Carbon Credits (Carbon Farming Initiative) (Reducing Greenhouse Gas Emissions by Feeding Nitrates to Beef Cattle) Methodology Determination 2014

Carbon Credits (Carbon Farming Initiative) Act 2011

I, Greg Hunt, Minister for the Environment, make this Methodology Determination under subsection 106(1) of the *Carbon Credits (Carbon Farming Initiative) Act 2011*.

GREG HUNT

Dated 11 : 8 : 2014

GREG HUNT

Minister for the Environment

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Part 1 Preliminary

1.1 Name of Determination

This Determination is the *Carbon Credits (Carbon Farming Initiative) (Reducing Greenhouse Gas Emissions by Feeding Nitrates to Beef Cattle) Methodology Determination 2014*.

1.2 Duration

Note See subsection 122(1) of the Act.

This Determination:

(a) commences on the day after it is registered on the Federal Register of Legislative Instruments; and

(b) unless sooner revoked, expires on the day before it would otherwise be repealed under subsection 50(1) of the *Legislative Instruments Act 2003*.

Note This Determination will expire on the first 31 March or 30 September on or after the tenth anniversary of its registration.

Note This Determination continues to apply after expiry in accordance with section 125 of the Act.

1.3 Definitions

In this Determination:

Act means the *Carbon Credits (Carbon Farming Initiative) Act 2011*.

adult animal equivalent means a unit of measure defined by a liveweight of 450 kilograms.

ANZSIC means the Australian and New Zealand Standard Industrial Classification 2006, published by the Australian Bureau of Statistics.

Association of Official Analytical Chemists means the organisation of that name.

Note The official methods of the Association of Official Analytical Chemists mentioned in section 8 are available at: http://www.eoma.aoac.org

Australian Fodder Industry Association laboratory means a laboratory certified by the Australian Fodder Industry Association Limited (ABN 12 131 678 727).

average means the arithmetic mean.

baseline area means an area of land on which the project mechanism takes place and which has a uniform history of urea use for the five years prior to commencement of the first reporting period.

carbon dioxide equivalent (CO_2-e) means the carbon dioxide equivalence of a greenhouse gas.

chemical composition (of a dietary supplement) means the supplement's nitrate, non-protein nitrogen that is not nitrate, and total sulfur content, expressed as percentages of the total weight.

Department means the department that administers the Act.

dry matter intake (DMI) means the weight, excluding water content, of feed consumed per animal per day.

enteric fermentation means the process in ruminant animals by which gases, including methane, are produced as a by-product of microbial fermentation associated with the digestion of feed.

herd has the meaning given in section 2.3.

livestock class means a subset of the herd corresponding to the divisions based on age and gender for beef cattle published in the National Inventory Report.

National Inventory Report means the report of the national inventory of greenhouse gas emissions published annually by the department that administers the *National Greenhouse and Energy Reporting Act 2007*.

nitrate adaptation period means a period when nitrates are fed at a reduced rate, as specified in subsections 3.3(1) and 3.3(2).

Note The ***nitrate adaptation period*** is a subset of the ***nitrate supplementation period***, occurring at a minimum for the first two weeks of each nitrate supplementation period unless certain circumstances are met. See section 3.3.

Nitrates Calculator means the Beef Nitrates Calculator published by the Department on its website to calculate the carbon dioxide equivalent net abatement amount in accordance with this Determination and includes updates to the tool published on the website which:

(a) update inputs and variables used by the tool consistent with the latest National Inventory Reports and carbon dioxide equivalence and applicable methods under s 10(3) of the *National Greenhouse and Energy Reporting Act 2007*;

(b) are of a minor nature; or

(c) are necessary or incidental to updates referred to in paragraphs (a) or (b).

Note The Nitrates Calculator is available via the Department's website.

nitrate lick block means a solid block for feeding nitrates to cattle.

nitrate supplementation limit means the maximum rate at which nitrates can be fed during a nitrate supplementation period, as specified in section 3.3.

Note During the ***nitrate adaptation period***, the ***nitrate supplementation limit*** is less than during the rest of the ***nitrate supplementation period***. See section 3.3.

nitrate supplementation period means the period when nitrate lick blocks are available to the herd for consumption.

Note For the purposes of calculating the carbon dioxide net abatement amount, a nitrate supplementation period is taken to consist of consecutive days.

non-protein nitrogen means substances which are not proteins but can be converted into proteins by microbes in the ruminant stomach and includes urea, nitrates, biuret, and ammonia.

ration means dietary supplements consumed by the herd containing non-protein nitrogen during a nitrate supplementation period.

