Carbon Farming Resource Handbook

For land managers in Queensland

February 2021

NRM REGIONS QUEENSLAND

QFF QUEENSLAND FARMERS' FEDERATION

Queensland Government

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Images taken by Louise Gavin:
Front Cover: Recovery after cool fire on Cape York, Qld
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1. Introduction

This handbook seeks to collate resources available for landholders, regional Natural Resource Management (NRM) staff and agricultural industry staff supporting people to enter the Carbon Market and participate in a meaningful way with positive NRM outcomes. This resource will be of higher value as an electronic document rather than in a printed form as there are many hyperlinks included throughout the document.

This handbook explains and provides resources to help understand the need for carbon farming and the ways land managers can be a part of this.

The increase in concentration of greenhouse gasses (GHG) in our atmosphere is threatening both human and ecological systems. Reducing global emissions has been the topic of ongoing international debate, agreement and action. A number of gasses are responsible for global warming with water vapour (H_2O), carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O) being the most prevalent. Each of these gasses occur naturally in our atmosphere but at elevated levels can cause extreme changes to the Earth's climate. *"The concentration of methane in the atmosphere has more than doubled since preindustrial times, reaching approximately 1,800 ppb in recent years. This increase is predominantly due to agriculture and fossil fuel use."* [1]

In a bid to manage and potentially mitigate the worst of these expected outcomes, a number of global strategies (such as the Kyoto Protocol) have been proposed to reduce GHG output and in late 2015, 195 countries operating under the United Nations Framework Convention on Climate Change (UNFCC), reached agreement on the international commitments to greenhouse gas emissions mitigation, adaptation and finance; and developed the Paris Agreement. Under the Kyoto protocol and the Paris Agreement, Australia has made commitments to progressively reduce GHG emissions.

[1] [2] IPCC (Intergovernmental Panel on Climate Change). 2013. Climate change 2013: The physical science basis. Working Group I contribution to the IPCC Fifth Assessment Report. Cambridge, United Kingdom: Cambridge University Press. www.ipcc.ch/report/ar5/wg1.

2. Carbon Farming Markets

2.1 Carbon Farming in Queensland & Land Restoration Fund (LRF)

Carbon Farming presents an opportunity for land managers to secure another income from their land as well as make improvements to their natural capital; their land.

There are two ways to farm carbon:

1. by avoiding (that is, eliminating or reducing) agricultural emissions that would otherwise have occurred by changing, or introducing, specific on-farm practices designed to reduce greenhouse gas emissions (GHG) for example: reduced methane emissions from livestock, reduced fertiliser emissions, manure management, savanna fire management or,
2. by sequestering CO_2 from the atmosphere and storing it in the landscape for example: reforestation and managed regrowth (collectively referred to as carbon forestry), avoided deforestation, soil carbon (reducing carbon loss or increasing sequestration).

Before an activity is eligible to generate credits, it requires an approved method for counting and verifying abatement.

Land use, land use change and the forestry sector, including agricultural land use, play an important role in storing carbon. Queensland is responsible for 90 per cent of Australia's total land sector emissions. In all other jurisdictions except Western Australia and the Northern Territory, this sector acts as a 'carbon sink', meaning that activity in the sector actually removes more carbon from the atmosphere than it releases. Reducing the amount of land-clearing in Queensland is an integral step in reducing our overall carbon emissions. Avoiding further clearing, however, is only part of the equation: encouraging regrowth and afforestation is equally important.

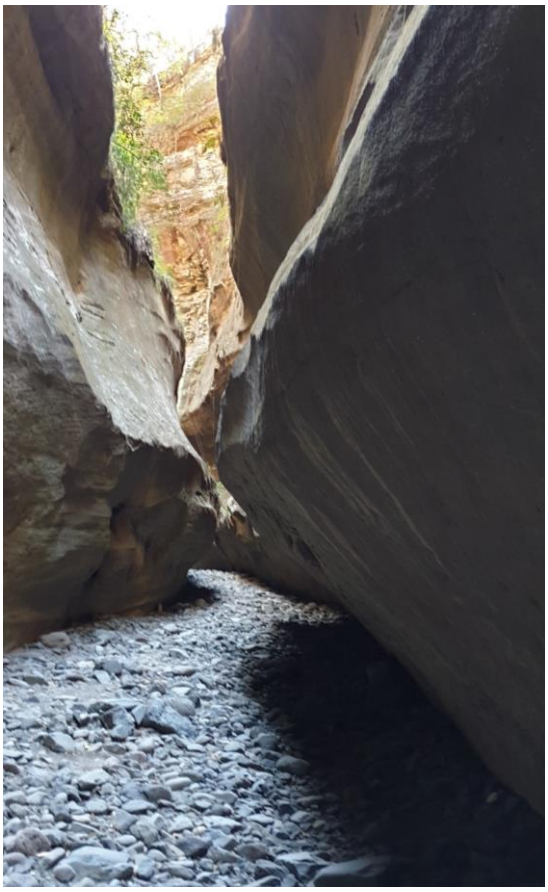
2.2 Australian Carbon Credit Units (ACCUs) and Agriculture

Setting up and maintaining a carbon farming project involves costs and risks. Any income from the sale of ACCUs, along with the co-benefits from carbon farming, will have costs attached to it. There is the cost of undertaking the actual activity or implementing the change and then there is the separate cost of generating the Carbon Credit - the extra business administrative, auditing and accounting costs.

Subject to satisfying the monitoring, auditing, reporting and other requirements under the Climate Solutions Fund, an eligible Climate Solutions Fund project can apply for ACCUs. Each ACCU represents one tonne of carbon dioxide equivalent (CO_2-e) net abatement (through either emissions reduction or carbon sequestration) achieved by eligible activities – that accord with an approved Methodology.

An ACCU is a 'financial product' under the Corporations Act 2001 and the Australian Securities and Investments Commission Act 2001. Also, of note: income from ACCUs is dealt with in a different manner to Primary Production by the Australian Taxation Office. When selling an ACCU the proceeds are counted as an earning separate to that of Primary Production. More information can be found on the Tax Treatment of ACCUs on the Clean Energy Regulator website. The Australian Taxation Office has information about Claiming Deductions for Carbon Sink Forest Expenses.

2.3 The Australian Government Program for Carbon Farming - The Emissions Reduction Fund (ERF)



The Australian Government established the Emissions Reduction Fund (ERF) in 2014 as a means to achieve Australia's 2020 emission reduction target. In 2019 this was changed to be the Climate Solutions Fund.

The Climate Solutions Fund sets out ways that industry can be a part of reducing GHG. The Climate Solutions Fund is voluntary and includes all sectors of the economy and aims to seek the lowest cost abatement. Carbon Farming is the means for the agricultural sector to participate in the program. The Carbon Farming Initiative was established in 2011. It has provided the opportunity to recognise the role agriculture can play in reducing Australia's emissions and allows land managers to be paid for their actions. Land managers can choose to develop a project which complies with the guidelines of carbon farming Methodologies. The Clean Energy Regulator certifies the Australian Carbon Credit Units (ACCUs) which the farmer may then sell on the open market.

The Climate Solutions Fund has three parts:
Contracting: the Australian Government contracts for the supply of Australian Carbon Credit Units (ACCUs) via a voluntary reverse auction process that seeks to purchase lowest cost abatement in the form of ACCUs from land managers, carbon service providers, and industrial efficiency activities.
Crediting: The Clean Energy Regulator is responsible for crediting and verifying ACCUs generated through registered projects. These projects may have a contract with the Australian Government or be generating ACCUs for the supply to voluntary or other secondary markets such as under the Safeguard Mechanism.
Safeguarding: The Safeguard Mechanism seeks to ensure that the savings secured through the contracting process are not overtaken by carbon pollution from high emitting industrial sources.

As of 17 February 2021, there are 281 Queensland projects registered with the Clean Energy Regulator.

An interactive map is available showing what has been contracted by the Emissions Reduction Fund on the Clean Energy Regulator's website.

Source: https://www.qld.gov.au/environment/climate/climate-change/carbon-farming

2.4 Sequestration

In farming carbon, the land holder can either avoid emissions or 'sequester' carbon. Sequestration is the general term used to describe the natural processes that remove CO_2 from the atmosphere and store it in vegetation or soil. Sequestration in vegetation occurs via the process of photosynthesis—as plants use the energy of sunlight to convert CO_2 to carbohydrates for their growth and maintenance. The plant's growth reflects the amount of CO_2 it has taken from the atmosphere. The plant is generally using more CO_2 in the initial years of growth, slowing over time as plants grow to their full capacity as a carbon store. The amount of carbon that can be sequestered in vegetation varies with species, soil quality, climatic conditions and land management practices.

