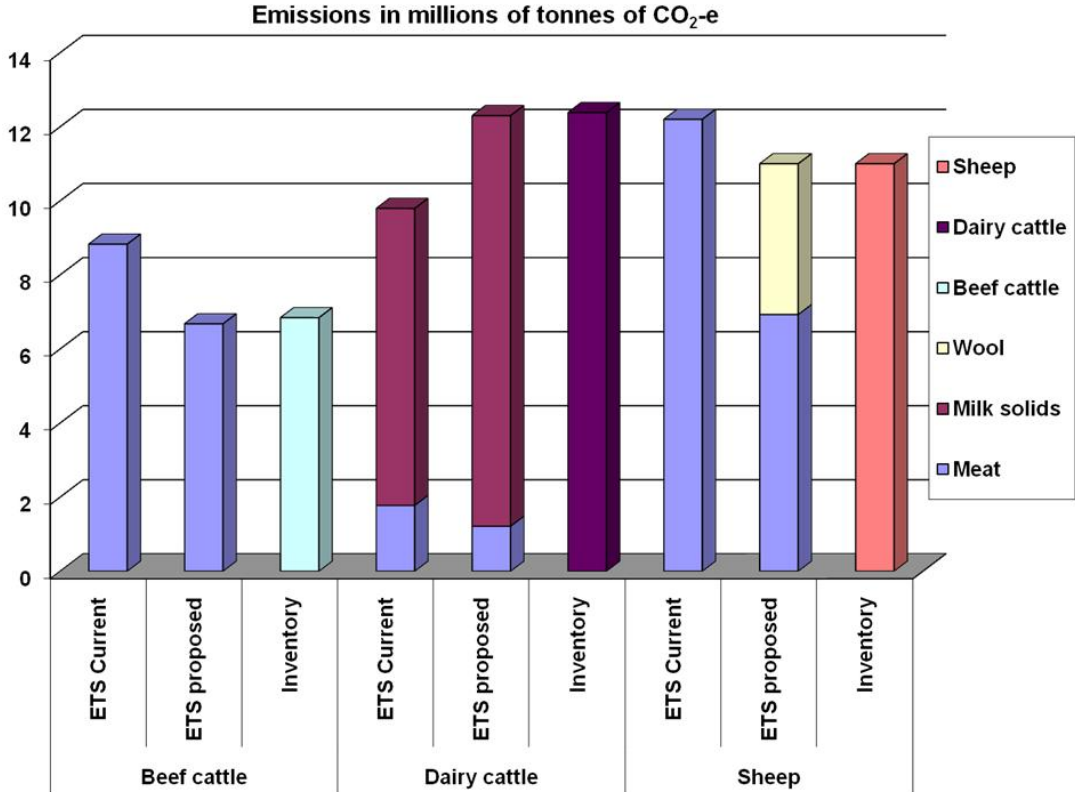
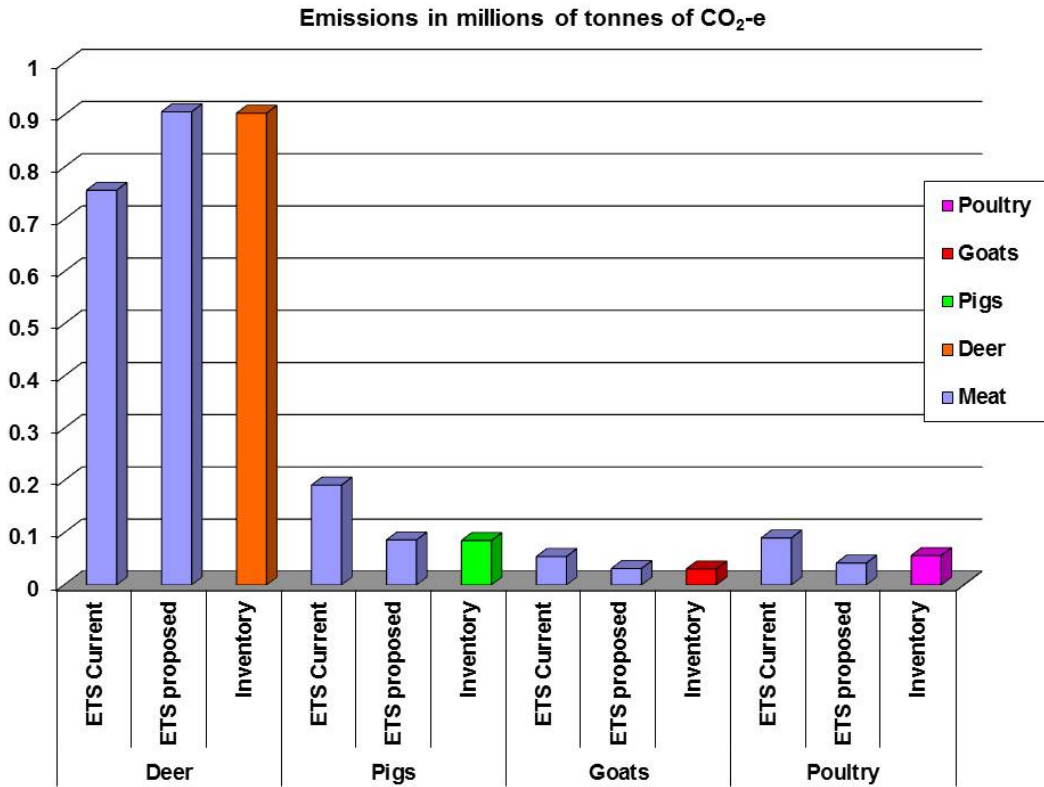


