

## What is carbon farming?

Agriculture is the source of 16 percent of Australia's greenhouse gas emissions.

The sources of these emissions are:

- Livestock production
- Soil disturbance
- Land clearing
- Farm machinery use
- Production and use of fertiliser
- Transporting produce and inputs.

**MINIMISING THE EMISSIONS** from these sources will help to mitigate climate changes and the impact of climate changes on Australian agriculture. Importantly, there are practices that we can look at to improve farm production and profitability and achieve lower greenhouse gas emissions targets. These practices are referred to as 'carbon farming practices'. Carbon farming practices are those that enable the capture and storage of carbon from the atmosphere in vegetation and soil and/or reduce greenhouse gas emissions from agricultural activities.

### The Emissions Reduction Fund

The Emissions Reduction Fund (ERF) incentivises the adoption of a number of carbon farming practices. The ERF is an Australian Government voluntary offset scheme designed to encourage farmers and land managers to reduce greenhouse gas emissions and store carbon in vegetation and soil.

The use of farm machinery: one source of greenhouse gas emissions.



Pasture cropping example: Lupins inter-sown with chicory.

### How does the ERF work for a farmer?

For each tonne of CO<sub>2</sub>-e reduced or stored in soil or vegetation by using an **approved method** a farmer can be issued with an Australian Carbon Credit Unit (ACCU). To sell these ACCUs projects can register for the Clean Energy Regulator's auction and gain a contract to sell ACCUs at a set price or they can be sold into the voluntary market. The sale of ACCUs could form an extra source of income.

Methods contain the detailed rules for implementing and monitoring specific abatement activities and generating carbon credits under the scheme. The approved methods meet specific requirements; approved methods are measureable, verifiable for greenhouse gas emissions abatement and have no adverse impacts on the environment or employment.

Carbon farming practices that are commonly used in broadacre crop and mixed crop-livestock systems in Australia are listed below. An asterisk(\*) indicates those with approved methods.

- Crop residue retention to increase soil organic carbon.\*
- Increasing stock of soil carbon in soil by using soil amendments or nutrient management decisions.\*
- Minimise soil disturbance in order to maintain the stock of carbon in the soil. (Soil disturbance exposes organic matter and organic carbon to soil microbial process and can lead to erosion. Both result in the loss of carbon from soil.)
- Rotational grazing.
- Early weaning of livestock (for beef cattle\*).
- Flexible stocking rate to suit conditions and feed availability (for beef cattle\*).



- Reforestation, or establishing areas of native vegetation on farm.\*
- Planting trees belts.\*
- Agroforestry.\*
- Pasture cropping.
- Replacing annual pastures with perennials.\*
- Variable rate technology for efficient and effective use of fertiliser. (With no excess mineral nitrogen in the soil we expect lower emissions of nitrous oxide.)
- Controlled traffic farming to reduce compaction and consequently nitrous oxide and carbon dioxide emissions.



ABOVE: Soil amendments such as the addition of biochar and or mulch can help to build soil carbon stocks in soil.

BELOW: Carbon farming field days and workshops are an opportunity to learn more about how to fit carbon farming into your farm system.

## Research

Research to identify more effective methods by which landholders might sequester carbon and reduce greenhouse gas emissions is occurring. Some of the research projects are listed below:

- Fallow management options (including eliminating fallow)
- Soil amendments such as the addition of biochar and or mulch
- Improving fertiliser use efficiency
- Using enhanced efficiency fertilisers (EEFs). They are a combination of fertiliser and breakdown inhibitors. The inhibitors work by delaying the chemical process that produces ammonium and nitrate, both precursors to nitrous oxide.
- Selecting low methane emitting livestock based on genetic and reproduction traits.
- Feed additives and forages that reduce livestock methane emissions.
- Reduced machinery hours per hectare of crop.
- Using biofuels for farm machinery.

## Disclaimer

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