Carbon accumulates in soil as vegetation dies. Some is incorporated into the soil while a portion is released back into the atmosphere as carbon dioxide. Vegetation assists the retention of soil carbon. Appropriate management of agricultural soils by landholders can reduce the amount of organic carbon loss. Soils with high organic carbon content are healthier and more productive and have higher water-holding capacity.

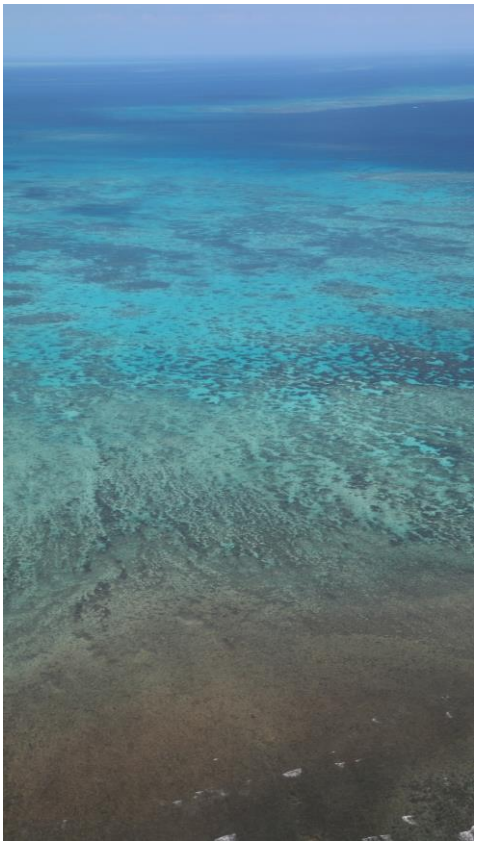
Sequestration activities are subject to permanence obligations. This means if an ACCU is produced through sequestration, the increase in carbon must be maintained for the nominated permanence period (either 25 or 100 years). Permanence should be considered as part of the risk management strategy, considering impacts and likelihood of fire, drought and the need to sell that parcel of land.

2.5 The Land Restoration Fund

The Queensland Government's Land Restoration Fund (LRF) aims to expand carbon farming in the state by supporting land-sector projects that deliver additional environmental, social and economic and First Nations co-benefits.

The priority areas for investment are outlines in the LRF Priority Investment Plan (the PIP). These are:

1. Land restoration to improve the health of wetlands and coastal ecosystems, including the Great Barrier Reef.
2. Land restoration for threatened species and ecosystems.
3. Land restoration for social and economic sustainability.



The Land Restoration Fund supports projects that:

- sequester carbon in land and soil to reduce Queensland's carbon emissions,
- boost revenue sources for farmers and other landholders in regional and rural Queensland,
- deliver social and community benefits,
- deliver cultural and community benefits for Traditional Owners,
- improve Great Barrier Reef water quality,
- enhance wetlands for fisheries and hatcheries improving commercial fishing opportunities,
- strengthen critical habitat protection,
- restore ecosystems and degraded land.

The Land Restoration Fund supports projects that deliver greater benefits and may create increased incentives for land managers to be involved. The LRF supports land owners and land managers, farmers, and First Nations peoples to generate new, regular income streams through carbon farming projects whilst providing valuable co-benefits such as healthier waterways, increased habitat for threatened species, and more resilient landscapes. The Fund intends to enter into long-term (usually 5-15 year) contracts to purchase ACCUs from successful Respondents, at a price that puts a premium on the delivery of the targeted co-benefits, in addition to the carbon abatement outcomes.

Co-benefit priorities:

1. Environmental – biodiversity, habitat for threatened species, and healthier soils, wetlands, and water systems.
2. Social and Economic – improving the resilience and strength of regional communities by supporting direct and indirect jobs, and more money flowing into Queensland's regions.
3. First Nations – providing on-country business opportunities as well as new service delivery businesses and supporting cultural and customary connections.

The LRF Co-benefits Standard, available on the LRF website, describes how land holders can identify, measure, report and verify co-benefits for projects contracted through the LRF. There are two pathways for verification: proponent or third-party assurance.

Projects supported by the Land Restoration Fund may seek to claim co-benefit from one, two, or all of the main co-benefit categories.

	Land Restoration Fund	Climate Solutions Fund
Pays for ACCUs	YES	YES
Pays for benefits in addition to carbon	YES	NO
Projects must register with the CSF	YES	YES
Projects must follow a CSF approved carbon method	YES	YES
Purchasing method	Contract for ACCUs and co-benefits	Contract for lowest-cost ACCUs through reverse auction
Assurance method	See LRF Co-Benefits Standard and CSF Method Requirements	See CSF Method Requirements

Further information is available at the Land Restoration Fund website.

2.6 Links to Carbon Farming Market websites

- To view information about the various land sector methods and to help you identify which one may be more suited to you, go to the Federal Government, Clean Energy Regulator website and choose either Agricultural Methods, Savanna Burning or Vegetation Methods. Each of those choices will take you to a page which gives you a further choice of what specific method under these streams you may have interest in.

http://www.cleanenergyregulator.gov.au/ERF/Choosing-a-project-type/Opportunities-for-the-land-sector

- To view case studies for each of the soil, vegetation and agricultural methods go to the resources section of the Federal Government, Clean Energy Regulator website. Under Emissions Reduction Fund Methods you can select the method you are interested in and it will take you to a page that has the necessary up to date information about the method and any changes that have been made.

https://www.environment.gov.au/climate-change/government/emissions-reduction-fund/publications

- For more background on the markets for businesses going Carbon Neutral and Offsetting their businesses the Carbon Market institute explains the entry process. The website focuses on businesses who may be looking to buy ACCUs. Understanding the buying market can give further insights into the selling market.

http://marketplace.carbonmarketinstitute.org/

- A 2019 report looking at the way Carbon Projects are grouped as well as the supply and demand for Carbon Credits in Australia found at:

https://research.csiro.au/digiscape/evolving-australian-carbon-markets/

- Future-beef has resources, fact sheets and current information on soil carbon, savanna burning, herd improvement, business analysis and grazing land management. The link below is directly to the list of case studies for cattle management across northern Australia, including Qld examples.

https://futurebeef.com.au/knowledge-centre/climate-clever-beef-publications/#ccbcasestudies

- The Land Restoration Fund has produced three YouTube videos where Chief Scientist Don Butler explains some of the key concepts of the LRF.
    1. An introduction to carbon farming
    2. An introduction to the Land Restoration Fund
    3. An introduction to carbon farming co-benefits

- There are two Introduction to Carbon Farming fact sheets available, one specific to northern Qld and one focused on southern Qld. Produced by NRM Regions Queensland, Queensland Farmers' Federation and Remarkable NRM.

Home - Queensland Farmers' Federation (qff.org.au)

2.7 YouTube explanations of Carbon Farming and Carbon Markets

- **Carbon Farming – An Industry of the Future** (Carbon Market Institute, 2018) – Qld example of a carbon project improving cattle production, land, water and biodiversity as well as financial security.
- **Carbon Neutral – Who are we and what we do** (Carbon Neutral, 2013) – Explains why we need carbon offsets
- **What is a Carbon Footprint?** (thecleanagency, 2011) – Explains what is in a carbon footprint
- **Celebration of a world first for soil carbon in Australia** (AgriProve, 2019) – Carbon Project Developer shows soil carbon project results.
- **Emissions Reduction Fund: opportunities to participate** (DeptEnvironment, 2016) – WA example of tree planting project, partnering to manage carbon farming project.
- **Demystifying Carbon** (WA State NRM funded, Oct 2020) Rangelands NRM hosts a webinar introducing Human Induced Regrowth, Savanna Burning, Soil Carbon and Beef Herd Methodologies.

3. Key Considerations

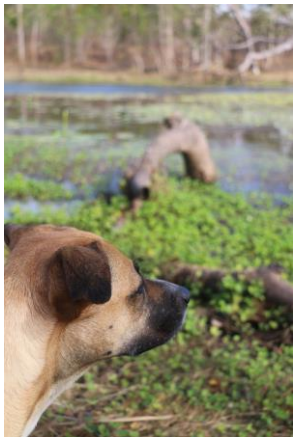
3.1 Your plan and the reasons for participating in a carbon market

Taking up carbon farming is like any other agricultural production decision within an enterprise. Like changing crops, breeding a new line of cattle, or shifting production systems it is a complex decision with many factors to consider. These vary from property to property and it is important to be clear on why a carbon project may suit your enterprise.

