

Building Farmer & Advisor Knowledge in Carbon Farming



The Carbon Farming Knowledge Project involves a series of workshops to increase the understanding of 30 independent agricultural advisers in south-east Australia on reducing greenhouse gas emissions, carbon in farming systems and the Emissions Reduction Fund – where farmers can earn credits for storing carbon or reducing greenhouse gas emissions on their properties. The project helps advisers prepare their clients for potential environmental, economic and social benefits of future carbon management policy.

Summary of Session 4: Abatement opportunities under the Emissions Reduction Fund

Summary of March 2015 presentation by Michael Martin and Zoe Sinclair, Commonwealth Government

Background

The Emissions Reduction Fund (ERF) came into effect on December 13, 2014. Its objective is to help achieve Australia's emissions reduction target of 5 percent below 2000 levels by 2020. The government provided \$2.55 billion over five years to establish the fund with potential to top-up later. The ERF has replaced the previous government's Carbon Farming Initiative.

ERF methods available for the land sector include reforestation, biochar from poultry manure, savanna fire management, avoided land clearing and fertiliser use efficiency in irrigated cotton. ERF methods currently under development include beef cattle herd management and sequestration of carbon using default values.

Method development

Methods are developed by the Commonwealth Department of the Environment in consultation with industry and with input from a technical working group. The methods are considered by the Emission Reduction Assurance Committee (ERAC) and released for public consultation. This is then independently technically reviewed and, after further advice from ERAC, the Minister may approve the method to be made into a 'legislative instrument', called a determination. The Minister sets the priorities for method development on an annual basis.

On-farm practice change

An on-farm practice change that is to be considered under an ERF method must meet the 'newness' requirement. This means it must be able to be proved that the practice change will lead to a reduction in emissions and that it is a new activity. All ERF projects are audited at the participant's expense. For example soil carbon levels need to be established before the project starts, and at regular intervals during its life and the cost of that is borne by the participant. Soil carbon change is calculated using measurements from multiple sampling rounds and accounts for environmental variation.

Methods for soil carbon measurement

There are two ways of accounting for soil carbon:

Ways to reduce emissions in ruminants

General management

- Targeted joining
- Tighter weaning groups
- Performance based culling
- More fencing
- Increasing watering points

Possible future options

- Genetics and markers
- Other food types
- Waste management in feedlots
- Vaccination

Dietary input

- Higher quality feeding
- Improved pastures
- Year-round P supplements
- Nitrate supplements

Livestock methodologies

2012-13

- Covered dairy ponds (completed)
- Feeding fats/oils to dairy cattle (completed)

2014

- Feeding nitrate supplements to beef cattle (completed)

2014-15

- Whole of herd management for beef cattle (nearing completion)

- **Measured (currently used in an approved method):** This means undertaking soil preparation, sampling and analysis to estimate baseline soil carbon stocks before the project starts. After an agreed timeframe, soil is then re-sampled to estimate any changes in stocks. Emissions are calculated depending on the activity within the project, such as livestock, synthetic fertiliser, lime or residue management, and a baseline emissions scenario is identified.

The level of abatement is calculated for the reporting period by measuring the sequestration or the net change in emissions for the project area. The emissions are subtracted from the sequestration to arrive at the project's net abatement level.

- **Using default values (used in a method still under development):** This relies on using values generated through the Full Carbon Accounting Model (FullCAM), used in the Australian National Inventory System.

Landowners can undertake one of the modelled activity types:

- o **Sustainable intensification**, such as managing nutrients, correcting soil acidity, irrigating and undertaking pasture renovation.
- o **Stubble retention**, retain crop residue in-field and cease activities such as burning, baling or grazing.
- o **Conversion to pasture**, convert from a continuously cropped system to permanent pasture.

Once an activity type is chosen, the modelling can be used to estimate an annual sequestration value. While using default values is more prescriptive, the cost of estimating the soil carbon increase using modelling is lower than direct measurement for projects in cropping, pasture and mixed farming systems.

HOW IT WORKS: Sequestering carbon in soils in grazing systems

This is a measurement-based method and covers a broad range of activities (see box on page 1). Farmers can choose one or more activities, at least one activity must be new and they must increase biomass inputs or reduce soil organic matter losses. The choice of which activity to undertake is a business decision for each farm.

Farmers must be able to prove they have been operating a grazing system for the past five years and new activities may include improving grazing and pasture management. An alternative is that farmers could change from a minimum of five years of cropping to establishing permanent pasture on the area. This will mean more livestock, which means the extra methane emissions will have to be balanced out against soil carbon increases. The permanent pasture has to be maintained for the length of the project, such as 25 years or 100 years, but the project can be ended before the end of the contract if required and the carbon credits, called Australian Carbon Credit Units, given back. Farmers will be able to sell their ACCUs to the Government if they are successful at an ERF auction and receive an abatement contract. Alternatively, they may sell their ACCUs to the secondary market.

Additives or biochar are excluded from this method. There are no restrictions by rainfall zone or property size. It may be less viable on large properties where it will be expensive to sample over a large area.

BOTTOM LINE ... This method is not prescriptive about the actions because the proof is in the measurement. Farmers are paid on increases in soil carbon.

Useful resources

About the ERF – [www.environment.gov.au/climate-](http://www.environment.gov.au/climate-change/emissions-reduction-fund/about) [change/emissions-reduction-fund/about](http://www.environment.gov.au/climate-change/emissions-reduction-fund/about)

The National Greenhouse Gas Inventory – <http://ageis.climatechange.gov.au/>

Clean Energy Regulator – www.cleanenergyregulator.gov.au/Pages/default.aspx

Building Farmer and Advisor Knowledge in Carbon Farming Project – www.carbonfarmingknowledge.com.au

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