Figure 5. Alignment between the Inventory and the current and proposed approach for assigning emissions to deer, pigs, goats and poultry under the ETS



## PROPOSED AMENDMENT TO CLIMATE CHANGE (GENERAL EXEMPTIONS) ORDER 2009

This section outlines proposed amendments to the Climate Change (General Exemptions) Order 2009.

### Proposed exemptions

Exemptions are proposed for:

- slaughtering calves (including but not limited to bobby calves);
- slaughtering vealers;
- dairy processing of milk or colostrum from goats;
- dairy processing of milk or colostrum from sheep.

These exemptions are proposed for practical reasons and to minimise perverse effects. The proposed exemptions will not materially undermine the environmental integrity of the ETS as the emissions from these animals are captured elsewhere (i.e. in the emission factors for meat and in the emission factors for dairy milk).

### Calves and vealers

Calves and vealers produce little or no emissions, but any emissions that they do produce are spread across slaughtered adult cattle and processed milk under the proposed top-down approach. The exemption of calves and vealers from an ETS charge at slaughter avoids any perverse incentive to cull these animals on-farm. Bobby calves are already exempt from an emissions charge at slaughter but vealers are not.

### Goat and sheep milk

An exemption for processing goat and sheep milk or colostrum is recommended due to a lack of data on the volume of sheep and goat milk processed each year. Without this data, it is difficult to recommend a fair and transparent approach for apportioning emissions to goat and sheep milk using a top-down approach. Instead it is recommended that all goat and sheep emissions are assigned to processed meat and/or wool. This would remove two emission factors from the current regulations, i.e. an emission factor per tonne milk solids for goats and an emission factor per tonne milk solids for sheep.

## REGULATORY IMPACT ASSESSMENT

This consultation document covers the substantive elements of a regulatory impact analysis.

For comparison, a Regulatory Impact Statement developed for the current regulations can be found at [www.mpi.govt.nz/agriculture/agriculture-ets/regulations-for-agriculture-in-the-nz-ets](http://www.mpi.govt.nz/agriculture/agriculture-ets/regulations-for-agriculture-in-the-nz-ets).

## NEXT STEPS

Submissions will be analysed and reported to Ministers before any decisions are taken on the proposed changes. Any changes to the regulations will occur before 31 December 2012 and will apply to the first year of mandatory reporting (reporting by 31 March 2013).