Undertaking a carbon project is a business decision with costs and benefits. However not all decisions are purely financial and considerations such as increased sustainability through diversification, opportunities for succession, alternative land uses for less traditionally productive areas, lifestyle decisions, project co-benefits and personal interest in the products or outcomes being developed, all play a part. Having a clear understanding of the drivers behind participation in carbon farming will help determine the type of project being developed and its value to the enterprise.

Participation and the type of project that may be implemented is also significantly impacted by the regulatory requirements of the Climate Solutions Fund. This will dictate what activities are actually eligible on your property and will also be a significant driver of whether a particular activity is profitable.

There are many activities that may benefit the landholder and reduce greenhouse gas emissions but are either not recognized by the Climate Solutions Fund or are not economically viable.



Landholders may want to consider the benefits of joining together with other landholders through aggregation. Because administrative and compliance costs of even a smaller carbon project may be considerable percentage-wise, the cost to produce an ACCU will often decrease with higher numbers of ACCUs to be sold. Joining with projects with the same Methodology across a catchment or river system for example, can reduce some of the environmental risks like fire, drought or storm events. The Clean Energy Regulator website provides information about Aggregation under the Emissions Reduction Fund.

Like any new business venture, the choice to participate in the ERF should include a careful consideration of the costs and benefits involved, alongside the risks of the activity being considered. Before deciding to proceed, this should be compared to other activity that could be undertaken within the enterprise. Equally, if the decision is made to not participate, the reasons should be clear, so that if criteria change in the future then the opportunity to capitalise is recognised.

You will need to consider if your carbon project will generate enough income to be beneficial. Defining your objectives in undertaking a carbon farming project will guide whether it is worthwhile or not. If your primary objective is to generate income and make a profit from a carbon farming project then you should look at it from an economic perspective, including not only the set-up costs of your project but it's ongoing auditing,

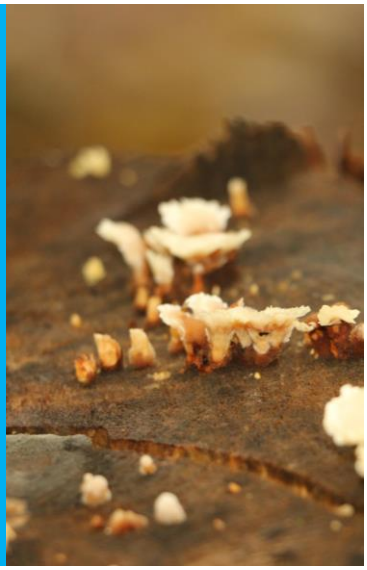
legal and monitoring costs, as well as the potential loss of opportunity to utilise the land in another way. In general, you should consider other benefits of a carbon project and these may be the difference of whether it is worth undertaking a carbon farming project or not. When looking at a carbon farming project the project should contribute to better herd management, better vegetation and biodiversity management and or better soil management. By improving practices in these ways, you are also likely to improve water quality and or filtration.

3.2 Benefits and Co-Benefits

In addition to generating revenue in carbon markets, a carbon farming project may also generate a range of co-benefits for your enterprise. Those benefits will clearly depend on the nature of the farming enterprise and on the type of carbon farming.

Co-benefits include:

- Improving water use efficiency,
- providing protection for stock (through trees providing shade and windbreaks),
- improving livestock production efficiency,
- creating financial diversification,
- improving environmental benefits such as increasing habitat area for a threatened species,
- improving soil quality,
- improving fertiliser use efficiency,
- improving the amenity and aesthetics of the local environment.



Co-benefits may be private (accruing within the farm enterprise) or public (accruing to the wider environment outside the farm boundary).

Many farmers have already adopted new technologies, new practices and skills; improving their resource efficiency on farm. Many of these improvements have resulted in an overall reduction of their emissions. Further research and development will continue to identify additional options into the future.

When thinking about how to manage carbon and emissions on farms, it is useful to think of a farm as having the following key action areas:

- Vegetation: for farm health
- Soils: turning more carbon and nitrogen into food and fibre
- Nitrogen fertilisers: improving efficiency and saving money
- Livestock: improving performance and reducing energy loss
- Energy: increasing efficiency, renewable energy, saving money

(2006, NRM North Tasmania, Making Cents of Carbon and Emissions on-farm)

3.3 Risk Considerations

Depending on which Method is undertaken, due consideration should be payed to:

- Risks around permanence with fire, drought or storm events
- Risks of increasing financial possibilities to the detriment of NRM or overall environmental gains
- The risk of creating an environment where numbers of pest plants or animals may increase or thrive, eg thickening brigalow or improved habitat for pigs.

This is where it is crucial to talk to other land managers involved in carbon farming. By discussing potential issues with others, including local NRM staff, you have more potential to design a project which will better suit your country and benefit your enterprise long term.

There are a number of practical barriers to greater participation by farmers in the carbon market.

Some of these are:

- difficulty understanding the legal and financial risks to participating in the carbon market;
- concerns about the real farm gate return and risks from project participation;
- the need for carbon farming policies to be more easily applicable to mixed enterprise farms;
- the need for long-term certainty in policy settings to encourage farmers to participate.

4. Methodologies

4.1 Beef cattle herd management

Project Activities

A project activity is an agricultural practice that was not carried out during the set historical period preceding the project. Data from this period is used to estimate emissions intensity and calculate baseline emissions.

Examples of project activities include supplement feeding, installing new fences, planting improved pastures, improving herd genetics, and increasing density of water points.

Participants can conduct other activities to reduce emissions intensity, but they must meet the requirements of the method. In your application to register your project you will need to demonstrate how your proposed activity will result in reduced emissions intensity.

Project baseline

The project baseline is an estimate of the emissions that would have occurred had a project activity not been implemented.

Baseline emissions are calculated for the herd each year and are essential for calculating the projects abatement. Use the Herd Management Calculator to work out your projects baseline.

Record-keeping requirements

Scheme participants must keep records for seven years according to the general record-keeping requirements of the Act and Rules, including:

- separate and self-contained records for each herd, for example:
- records of yearly liveweight gain
- movements of cattle in and out of the herd with liveweights at entry into and exit from herd, and
- records showing the business structure, location and management changes in the emission intensity reference period.

The method also states that records must be kept for purchased feed if the project activity involved a change to the herd's diet and some or all of the feed was purchased.

http://www.cleanenergyregulator.gov.au/ERF/Choosing-a-project-type/Opportunities-for-the-land-sector/Agricultural-methods/Reducing-greenhouse

4.2 Feeding nitrates to beef cattle

Project Activities

A project involves fully or partially replacing urea supplements with nitrate supplements in pasture-fed beef cattle. This reduces the amount of methane emissions that the cattle produce.

The nitrate is supplied to the herd as a lick block with a specified sulfur-to-nitrate ratio (sulfur is included to reduce the risk of toxicity). Lick blocks are made available to the herd over a specified time called a feeding period or nitrate supplementation period. A feeding period must occur over consecutive days, but a project has no restrictions on the number or frequency of feeding periods.

Note that a project is only suitable if the proposed land has sufficient pasture to meet the herds' required daily mass intake. You also need to take into account the levels of protein available from the pasture, because supplements will only reduce emissions and benefit livestock health when the protein levels of the pasture are too low. If your herd's protein requirements are already being met by your pasture, supplementing with nitrates will not provide any further production benefit.

You can use a tool called the Beef Nitrates Calculator to check whether a project is feasible for your situation. The calculator also helps you work out many of the factors you need to know to run a project, including:

- diet information for your region
- safe nitrate feeding levels, and
- the correct nitrogen-to-sulfur ratio for your herd.
- Feedlot beef cattle are excluded from these projects.

Reporting Requirements

In addition to the reporting requirements of the Act and the Rule, Section 5.11 of the method requires that offset reports must contain:

- the start date and end date of the reporting period
- inputs and outputs of the Beef Nitrates Calculator, and
- carbon dioxide equivalent net abatement amount.

Monitoring Requirements

In addition to the general monitoring requirements of the Act, Division 5.2 of the method sets out specific monitoring requirements. You must monitor the:

- number of animals in each livestock class
- average liveweight of each livestock class
- nitrate lick block consumption, and
- consumption of non-protein nitrogen that is not nitrate.