Regulations means the *Carbon Credits (Carbon Farming Initiative) Regulations 2011*.

Note Other words and expressions used in this Determination have the meaning given by the Act. These terms include:

agricultural emissions avoidance project

baseline

carbon dioxide equivalence

eligible offsets project

emission

greenhouse gas

offsets report

project

project area

project proponent; and

reporting period.

1.4 Kind of project to which this Determination applies

Note See paragraph 106(1)(a) of the Act and regulation 3.28 of the Regulations.

This Determination applies to agricultural emissions avoidance projects that reduce emissions by feeding nitrate supplements to livestock.

Part 2 Requirements for declaration as an eligible offsets project

Note See paragraphs 27(4)(c) and 106(1)(b) of the Act.

2.1 Eligible offsets projects

To be declared an eligible offsets project, a project to which this Determination applies must meet the requirements in this Part.

Note In addition, a project must meet the requirements in section 27 of the Act and in the Regulations, including a requirement that the project may not be an excluded offsets project (see regulations 3.36 and 3.37).

2.2 Location

Each project area must be located within Australia, including external territories.

2.3 Eligible herds

A ***herd*** must consist of beef cattle managed in a way consistent with either ANZSIC class 0142 (beef cattle farming), 0144 (sheep-beef cattle farming) or 0145 (grain-sheep or grain-beef cattle farming).

Note Herds managed in a way consistent with ANZSIC class 0143 (beef cattle feedlots) do not meet the requirements of this Part. In most cases, each project area will contain one herd. Members of a herd (that is, individual animals) are expected to change over time.

2.4 History of urea supplementation

(1) In each baseline area constituting the project, a herd must have been fed urea at least once in the 5 years prior the application for declaration of eligible offsets project.

Note See section 22 of the Act.

(2) For each baseline area, the herd fed urea in accordance with (1) does not need to comprise the same individual animals that are fed nitrates in accordance with section 3.2.

2.5 Project mechanism

The project mechanism is the feeding of nitrate supplements to an eligible herd in each baseline area where urea was previously fed to beef cattle.

Part 3 Requirements for operation of eligible offsets projects

Note See paragraphs 27(4)(c), 35(2)(a) and 106(1)(b) of the Act and regulation 3.26 of the Regulations.

3.1 Operation of eligible offsets projects

An eligible offsets project to which this Determination applies must be operated in accordance with this Part.

3.2 Feeding nitrates to the herd

(1) Nitrates must be fed in the form of nitrate lick blocks.

(2) The ***ration*** must contain between 50 and 100 grams of sulfur per kilogram of non-protein nitrogen.

(3) A nitrate supplementation period:

(a) begins when one or more nitrate lick blocks are made available to a herd; and

(b) ends when all nitrate lick blocks are either:

(i) removed from the herd's access; or

(ii) completely consumed by the herd.

3.3 Nitrate supplementation limit

(1) Subject to subsection (4), for the first two weeks of each nitrate supplementation period, a nitrate adaptation period must be undertaken.

(2) During a nitrate adaptation period, the rate at which nitrates are fed to the herd must not exceed:

(a) 25 grams of nitrate per adult animal equivalent per day; and

(b) 3.5 grams of nitrate per kilogram of DMI per day.

(3) For each nitrate supplementation period except during the nitrate adaptation period, the rate at which nitrates are fed to a herd must not exceed:

(a) 50 grams of nitrate per adult animal equivalent per day; and

(b) 7 grams of nitrate per kilogram of DMI per day.

(4) In circumstances where a previous nitrate supplementation period ended less than 30 days before the start of the first-mentioned nitrate supplementation period, subsection (1) does not apply.

Note This means that nitrates can be fed up to a rate of 50 grams of nitrate per adult animal equivalent per day for the entire nitrate supplementation period if a previous nitrate supplementation period ended less than 30 days before the nitrate supplementation period commenced.

Part 4 The carbon dioxide equivalent net abatement amount

Division 4.1 The carbon dioxide equivalent net abatement amount

4.1 The carbon dioxide equivalent net abatement amount

Note See paragraph 106(1)(c) of the Act.

(1) For the purposes of subsection (1), the greenhouse gas emissions avoided as a consequence of the project is the difference between the baseline and the enteric methane emissions that were produced by the herd over the reporting period.