Updates about this process will be provided on the Ministry for Primary Industries website and the climate change website.

## Further regulation development

Regulations for unique emission factors, allocation baselines and allocation methodologies will be developed in subsequent years.

## More information

You can find more information about the Agriculture in the ETS at the Ministry for Primary Industries website. You can find more information about the New Zealand Emissions Trading Scheme at the climate change website [www.climatechange.govt.nz/ets](http://www.climatechange.govt.nz/ets).

If you have questions, please phone the Climate Change Contact Centre on 0800 CLIMATE (254 628).

## Useful links

- The web page on Agriculture & the Emissions Trading Scheme at [www.mpi.govt.nz/agriculture/agriculture-ets](http://www.mpi.govt.nz/agriculture/agriculture-ets)
- The web page on Regulations for Agriculture in the NZ ETS at [www.mpi.govt.nz/agriculture/agriculture-ets/regulations-for-agriculture-in-the-nz-ets](http://www.mpi.govt.nz/agriculture/agriculture-ets/regulations-for-agriculture-in-the-nz-ets)
- Climate Change Response Act 2002  
[www.legislation.govt.nz/act/public/2002/0040/latest/DLM158584.html](http://www.legislation.govt.nz/act/public/2002/0040/latest/DLM158584.html)
- Climate Change (Agriculture Sector) Regulations 2010  
[www.legislation.govt.nz/regulation/public/2010/0335/latest/DLM3253001.html](http://www.legislation.govt.nz/regulation/public/2010/0335/latest/DLM3253001.html)
- Climate Change (General Exemptions) Order 2009  
[www.legislation.govt.nz/regulation/public/2009/0370/latest/DLM2534769.html](http://www.legislation.govt.nz/regulation/public/2009/0370/latest/DLM2534769.html)

## APPENDIX 1

### Current Emission factors in Regulation

#### Current emission factors for slaughtering ruminant animals, pigs and poultry

These emissions factors apply to the number of animals slaughtered (Table 1) and the quantity of the carcass weight of the animals slaughtered (Table 2) in the reporting year (1 January – 31 December).

Stock type/class	"Table 1" component: per tonne carcass weight Emissions factor per tonne of carcass weight (tonnes CO <sub>2</sub> -e per tonne slaughter weight)	"Table 2" component: per animal Emissions factor per animal (tonnes CO <sub>2</sub> -e per animal)
<b>Cattle</b>		
Vealers	5.2	1.98
Heifers	7.1	1.98
Steers	10.5	1.98
Bulls	11.0	1.98
Cows	7.9	1.98
<b>Sheep</b>		
Lambs	4.5	0.30
Hoggets	8.3	0.30
Ewes	7.5	0.30
Wethers	23.1	0.30
Rams	23.5	0.30
Adult sheep: ewes and wethers (26kg)	15.7	0.30
<b>Deer</b>		
Hinds	7.3	0.77
Stags < 80kg	8.2	0.77
Stags > 80kg	17.0	0.77
<b>Other animals</b>		
Goats	17.6	0.25
Pigs	3.5	0.027
Poultry excluding layer hens	0.5	0.00

## Current emission factors for dairy processing

These emissions factors apply to the quantity of milk solids or butter fat processed in the reporting year (1 January – 31 December).

Stock type/class	Emissions factor per tonne milk solids or butterfat (tonnes CO <sub>2</sub> -e per tonne milk solids or butterfat)
Bovine (per tonne milk solids)	6.14
Goat (per tonne milk solids)	2.69
Sheep (per tonne butterfat)	7.61

## Current emission factors for live animal exports

These emissions factors apply to the number of live animals exported in the reporting year (1 January – 31 December).