Specialist skills

It is important to feed nitrates and urea at safe levels, because overfeeding can cause toxicity and even death. It is recommended you seek independent advice for your situation.

http://www.cleanenergyregulator.gov.au/ERF/Choosing-a-project-type/Opportunities-for-the-land-sector/Agricultural-methods/Reducing-greenhouse

4.3 Soil carbon sequestration in agricultural systems

Project activities and eligibility requirements

To be eligible under this method, projects must introduce one or more of the following activities:

- apply nutrients to the land,
- apply lime to remediate acid soils,
- apply gypsum to remediate sodic or magnesic soils,
- undertake irrigation activities from new irrigation efficiency savings,
- re-establish or rejuvenate a pasture by seeding establishing, or permanently maintaining, a pasture where there was previously no pasture, such as on cropland or bare fallow,
- alter the stocking rate, duration or intensity of grazing,
- retain stubble after a crop is harvested,
- convert from intensive tillage practices to reduced or no tillage practices,
- modify landscape or landform features to remediate land (e.g. undertake water ponding), or
- use mechanical methods to add or redistribute soil.

Undertaking one or more eligible management activities under this determination may not result in soil carbon increases and crediting is dependent on increasing the baseline level of soil carbon. See more information in the Department of Environment and Energy's factsheet on increasing soil carbon.

Reporting and crediting of carbon abatement

Each crediting application for Australian carbon credit units (ACCUs) requires at least one round of soil sampling, the calculation of net carbon abatement and inclusion of this and other required information in an offset report (Determination—part 5). Statements must be provided from the proponent and the independent person responsible for sampling verifying, respectively, that the abatement is genuine and the soil carbon estimate accurate.

Legislative requirements

Carbon Credits (Carbon Farming Initiative— Measurement of Soil Carbon Sequestration in Agricultural Systems) Methodology Determination 2018 and the explanatory statement Carbon Credits (Carbon Farming Initiative) Act 2011, the Carbon Credits (Carbon Farming Initiative) Regulations 2011 and the Carbon Credits (Carbon Farming Initiative) Rule 2015.

Tools and resources

The Supplement for Measurement of Soil Carbon Sequestration in Agricultural Systems

The Department of Environment and Energy's factsheet: Increasing soil carbon under the Emissions Reduction Fund

http://www.cleanenergyregulator.gov.au/ERF/Choosing-a-project-type/Opportunities-for-the-land-sector/Agricultural-methods/Reducing-greenhouse

4.4 Sequestration of carbon in soil using default values

Project Activities

A project involves removing carbon from the atmosphere and storing it in the soil. This is done by setting up project management activities that change agricultural soil conditions to improve crop and pasture growth.

You must undertake at least one of the following types of project management activities:

- sustainable intensification
- stubble retention, or
- conversion to pasture.

Each of the three project management activities is made up of specific management actions, as described below.

In sustainable intensification projects, new ways of productive land management are started with the aim to increase soil carbon content. This can include:

- managing nutrients
- managing acidity (pH)
- introducing new irrigation, or
- renovating pasture.

Before you apply to run a project, you need to identify your project area using the Sequestration Value Maps found under method tools, and then divide the project area into a combination of carbon estimation areas and exclusion areas. Only one project management activity can be carried out in each carbon estimation area.

More information about project activities, carbon estimation areas and exclusion areas.

The amount of carbon stored in soil as a result of your management activities is modelled using the Sequestration Value Maps located under method tools. The calculations are based on default values, instead of measured values. This is because it is sometimes not practical or easy to measure the amount of carbon stored in every project area. The default values have already been modelled by FullCAM for different types of soils, climate and management activities.

Click for more detail on calculating abatement, emissions and soil carbon levels.

Monitoring Requirements

In addition to the general monitoring requirements of the Act, projects must meet specific monitoring requirements in the method. These include monitoring:

- livestock numbers (according to species, state or region, and livestock class) in each carbon estimation area
- the number of days each year (according to season) that the animals are in the carbon estimation area, and
- the parameters listed in the table in Section 101 of the method.

http://www.cleanenergyregulator.gov.au/ERF/Choosing-a-project-type/Opportunities-for-the-land-sector/Agricultural-methods/Reducing-greenhouse

4.5 Soil carbon sequestration in grazing systems

Project Activities

A project involves storing carbon on grazing land by increasing inputs of carbon to the soil, reducing losses of carbon from the soil, or both.

You can choose from a range of management actions to build soil carbon, as long as one of the actions is new. New management actions could include:

- converting from continuous cropping to pasture
- undertaking pasture cropping
- managing pasture by
- implementing or changing pasture irrigation
- applying organic or synthetic fertiliser to pastures
- rejuvenating pastures, including by seeding
- managing grazing by
- changing stocking rates, or
- altering the timing, duration and intensity of grazing.

Before you begin a project, you need to identify the area in which it will occur and divide it into one or more carbon estimation areas and exclusion areas (if applicable). The boundaries of a carbon estimation area must be defined in accordance with the Carbon Farming Initiative (CFI) mapping guidelines and the CFI soil sampling design method and guidelines.

The levels of carbon stored in the soil are estimated regularly throughout the project, based on soil samples taken from various locations. You need to prepare a sampling plan that identifies these locations. All samples must be collected and prepared by qualified technicians, and the samples must be analysed by accredited laboratories.
Click for more information about project activities, carbon estimation areas and soil sampling.

Monitoring Requirements

In addition to the general monitoring requirements of the Act, Section 7.3 of the method sets out specific monitoring requirements. These include monitoring:

- 'risk of reversal' events, and
- known erosion events.

A risk of reversal event occurs when part of the project area is:

- subject to bare fallow (i.e. not seeded and with less than 40 per cent ground cover for at least three months)
- subject to a fire or other event that reduces surface vegetation cover below 40 per cent, or
- converted from permanent pasture to cropland with no pasture cover.

http://www.cleanenergyregulator.gov.au/ERF/Choosing-a-project-type/Opportunities-for-the-land-sector/Agricultural-methods/Reducing-greenhouse

4.6 Destruction of methane dairy manure with covered ponds

Project Activities

A project using this method involves the capture and combustion of biogas generated by the decomposition of dairy manure in effluent ponds and must consist of the following activities:

- using covered ponds to prevent the release of biogas (containing methane)
- collecting the biogas from the covered pond, and
- combusting the methane component in the biogas to convert it to carbon dioxide.

Ponds used in the project must comply with the standards for construction, operation and maintenance of ponds set out in the Effluent and Manure Management Database standards.

Ponds must have a minimum loading rate of 50g of volatile solids per cubic metre of active pond volume per day.

The method allows for the use of flaring, an electricity generation system, and a gas boiler.

Use of flaring

Any flaring system used in the project must:

- use a frequently sparking flare to ensure the continuous destruction of method, or
- include a control system that prevents gas flow through the flare when the flare is not operational.

Use of an electricity generation system

You may use an internal combustion engine for electricity generation fed by the methane generated by the project activity.

If you use an electricity generation system you must determine the destruction efficiency of the internal combustion engine in accordance with the method (section 3.10), and calculate the volume of methane combusted.

You must determine the electricity efficiency factor for the internal combustion engine in accordance with the manufacturer's specifications, with calibration at least every five years. The manufacturer or an accredited third party must conduct the calibration.

Use of a gas boiler

If you use a gas boiler, you must operate the system in accordance with the manufacturer's specifications, with calibration at least every five years. The manufacturer or an accredited third party must conduct the calibration.

Reporting requirements

In addition to the reporting requirements of the Act and the Rule, the method also sets out the following method-specific requirements that must be included in each report. These include:

- net greenhouse gas abatement number,
- quantity of methane generated under baseline conditions,
- total volume of methane sent to combustion devices,
- destruction efficiencies of combustion devices (if default values not used),
- total amount of fuel used by the project, and
- electrical efficiency of the internal combustion engine generator.

Further Information

http://www.cleanenergyregulator.gov.au/ERF/Choosing-a-project-type/Opportunities-for-the-land-sector/Agricultural-methods/Reducing-greenhouse

4.7 Reducing emissions by feeding dietary additives to milking cows

Eligibility requirements

In addition to general eligibility requirements in the Act, the method requires that you:

- conduct your project in Australia. Dairy farms in external territories have been excluded, and
- use milking cows that are pasture fed for at least nine months of the year. The nine months do not need to be consecutive.

Project Activities

A project involves feeding eligible additives to milking cows. An eligible additive is one of the following:

- canola meal
- cold-pressed canola meal
- brewers grain
- hominy meal, or
- dried distillers grain.

The concentration of fat in the diet of the milking herd must not exceed 70 grams of fat per kilogram of dry matter intake in any season.