(2) For an eligible offsets project to which this Determination applies, the carbon dioxide equivalent net abatement amount is the carbon dioxide equivalence of the amount of greenhouse gas emissions avoided as a consequence of the project in relation to a reporting period, calculated:

(a) using the Nitrates Calculator in accordance with this Part to determine the carbon dioxide equivalent net amount of greenhouse gas emissions avoided as a consequence of the project for each herd, for each nitrate supplementation period which is part of the reporting period; and

(b) summing the amounts under paragraph (a) for all nitrate supplementation periods and herds which are part of the reporting period.

(3) A single nitrate supplementation period can only be part of one reporting period.

4.2 Carbon dioxide equivalent net abatement amount if nitrate supplementation limit exceeded

For each herd, if either of the nitrate supplementation limits specified in section 3.3 are exceeded in a nitrate supplementation period then, for the purposes of calculating the carbon dioxide equivalent net abatement amount for that herd in that nitrate supplementation period, the relevant nitrate supplementation limit is to be used as the rate at which nitrates are fed to the herd.

Division 4.2 Calculations

4.3 Calculation of the carbon dioxide equivalent net abatement amount

(1) The carbon dioxide equivalent net abatement amount for each herd for each nitrate supplementation period must be calculated using the Nitrates Calculator by entering the inputs required by the Nitrates Calculator.

(2) Subsection (1) includes:

(a) the identification of a region;

(b) the numbers of cattle in each livestock class, determined in a manner consistent with section 5.3;

(c) the average liveweight for each livestock class, determined in a manner consistent with section 5.4;

(d) the opening and closing stock of nitrate lick blocks, determined in accordance with section 5.5;

(e) the opening and closing stock of non-protein nitrogen supplements, determined in accordance with section 5.6; and

(f) the application by the Nitrates Calculator of the results of scientific research pertaining to the effect of nitrate supplements on enteric fermentation.

(3) To ensure the carbon dioxide equivalence of the net abatement amount, the Nitrates Calculator must multiply tonnes of methane avoided by the carbon dioxide equivalence of methane as prescribed by the *National Greenhouse and Energy Reporting (Measurement) Determination 2008* in force at the time the offsets report was submitted, or was required to be submitted, whichever is the earlier.

4.4 Greenhouse gas assessment boundary

When making calculations for the purposes of determining the carbon dioxide net abatement amount, methane emissions from enteric fermentation must be taken into account.

4.5 The baseline

(1) For the purposes of paragraph 106(4)(f) of the Act, the baseline for the project must be calculated using the Nitrates Calculator, for each nitrate supplementation period, for each herd by entering each input required by the Nitrates Calculator.

(2) For the purposes of subsection (1), the baseline will show the estimated emissions for each herd over the reporting period which would have occurred had the nitrate supplements not been provided to the herd but where urea was provided to the herd.

Part 5 Monitoring, measuring, record-keeping and reporting requirements

Note See subsection 106(3) of the Act.

Division 5.1 General

5.1 General

For the purposes of subsection 106(3) of the Act, a project proponent of an eligible offsets project to which this Determination applies must comply with the monitoring, measurement, record-keeping and reporting requirements of this Part.

Division 5.2 Monitoring and measuring

5.2 General

The project proponent must monitor the project and record the information as specified in this Division.

5.3 Monitoring the number of animals in each livestock class

(1) For the purposes of entering the inputs required by the Nitrates Calculator, the number of animals in each livestock class must be counted once per nitrate supplementation period.

(2) The count undertaken for the purposes of subsection (1) must occur between 75 days before the first day of the nitrate supplementation period, and the last day of the nitrate supplementation period.

5.4 Monitoring the average liveweight of each livestock class

(1) For the purposes of entering the inputs required by the Nitrates Calculator, the average liveweight of each livestock class must be determined in accordance with subsection (2).

(2) The average liveweight of animals in each livestock class can be determined either:

(a) from the relevant National Inventory Report data for that livestock class; or

(b) from direct measurements of animals in the herd.

(3) If the average liveweight of animals in each livestock class is determined from direct measurements of animals in the herd, the liveweights from which this average is derived must be measured once per nitrate supplementation period.

(4) The measurement undertaken for the purposes of subsection (3) must occur between 75 days before the first day of the nitrate supplementation period, and the last day of the nitrate supplementation period.

5.5 Monitoring nitrate lick block consumption

(1) The opening stock and closing stock of nitrate lick blocks must be determined for each nitrate supplementation period.