Stock type/class	Emissions factor per animal (tonnes CO <sub>2</sub> -e per animal)
<b>Cattle</b>	
Bulls 0-1 year	3.1
Bulls 1.2 years	5.7
Bulls > 2 years	8.2
Heifers < 1 year	2.7
Cows/Heifers > 1 year	4.5
Steers < 1 year	3.0
Steers > 1 year	5.4
<b>Sheep</b>	
Lambs	0.39
Ewes/female hoggets	0.49
Male hoggets	0.61
Ram	1.00
<b>Pigs</b>	
0-0.5 year old	0.32
0.5-1 year old	0.61
1 year and older	Add 0.59 for each additional year (eg 1-year-old = 0.61 + 0.59)



## Current emission factor for egg production

This emissions factor applies to the average number of layer hens on 1 January, 1 April, 1 July and 1 October of the reporting year (1 January – 31 December).

Stock type/class	Per animal charge Emissions factor per bird (tonnes CO <sub>2</sub> -e per hen)
Poultry – layer hens	0.007

Note that Government recently announced it intends to amend the Act to remove egg producers from the ETS, to reflect the compliance costs of including this very small emissions source.

## Current emission factor for synthetic fertiliser containing nitrogen

This emissions factor applies to the nitrogen content of the fertiliser imported or manufactured in the reporting year (1 January – 31 December).

Stock type/class	Emissions factor per tonne nitrogen (tonnes CO <sub>2</sub> -e per tonne nitrogen)
Fertiliser	5.72

## APPENDIX 2

### Proposed emission factors

#### Proposed emission factors for slaughtering ruminant animals, pigs and poultry

These emission factors apply to the carcass weight of animals slaughtered in a reporting year (1 January to 31 December).

Stock type/class	Emission factor (tonnes CO <sub>2</sub> -e per tonne of carcass weight)
<b>Cattle</b>	
Heifers	12.7
Steers	12.7
Cows	12.7
Bulls	12.7
<b>Sheep</b>	
Lambs	12.7
Hoggets	12.7
Rams	12.7
Adult sheep	12.7
<b>Other animals</b>	
Deer	26.3
Goats	23.0
Pigs	1.76
Poultry excluding layer hens	0.2

#### Proposed emission factor for dairy processing

This emission factor applies to the volume of milk solids processed in a reporting year (1 January to 31 December).

Stock type/class	Emission factor (tonnes CO <sub>2</sub> -e per tonne of milk solids)
Bovine	8.5

#### Proposed emission factors for live animal exports

These emission factors apply to the number of live animals exported in the reporting year (1 January – 31 December).

Stock type/class	Emission factor per animal (tonnes CO <sub>2</sub> -e per animal)
Cattle	2.3
Sheep	0.27
Pigs	0.12

### Emission factor for synthetic fertiliser containing nitrogen

This emissions factor applies to the nitrogen content of the fertiliser imported or manufactured in the reporting year (1 January – 31 December).

Stock type/class	Emissions factor per tonne nitrogen (tonnes CO <sub>2</sub> -e per tonne nitrogen)
Fertiliser	5.72

Note there is no change to the emission factor for synthetic fertiliser containing nitrogen.

## PART 2: SUBMISSION FORM

### OFFICE USE ONLY

Submission Number: \_\_\_\_\_

## New Zealand Emissions Trading Scheme Agriculture Regulations

Send your feedback to:  
Agriculture Regulations Consultation  
Climate Change Policy  
Ministry for Primary Industries  
PO Box 2526  
Wellington 6140

Or email to: [agets@mpi.govt.nz](mailto:agets@mpi.govt.nz)

Submissions close at: 5:00pm Friday 10 August 2012

### CONTACT DETAILS

Name \_\_\_\_\_

Company/Organisation (if relevant): \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Email: \_\_\_\_\_

Phone: \_\_\_\_\_

Please indicate your sector(s)/interest(s)/type(s) of organisation:

Agriculture – description/type: \_\_\_\_\_

Forestry – description/type: \_\_\_\_\_

Māori – description/type: \_\_\_\_\_

Local government – description/type: \_\_\_\_\_

Other – description/type: \_\_\_\_\_

**NB: Make sure you save a copy of your submission for your own records.**