Reporting requirements

In addition to the reporting requirements of the Act, the method also sets out the following method-specific reporting requirements that must be included in each report:

- The start and end dates of each project year to which the report applies.
- All inputs and outputs from the Dietary Fats Calculator for each project year in the reporting period.
- The carbon dioxide equivalent net abatement amount measured in tonnes of carbon dioxide equivalent calculated using the Dietary Fats Calculator.

Monitoring requirements

In addition to the general monitoring requirements of the Act, projects must meet specific monitoring requirements in the method.

These include monitoring and recording the number of milking cows in the milking herd via an animal identification tag or other unique identifier.

Milking cows in the milking herd must be counted at least once per month in the baseline and each project year.

The method outlines quality assurance and quality control requirements for all measuring or monitoring instruments.

Further Information

http://www.cleanenergyregulator.gov.au/ERF/Choosing-a-project-type/Opportunities-for-the-land-sector/Agricultural-methods/Reducing-Greenhouse-Gas-Emissions-by-Feeding-Dietary-Additives-to-Milking-Cows

4.8 Vegetation Methods

There are several current Vegetation Methods all varying slightly.

- Human-Induced regeneration of a permanent even-aged native forest V1.1
- Avoided clearing of native regrowth
- Native forest from managed regrowth
- Plantation forestry
- Measurement based methods for new farm forestry plantations
- Avoided deforestation V1.1
- Reforestation and afforestation V2.0
- Reforestation by Environmental or Mallee Plantings – FullCAM

The Sequestration Decision Tree is a useful resource to determine which vegetation method is most appropriate for your enterprise and goals and can be downloaded here.
Vegetation Methods, summaries and documents for each can be found at:
www.cleanenergyregulator.gov.au/ERF/Pages

How is abatement calculated in Vegetation Methods?
In general terms, abatement is calculated by measuring the change in the amount of carbon stored in a project area through the growth of trees, natural decay, and disturbance events (fire, pest, disease, and storm) minus the emissions resulting from fire and fuel used to establish and maintain the project.

4.9 Snapshot of the Vegetation Methods (Emission Reduction Fund website)

Is the human-induced regeneration of a permanent even-aged native forest method suitable for your business?

Do you conduct activities on your land that suppress native forest growth?
Has native forest growth been suppressed for at least 10 years?
If you answered yes to these questions, the human-induced regeneration method may be suitable for your business.

Is the avoided clearing method suitable for your business?

Does your land have native forest cover?
Do you have a valid unrestricted clearing consent?
Has your land been cleared at least twice in the past?
If you have answered yes to these questions, the avoided clearing method may be suitable for your business.

Is the native forest from managed regrowth method suitable for your business?

Are you able to provide evidence of a decision to introduce a change in land management practice that leads to the regrowth of native forest?
Has the land where the change in land management practice will occur been cleared of forest cover and regrowth has started, but forest cover has not been reached?
Would the land normally be cleared to maintain pastoral use?
If you answered yes to these questions, the native forest from managed regrowth method may be suitable for your business.

Is the plantation forestry method suitable for your business?

Are you considering starting a new plantation forest on land that has had no plantation forest for seven years or more?
Do you manage an existing plantation forest?
If you answered yes to one of these questions, the plantation forestry method may be suitable for your business.

Is the measurement-based methods for new farm forestry plantations method suitable for your business?

Are you able to plant and grow trees as either a permanent planting (no harvest) or new farm forestry plantations (commercial harvesting is permitted)?
Did the area where planting will occur include for at least five years before a project starts, land used for grazing or cropping, or land that was fallow between grazing or cropping?
Do you have or are you able to access, forestry expertise?
If you have answered yes to these questions, the measurement-based methods for new farm forestry plantations method may be suitable for your business.

Is the avoided deforestation method suitable for your business?

Do you have land in Australia that covers an area of at least 0.2 hectares, and is dominated by trees that are at least two metres tall and provide crown cover of at least 20 per cent of the land area?
Do you have a valid clearing consent issued before 1 July 2010?

Does the clearing consent state that clearing is permitted for the purposes of permanently converting the forest to cropland or grassland, not to plantation or settlements?
If you have answered yes to these questions, the avoided deforestation method may be suitable for your business.

Is the method for reforestation and afforestation suitable for your business?
Do you want to plant seeds or seedlings on cleared land to establish a permanent forest?
Has the land been used for grazing, cropping or been fallow for the last five years?
Are you prepared to undertake field measurements of your planted trees?
If you have answered yes to all of these questions, the Carbon Credits (Carbon Farming Initiative—Reforestation and Afforestation 2.0) Methodology Determination 2015 (the method) may be suitable for your business.

Is the reforestation by environmental or mallee plantings method suitable for your business?
Are you able to establish and maintain plantings of either mixed native trees or mallee eucalypt?
Has the land been clear of forest cover for at least five years?
If you have answered yes to these questions, the reforestation by environmental or mallee plantings method may be suitable for your business.

4.10 Human-induced regeneration of a permanent even-aged native forest V1.1

Project activities

A project activity conducted on land that is not conservation land must include one or more of the following human-induced regeneration activities:

- Excluding livestock and taking reasonable steps to keep livestock excluded.
- Managing the timing and extent of grazing.
- Managing feral animals in a humane manner.
- Managing plants that are not native to the project area.
- Implementing a decision to permanently cease mechanical or chemical destruction, or suppression, of native regrowth.

Other considerations when running your project:

Biomass cannot be removed from carbon estimation areas; except in accordance with the method. These exceptions are:

- If removal is required by law.
- Plants that are not native to a particular carbon estimation area may be removed, but only if the removal is likely to improve the growth rate or health of the remaining native vegetation.

Dead biomass may be removed from a carbon estimation area if it did not result from mechanical or chemical destruction, it is to be used as firewood and the carbon stock in that carbon estimation area would not be materially less than if the biomass were not removed. Native vegetation must not be mechanically or chemically damaged or destroyed within a carbon estimation area unless required by law or it is selectively carried out to improve the growth rate or health of the remaining native vegetation and, the resulting biomass remains in the carbon estimation area.

If the activity involves excluding livestock and taking reasonable steps to keep livestock excluded, the livestock must be prevented from grazing in the carbon estimation area until the regenerated vegetation meets the definition of ' forest cover'. Once forest cover is achieved through regeneration, the participant may conduct the human-induced regeneration activity of managing the time and extent of grazing and then allow livestock in the carbon estimation.

If the activity includes the management of the timing and extent of grazing in a carbon estimation area, grazing may be permitted only to the extent that it does not impact the accumulation of carbon in the carbon estimation area.

Using lime or fertiliser in the carbon estimation area is not allowed.

Reporting requirements

All scheme participants must submit project reports to the Clean Energy Regulator throughout the crediting period of their project. A reporting period can be between six months and five years.

Further Information

http://www.cleanenergyregulator.gov.au/ERF/Choosing-a-project-type/Opportunities-for-the-land-sector/Vegetation-methods/Human-Induced%20regeneration%20of%20a%20permanent%20even-aged%20native%20forest

4.11 Avoided clearing of native regrowth

Project activities

A project involves retaining areas of native forest that would otherwise be cleared in the normal course of events. Native forest is land dominated by trees that:

- are located within their natural range
- have reached a height of at least two metres, and
- have attained a crown cover of at least 20 per cent of the area of land.

You also need to divide, or stratify, the project area into carbon estimation areas, which are the areas of your project where carbon will be stored and for which ACCUs may be issued. The boundaries of each carbon estimation area must be defined in accordance with the Carbon Farming Initiative Mapping Guidelines using field surveys, aerial photography, satellite imagery or maps.

Once approved, a project's activities are minimal, apart from ongoing management of the native forest. For example, you must actively reduce the risk of damage from fire, weeds and feral animals. You may collect up to 10 per cent of wood from the forest for personal uses, such as fencing or household firewood. You may also thin trees for ecological purposes, subject to the rules in the method.

Click for further information about project activities.

Reporting requirements

In addition to the reporting requirements of the Act and the Rule, Section 56 of the method sets out method-specific requirements for offset reports. This includes providing information related to:

- FullCAM data for baseline and project scenarios
- results of all calculations
- thinning events
- fires, and
- non-fire natural disturbances.

Monitoring requirements

In addition to the general monitoring requirements of the Act, Section 60 of the method sets out specific monitoring requirements. These include monitoring:

- fires, and
- other natural disturbances.

Further Information

http://www.cleanenergyregulator.gov.au/ERF/Choosing-a-project-type/Opportunities-for-the-land-sector/Vegetation-methods/Avoided-clearing-of-native-regrowth

4.12 Native forest from managed regrowth

Project activities

A project involves allowing native vegetation to grow and become forest. This is done by stopping activities that suppress or destroy regeneration of native vegetation. These activities must be replaced with new management practices that allow native trees to regenerate and become forest. The regeneration must arise from existing natural seed beds, rootstocks or lignotubers in the project area.