(2) The closing stock must take account of nitrate lick blocks that were fed to the herd and partially consumed by weighing remnant lick blocks.

(3) In this section:

(a) ***opening stock*** means the number and weight, in kilograms, of nitrate lick blocks purchased before or during the nitrate supplementation period;

(b) ***closing stock*** means the number and weight, in kilograms, of the nitrate lick blocks:

(i) purchased before or during a given nitrate supplementation period; and

(ii) not consumed by the herd.

5.6 Monitoring the consumption of non-protein nitrogen that is not nitrate

(1) The opening stock and closing stock of non-protein nitrogen supplements that are not nitrates must be determined for each nitrate supplementation period.

(2) The closing stock mentioned in subsection (1) must take account of non-protein nitrogen supplements that are not nitrates that were fed to the herd and partially consumed by weighing remnant supplements.

(3) In this section:

(a) ***opening stock*** means the weight, in kilograms, of non-protein nitrogen supplements that are not nitrates purchased before or during the nitrate supplementation period;

(b) ***closing stock*** means the weight, in kilograms, of non-protein nitrogen supplements that are not nitrates:

(i) purchased before or during a given nitrate supplementation period; and

(ii) not consumed by the herd.

5.7 Quality assurance and quality control

(1) Each measuring or monitoring instrument used to collect data used in Part 4 must be inspected, maintained and calibrated in accordance with:

(a) the product literature that accompanies the instrument; or

(b) the applicable standard.

(2) In this section, ***standard*** means:

(a) an Australian Standard published by Standards Australia Limited and denoted by the letters "AS" and identifying numbers or letters;

(b) an Australian/New Zealand Standard jointly published by Standards Australia Limited and Standards New Zealand and denoted by the letters "AS/NZS" and identifying numbers or letters;

(c) an ISO Standard published by the International Organization for Standardization and denoted by the letters "ISO" and identifying numbers or letters; or

(d) any other equivalent document.

Division 5.3 Record-keeping requirements

5.8 Eligibility records that must be kept

Records demonstrating the following eligibility requirements must be kept:

(a) the location of each project area;

(b) that the herd is managed in a way consistent with section 2.3; and

(c) that each project area has a history of urea use, in accordance with section 2.4.

5.9 Annual records that must be kept

For each year in a reporting period, records must be kept of the following:

(a) the start date and end date of each nitrate supplementation period;

(b) the start date and end date of each nitrate adaptation period;

(c) the average number of animals in each livestock class during each nitrate supplementation period;

(d) if average liveweight of animals in each livestock class is determined in accordance with subsection 5.4(3), the average liveweight of animals in each livestock class during each nitrate supplementation period;

(e) the opening and closing stock of all non-protein nitrogen supplements for each nitrate supplementation period, where opening and closing stock are determined in accordance with sections 5.5 and 5.6 ;

Note This includes nitrate lick blocks and other sources of non-protein nitrogen fed during a nitrate supplementation period, such as urea.

(f) the ***chemical composition*** of all non-protein nitrogen supplements fed during the project, as specified in a commodity vendor declaration form (or equivalent) and determined using an Association of Official Analytical Chemists method in Australian Fodder Industry Association accredited laboratories; and

Note Chemical composition and non-protein nitrogen are defined in section 1.3. Non-protein nitrogen supplements include nitrate lick blocks and non-protein nitrogen supplements that are not nitrates.

(g) any data used to determine a parameter mentioned in this section.

Division 5.4 Offsets report requirements

Note See paragraph 6.2(j) of the Regulations.

5.10 Reporting requirements

An offsets report must be submitted for each reporting period.

5.11 Information that must be included in each offsets report

(1) The following information must be included in each offsets report:

(a) the start date and end date of the reporting period to which the offsets report applies;

(b) all inputs and outputs from the Nitrates Calculator for each nitrate supplementation period in the reporting period; and

(c) the carbon dioxide equivalent net abatement amount for the reporting period, measured in tonnes of carbon dioxide equivalent (t CO_2-e) and calculated using the Nitrates Calculator, in a manner consistent with Part 4.

(2) The requirement in paragraph (1)(b) may be met by including a printout or soft copy of the completed Nitrates Calculator for each nitrate supplementation period in the reporting period.

Note

1. All legislative instruments and compilations are registered on the Federal Register of Legislative Instruments kept under the *Legislative Instruments Act 2003*. See http://www.frli.gov.au.