You must provide a geospatial map of the project area that meets the requirements of the CFI Mapping Guidelines. The area is then divided, or stratified, into a combination of two different zones:

Carbon estimation areas, which are the areas of your project where carbon will be stored and for which ACCUs may be issued.

Exclusion zones, which are areas where project activities will not be conducted, such as a road, building or dam.

More information about project activities.

Reporting requirements

In addition to the reporting requirements of the Act and the Rule, Division 5.4 of the Method also sets out method-specific requirements for offset reports. The information you are required to provide when reporting to the Clean Energy Regulator includes:

- net abatement amount and related baseline and carbon stock data
- data on emissions from biomass burning and fuel use
- project area, forest management and forest cover information, and
- FullCAM files and output data.

Record-keeping requirements

In addition to the record-keeping requirements of the Act and the Rule, Division 5.3 of the Method describes specific record-keeping requirements. These include keeping records related to:

- the decision to run a project,
- clearing and regrowth,
- plant species being regenerated,
- stratification into carbon estimation areas,
- project baseline,
- fires,
- fuel use,
- FullCAM modelling,
- forest management, and
- the project area.

Further Information

http://www.cleanenergyregulator.gov.au/ERF/Choosing-a-project-type/Opportunities-for-the-land-sector/Vegetation-methods/Native-forest-from-managed-regrowth

4.13 Plantation forestry

Project activities and eligibility requirements

Three activities can be conducted under the plantation forestry method, including to:

- establish a new plantation forest on land that has had no plantation forest for seven years
- convert a short-rotation plantation to a long-rotation plantation, where the conversion might occur either part-way through the short-rotation plantation cycle, or following harvest of a short-rotation plantation, or
- maintain a pre-existing plantation forest that meets the eligibility requirements of the plantation forestry method, but was established under another method.

Eligibility is restricted to plantations established in regions defined under the national plantation inventory within which, there are some plantation types that are not eligible under this method. Plantations managed as part of a forestry managed investment scheme are also ineligible.

Before the Clean Energy Regulator can register a plantation project, participants must notify the Department of Agriculture and Water Resources of their proposal and the Minister for Agriculture must assess whether the project may lead to an undesirable impact on agricultural production in the region in which the project is to be located. If an adverse finding is made by the Minister, a project will be ineligible to participate in the Emissions Reduction Fund under the plantation forestry method.

Abatement calculation and permanence period

The plantation forestry method requires accounting for carbon stock changes in trees, debris, and harvested forest products, taking into account forest growth, disturbances and harvesting. It also accounts for carbon stock changes and emissions due to management activities such as thinning, pruning, fertilising and controlled burning, and emissions from fossil fuel use.

Project participants must use FullCAM to calculate their project's carbon stock. In general, abatement is calculated by subtracting the long-term average baseline carbon stock (where applicable) and any project emissions from the project carbon stock, with a cap on maximum abatement represented by the long-term average project carbon stock.

Further Information

http://www.cleanenergyregulator.gov.au/ERF/Pages/Choosing%20a%20project%20type/Opportunities%20for%20the%20land%20sector/Vegetation%20and%20sequestration%20methods/Plantation-forestry-method.aspx

4.14 Measurement based methods for new farm forestry plantations

Project Activities

A project involves establishing and maintaining trees as either permanent plantings or in harvest plantations. Trees can be planted as seedlings or seeds in belt or block plantings, at a density that will allow them to achieve 'forest cover'. This means that trees must have the potential to grow to at least two metres tall, and reach a crown cover of at least 20 per cent of the area.

Before you begin a project, you need to identify the area in which it will occur and divide it into one or more smaller areas known as strata (or carbon estimation areas), following the Carbon Farming Initiative (CFI) mapping guidelines and the requirements for delineating boundaries in Part 3 of the method. You then establish a network of sampling plots in each stratum and develop a sampling plan, which includes information such as plot location, size and shape. The sampling plots are used to estimate the amount of carbon stored by your 'project' trees.

For permanent plantings, once the planting is established, it must be maintained in such a way that the trees can reach and maintain crown cover. For harvest projects, you must propose a specific management regime, which may include:

- planting,
- weed control,
- harvesting,
- debris removal, and rotation length (i.e. the length of time between planting and harvesting).

In general, project trees must not be removed once established, with the main exception being for harvest if you choose to run a harvest project. Removal of project trees is only permitted in those circumstances listed in Sections 4.4 and 4.7 of the method, including:

- taking samples to calculate the amount of carbon stored, or
- managing natural disturbances, such as flood, fire, drought or disease.

In certain circumstances, a permanent planting project may be changed to a harvest project, but harvest projects cannot be changed to permanent planting projects.

The Technical Reference Guide for the Measurement Based methods for New Farm Forestry Plantations Methodology Determination 2014 provides all the detailed instructions for the techniques used in running a project.

Click for more information about project activities and setting up the project area.

Reporting Requirements

In addition to the reporting requirements of the Act and the Rule, Division 7.4 of the method also sets out the following requirements for offset reports.

All reports must contain information relating to:

- project type and management regime,
- strata locations and descriptions,
- sampling plans,
- emissions, carbon stocks and abatement calculations,
- FullCAM modelling and allometric functions,
- growth disturbances,
- fuel use, and
- quality assurance and control measures.

In addition, your first report must contain information relating to:

- the history of land use and forest cover, and
- descriptions of the project area and strata.

Further Information
http://www.cleanenergyregulator.gov.au/ERF/Choosing-a-project-type/Opportunities-for-the-land-sector/Vegetation-methods/Measurement-based-methods-for-new-farm-forestry-plantations

4.15 Avoided deforestation

Project Activities

A project protects native forest in areas that would otherwise be cleared for crops or grassland. The forest must be managed to achieve a mix, in terms of composition and structure, of trees, shrubs and understorey plants that occur naturally in the area of the project.

You may thin trees in the forest for the purposes of promoting biodiversity or vegetation growth, as long as at least 95 per cent of the thinned wood remains in the area it was thinned. You may collect up to 5 per cent of wood from the forest for personal uses, such as fencing or household firewood.

You need to divide, or stratify, the project area into:

- carbon estimation areas, which are the areas of your project where carbon will be stored and for which ACCUs may be issued
- exclusion zones where activities are not conducted, such as a road, building or dam, and
- clearing buffers, which are parts of your forest that must not be cleared (only if specified by your pre-existing clearing consent). As an example, if a clearing consent states that 20 per cent of the area covered by a clearing consent must be maintained, then under the method, the proponent must map out a clearing buffer equal in hectares to that 20 per cent mentioned in the clearing consent.

The boundaries of each carbon estimation area must be defined in accordance with the Carbon Farming Initiative Mapping Guidelines using field surveys, aerial photography, satellite imagery or maps.

Click for further information about project activities.

Reporting Requirements

In addition to the reporting requirements of the Act and the Rule, Sections 67–68 of the method set out method-specific requirements for the first and subsequent offset reports. This includes providing information related to the:

- baseline deforestation plan
- evidence of the mix of species, and
- map of the project area.

Further Information

http://www.cleanenergyregulator.gov.au/ERF/Choosing-a-project-type/Opportunities-for-the-land-sector/Vegetation-methods/Native-forest-protection-(avoided-deforestation)

4.16 Reforestation and afforestation

Project Activities

Before you start the project, you need to prepare the land for planting new forest trees. If there are trees already on the land they must not be disturbed or removed from the project area, unless done in accordance with section 12 of the method.

Once you have identified your project area you need to define the strata and strata boundaries, ensuring that strata do not overlap.

Stratification is the process of outlining smaller base land units, called strata, within an eligible area of land. Strata show uniform growing characteristics for all trees within them. By defining strata, the change in carbon stocks can be averaged across all growing plots within a stratum to more easily calculate carbon abatement.

A full list of site characteristics that affect tree growth is given in section 17 of the method. These include:

- tree species
- time of planting
- soil type
- climate, and
- disturbance history (e.g. fires or disease outbreaks).

You are allowed to carry out one preparation burn in each stratum before planting. You are also allowed to apply fertiliser to each stratum, but no more than once in every 25-year period.

You also need to plan the number of trees to plant per hectare, so that your planting has the potential to achieve forest cover. Recommendations for planting densities for trees that reach different sizes at maturity can be found in Table 1 of the explanatory statement.

Trees can be planted in either belt or block figurations, or a combination of the two, as long as they have the potential to achieve forest cover.

Forest cover is defined as having 20 per cent crown cover at a tree height of at least two metres across an area of at least 0.2 hectares.

Reporting requirements

In addition to the record keeping requirements of the Act and the Rule, the method also sets out a specific requirement for offsets reports. This covers reporting when it is not possible to use factors or parameters as at the end of a reporting period.

Applications for ACCUs can be made at the same time as you submit your project reports through the Client Portal using the electronic ERF Project Reporting and Crediting Application form.

Further Information

http://www.cleanenergyregulator.gov.au/ERF/Choosing-a-project-type/Opportunities-for-the-land-sector/Vegetation-methods/Reforestation-and-Afforestation

4.17 Reforestation by environmental or mallee plantings FullCAM

Project Activities

A project involves establishing and maintaining vegetation such as trees or shrubs on land that has been clear of forest for at least the last five years. This can be either a:

- mallee eucalypt planting, or
- mixture of native species, termed a mixed-species environmental planting.

Trees can be planted as either seeds or tubestock, in rows or randomly, and in areas that are either linear belts or blocks. They must be planted at a density that will allow them to achieve forest cover, which means they must have the potential to reach a height of at least two metres and provide crown cover over at least 20 per cent of the land.

You must identify the area in which your project will occur using the Long Term Average Rainfall Map Layer and the CFI Mapping Guidelines. The area is then divided, or stratified, into a combination of two different zones:

- carbon estimation areas, which are the areas of your project where carbon will be stored and for which ACCUs may be issued, and
- exclusion zones, which are areas where project activities will not be conducted, such as a road, building or dam.

Click for further information about project activities.

Reporting requirements

In addition to the reporting requirements of the Act and the Rule, Division 5.4 of the method also sets out method-specific requirements for the first and subsequent reports. The information you are required to provide includes:

- net abatement amount and related carbon stock data
- data on emissions from biomass burning and fuel use
- project area, forest management and forest cover information, and
- FullCAM files and output data.

Monitoring requirements

In addition to the general monitoring requirements of the Act, Section 5.3 of the method describes specific monitoring requirements. These include using on-ground observation and/or remote-sensing imagery to:

- monitor management and disturbance events,
- ensure compliance with Part 3 of the method and the Long Term Average Rainfall Map Layer, and
- demonstrate that the requirements for any specific calibrations have been met.

Further Information

http://www.cleanenergyregulator.gov.au/ERF/Choosing-a-project-type/Opportunities-for-the-land-sector/Vegetation-methods/Reforestation-by-Environmental-or-Mallee-Plantings-FullCAM

4.18 Savanna fire management - emissions avoidance

Project Activities

The savanna fire management—emissions avoidance method credits activities that reduce the emission of greenhouse gases from fire in savannas in northern Australia, through a reduction in the frequency and extent of late dry season fires. Annual planned burning is a required fire management activity under the method. As avoided emissions are considered permanent, there are no additional permanence obligations under this method.

The method replaces the Carbon Credits (Carbon Farming Initiative—Emissions Abatement through Savanna Fire Management) Methodology Determination 2015.

Eligibility

For projects to be eligible under this method, they must undertake:

- savanna fire management activities with the objective of avoiding emissions that result from the late dry season, unplanned burning of savannas, and
- annual planned burning in each project area.

Project areas must:

- be in the high or low rainfall zone (or both)
- include vegetation fuel types (Part 3 section 14 of the determination), and
- not include relevant weed species (Part 3 section 14 of the determination)

There are a number of other requirements for projects under this method, including that:

- annual project management plans (Part 3 section 17 of the determination) are prepared before commencing burning each calendar year. These plans can be modified during the fire season to reflect actual conditions.
- relevant eligible interest holder consents are obtained before credits can be issued, and
- vegetation fuel type maps are created, validated, and revised as required. More information on vegetation fuel type maps can be found in the savanna technical guidance document.

Monitoring and excluding weeds

This method includes a requirement for projects (Part 3 section 14) to monitor and remove relevant weed species from project areas. Currently, the only weed that must be monitored and excluded is gamba grass (*Andropgon gayanus*). Projects are not able to claim Australian carbon credit units (ACCUs) for project areas that contain gamba grass.

If gamba grass is identified in a project area, it must be excluded by either:

Removing the gamba grass from the project area before the end of the reporting period in which it is first identified. A map and evidence of weed clearing must be provided with the relevant offsets report.

Removing the project area that contains the gamba grass by subdividing the project and removing the area that contains gamba grass from the project (in accordance with section 15 of the method). An area removed from the project is removed permanently.

Calculation of net abatement

Under this method, participants can either complete their net abatement calculations manually, or use the Savanna Burning Abatement Tool (SavBAT 3).

Net abatement from emissions avoidance is calculated by determining, for each project area, the difference between methane and nitrous oxide emissions in the baseline period and each project year. The difference between mean baseline and annual project emissions

reflects the change in emissions resulting from a change in fire management practices as a consequence of the project.
The baseline period for project areas under this method is ten years for project areas in the high rainfall zone, and 15 years for project areas in the low rainfall zone.

Further Information
http://www.cleanenergyregulator.gov.au/ERF/Choosing-a-project-type/Opportunities-for-the-land-sector/Savanna-burning-methods

4.19 Savanna fire management 2018 (sequestration and emissions avoidance)

Project Activities
The savanna fire management—emissions avoidance method credits activities that reduce the emission of greenhouse gases from fire in savannas in northern Australia, through a reduction in the frequency and extent of late dry season fires. Annual planned burning is a required fire management activity under the method. As avoided emissions are considered permanent, there are no permanence obligations under this method.
The method replaces the Carbon Credits (Carbon Farming Initiative—Emissions Abatement through Savanna Fire Management) Methodology Determination 2015.

Eligibility
For projects to be eligible under this method, they must involve:
savanna fire management with the objective of avoiding emissions from the unplanned, late dry season burning of savannas and sequestering carbon in dead organic matter, and annual planned burning in each project area.
Project areas must:

- be in the high or low rainfall zone (or both)
- include vegetation fuel types (Part 3 section 14 of the determination), and
- not include relevant weed species (Part 3 section 14 of the determination).

There are a number of other requirements for projects under this method, including:

- annual project management plans (Part 3 section 17 of the determination) must be prepared prior to commencing burning each calendar year. These can be modified during the fire season to reflect actual conditions.
- relevant eligible interest holder consents are obtained either before project registration for transferring projects, or before credits can be issued for new projects, and
- vegetation fuel type maps are created, validated, and revised as required. More information on vegetation fuel type maps can be found in the savanna technical guidance document.

Participants that apply under the savanna sequestration and emissions avoidance method are required to provide information at the registration and reporting stages of participation that is additional to the requirements under savanna emissions avoidance methods.

Permanence obligations

Carbon stored in vegetation and soil can be released back into the atmosphere by human-induced or natural events, reversing the avoidance of greenhouse gas emissions and the environmental benefit of the carbon that has been sequestered. For this reason, all sequestration projects are subject to permanence obligations to maintain any carbon stores for which Australian carbon credit units (ACCUs) have been issued.

The Emissions Reduction Fund requires participants of sequestration projects to choose either a 25-year or 100-year permanence period in their project application. Once nominated, the permanence period cannot be varied.

Permanence obligations require participants to maintain sequestered carbon in the project area for the duration of the permanence period. This means that projects under this method must maintain carbon stores in dead organic matter by undertaking fire management activities for at least the chosen permanence period—either 25 or 100 years. This includes maintaining carbon stores for the period after the crediting period has finished, until the end of the permanence period.

If sequestered carbon is not maintained, or if the project is revoked, proponents may need to relinquish ACCUs that have been issued, or pay penalty charges, and may be subject to a carbon maintenance obligation if credits are not relinquished.

For more information, see the permanence obligations page.

Sequestration buffer

Projects under this method are subject to a sequestration buffer, which combines the risk of reversal buffer and the permanence period discount usually applied to other sequestration methods. The buffer applies only to sequestration abatement, and is applied in the net abatement calculations in the method.

For:

- 25 year permanence period projects, the sequestration buffer is 25%.
- 100 year permanence period projects, the sequestration buffer is 5%.

Monitoring and excluding weeds

This method includes a requirement for projects (Part 3 section 14) to monitor and remove relevant weed species from project areas. Currently, the only weed that must be monitored and excluded is gamba grass (*Andropgon gayanus*). Projects are not able to claim Australian carbon credit units (ACCUs) for project areas that contain gamba grass.

If gamba grass is identified in a project area, it must be excluded by either:

1. Removing the gamba grass from the project area before the end of the reporting period in which it is first identified. A map and evidence of weed clearing must be provided with the relevant offsets report.
2. Removing the project area that contains the gamba grass by subdividing the project and removing the area that contains gamba grass from the project (in accordance with section 15 of the method). An area removed from the project is removed permanently.

Further Information

http://www.cleanenergyregulator.gov.au/ERF/Choosing-a-project-type/Opportunities-for-the-land-sector/Savanna-burning-methods

5. Take some action

5.1 How to become involved in carbon farming

The Carbon Farming Initiative and the ERF/Climate Solutions Fund were designed so that individual landholders could register projects and undertake projects individually, however it is a complex system and a very new area of competence and activity for many people. Landowners can get involved themselves or can do so with the support of a service provider. Similarly to the consultants and assistance available for other agricultural industries, the Carbon Farming industry has service providers that assist land managers to participate. The most common entry path is for people to partner with a carbon project developer. Project developers may assist at all steps of the process up to the sale of the ACCU's or they may provide support for particular phases of the project development or implementation. Importantly some project developers share the risk of project failure, while others do not.

Before signing with a particular project developer:

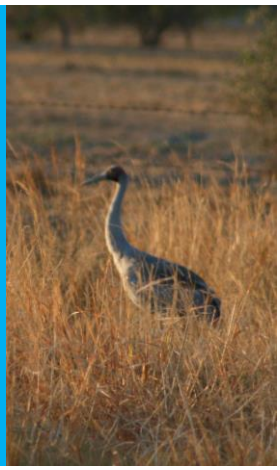
- **Read the Australian Carbon Industry Code of Conduct**
- **Do your research, speak to people who already have Carbon Projects,**
- **Speak to multiple project developers – look for Carbon Project Developers who will share the risk as well as the rewards,**
- **Check online at Queensland Rural Industry and Development Authority, your industry body and groups such as the Rural Financial Counselling Service for any assistance that is available.**
- **Always seek independent legal and financial advice prior to signing an agreement.**

People who provide financial services in relation to ACCUs and related financial products and services in Australia may require an Australian Financial Services (AFS) licence, which authorises them to provide those services. You should obtain your own professional advice about the trading of ACCUs, having regard to your own situation.

5.2 Do your homework first

Steps include:

- Do you have the legal right to undertake the project?
- Is there a suitable method?
- Does your high-level analysis suggest that it is worth undertaking further investigation?
- Is there a suitable vehicle for participation? This may involve a partnership.
- Undertake detailed financial and risk analysis and obtain professional advice about the viability of your project.
- Develop the implementation plan and seek a contract to support proceeding with the project.



5.3 Carbon Industry Code of Conduct

Carbon Project Developers and other Carbon Industry providers like agents, aggregators and advisors, can voluntarily sign up to be part of the Australian Carbon Industry Code Of Conduct. The code of conduct has been developed to promote best practice within Australia's carbon reduction & sequestration industry'. 'Signatories to the Code agree to meet the minimum requirements for operating in the carbon industry, as set out in the Code, including during pre-project activities, ongoing project management, documentation and general business practices. Administered by the Carbon Market Institute (CMI), the Code aims to address issues that impact on the reputation of the carbon industry and promote international leadership on carbon project development.

Signatories to the Code are committed to developing and conducting their business in line with industry best practice and interacting with their clients and other stakeholders in a professional and ethical manner.' (http://marketplace.carbonmarketinstitute.org/code/)

5.4 Use your local resources and contacts

In Queensland the regional Natural Resource Management (NRM) bodies can assist you, having access to relevant people to discuss your ideas of a carbon project. Each of the NRM Bodies have a plan to improve their regions and the management of their sources. A link is provided for each region.

NRM Regional Body website	Corporate Plan Link	Phone Contact
NRM Regions Queensland	Living Landscapes Local Livelihoods	0419 790 943
Burnett Mary Regional Group	Strategic Plan	07 4181 2999
Cape York NRM	NRM Plan	1300 132 262
Desert Channels Group	NRM Plan	07 4658 0600
Fitzroy Basin Association	Strategic Plan	07 4999 2800
Healthy Land and Water	Strategic Plan	07 3177 9100
Northern Gulf Regional Management Group	NRM Plan	07 4092 1088
NQ Dry Tropics	Strategic Plan	07 4799 3500
Reef Catchments	NRM Plan	07 4968 4200
Southern Queensland Landscapes	Strategic Plan	07 4620 0111
Southern Gulf NRM	NRM Plan	1800 676 242
Terrain NRM	Strategic Plan	07 4043 8000
Torres Strait Regional Authority	Development Plan	1800 079 093

If you require further information about policies, announcements or State Government initiatives contact Department of Environment and Resource Management: www.daff.gov.au or phone 137468 to be directed appropriately.

5.5 Carbon Project Developers

At the time of producing this Carbon Handbook the following Carbon Project Developers had signed the Australian Carbon Industry Code Of Conduct. Their websites are listed below.

http://aboriginalcarbonfund.com.au/	https://www.climatefriendly.com/
https://carbonfarmersofaustralia.com.au/	http://nativeconifers.com/
https://www.corporatecarbon.com.au/	https://www.co2australia.com.au/
https://greencollar.com.au/	http://alterra.com.au/
http://www.naturalcarbon.com.au/	https://aicarbon.com/
http://www.selectcarbon.com/	https://www.tasmanenvironmental.com.au/
http://agriprove.io/	http://marketadvisory.com.au/
http://soilcarboncount.com/	http://www.carbonlink.com.au
https://regenco.earth/	https://carbonconscious.com.au/
https://www.southpole.com.au/	

5.6 Web links for applying to become involved

Work out what type of project:
http://www.cleanenergyregulator.gov.au/ERF/Choosing-a-project-type

Contact your NRM Body. A list with links is found on the NRM Regions Qld site:
https://www.nrmrq.org.au/

Contact Queensland Farmers' Federation for key industry contacts to offer support:
Our Members - Queensland Farmers' Federation (qff.org.au)

4 Steps to participate:
http://www.cleanenergyregulator.gov.au/ERF/Want-to-participate-in-the-Emissions-Reduction-Fund

Participating in the Qld Program the Land Restoration Fund:
https://www.qld.gov.au/environment/climate/climate-change/land-restoration-fund

5.7 What have other people asked?

If we plant trees today under the Environmental Plantings methodology, how soon can we be paid for it?

Theoretically, you can be 'paid' at the end of the first year. Practically, you would be likely to wait until there has been enough carbon captured to make it worthwhile to submit an audit report. You can claim ACCUs only after a reporting period closes. You can choose the 'reporting period' from 12 months at the minimum or any time up to 5 Years after commencement of the project. Each subsequent reporting period begins immediately after the last reporting period.

(Carbon Farmers of Australia)

Can Livestock and Carbon Farming can be carried out on the same land?

How can Carbon farming work without impacting the income from my other farming business?

Carbon farming projects can complement and supplement farming business income. For example, carbon farming projects may provide an additional income stream from land that may be marginal or non-viable for other farming purposes.

(Land Restoration Fund)

Carbon Farming doesn't mean you have to destock. Under suitable grazing management regimes carbon projects and grazing operations will coexist.

(greencollar.com.au)

Does Carbon Farming mean locking up the land and being told what to do?

The way you manage your land will determine the carbon value of a Carbon Farming project. Decision-making, stewardship and implementation of management plans are still up to the landholder.

(greencollar.com.au)

6. References

https://www.ato.gov.au/business/income-and-deductions-for-business/in-detail/carbon-sink-forests/

http://www.cleanenergyregulator.gov.au/

http://www.cleanenergyregulator.gov.au/ERF/Choosing-a-project-type/Opportunities-for-the-land-sector/Agricultural-methods

http://www.cleanenergyregulator.gov.au/ERF/project-and-contracts-registers

http://www.cleanenergyregulator.gov.au/ERF/Want-to-participate-in-the-Emissions-Reduction-Fund/Step-4-Delivery-and-payment/Tax-treatment-of-ACCUs

https://www.futurefarmers.com.au/young-carbon-farmers/carbon-farming

https://www.legislation.gov.au/Series/C2011A00101

http://marketplace.carbonmarketinstitute.org/code/

https://www.nrmnorth.org.au/client-assets/documents/small-farm-living/Native%20Vegetation/Carbon%20Farming/Making%20cents%20of%20carbon%20and%20emissions%20on-farm%20booklet.pdf

https://www.nrmrq.org.au/

https://www.qld.gov.au/environment/climate/climate-change/land-restoration-fund

https://www.qld.gov.au/environment/climate/climate-change/carbon-farming