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Carbon Neutrality and Carbon Credits

Tips and terminology to support your carbon farming literacy

#1 – Carbon-Neutral or Net-Zero Emissions

A carbon neutral, or net-zero emissions farm, means that farm greenhouse gas (GHG) emissions (fuel, livestock, nitrogen etc.) are equal to the farm's carbon capture (soil, vegetation) on a year-by-year basis. The term 'carbon neutral' is more commonly used in Australia, while 'net zero' is commonly used internationally.

Online tools are available for farms to self-assess their status using accounting frameworks or engage an expert for advice.

You can find these accounting frameworks for Australian Primary Industries here: piccc.org.au/resources/Tools or access Dr Matthew Harrison's webinar on *Pathways to Carbon Neutral (or Net Zero) Agricultural Systems* here: youtu.be/jnNNfFbY7Nw

#2 – Carbon-Negative or Carbon-Positive

These two terms can be confusing as they are often used interchangeably to describe the same situation. The terms describe the situation when net emissions on the farm are less than zero. Therefore, more carbon equivalents have been captured and stored compared with those emitted each year.

#3 – Carbon Footprint vs Carbon Account

A carbon footprint is the net GHG emissions per product unit expressed as tonnes of carbon dioxide equivalent (CO_2e). This is also known as emissions intensity. Carbon footprints are generally calculated based on a lifecycle or entire production line assessment (i.e. birth to death for livestock, or pre-farm emissions for purchased grain products).

A carbon account is typically a measurement of net GHG emissions per organisation/business/farm. Carbon accounts are measured in tonnes of CO_2e per business. Carbon accounting defines different scopes of emissions:

Scope 1 – Direct emissions – GHG emissions that are a result of the organisation/business/farm (i.e. lifecycle emissions and sequestration on-farm).

Scope 2 – Indirect emissions – GHG emissions from the purchase and usage of electricity.

Scope 3 – Indirect emissions – GHG emissions that are not produced by or emitted as a result of the actions of the organisation/business/farm. These are the pre-farm emissions which are often the most difficult to quantify as they can vary widely. Larger corporations, such as banks, are beginning to focus on improving the quantification of Scope 3 emissions.

#3 – Carbon Credits

Earning, creating, and trading in carbon credits (Australian Carbon Credit Units [ACCUs]) for income requires engaging a Soil Carbon Service Provider, and having an assessment undertaken, an agreement made, and/or a carbon offset project registered. Creating carbon credits may involve doing something new on the farm to reduce emissions (e.g., reduce stocking rates) or capturing carbon under a methodology with long-term legal obligations.

For the Australian Government's soil carbon trading scheme: tinyurl.com/estimating-soil-sequestration

#4 – Carbon Projects and Measurement of the Baseline

Carbon projects are possible where the farm sequesters and stores more carbon in natural assets than it emits. When this occurs, a project can be registered with the Australian Clean Energy Regulator

Australian Government | National Landcare Program

The Soil Carbon in Pastures sub-project is supported by NRM North through funding from the Australian Government's National Landcare Program.

(CER) through a service provider or on your own. The first step is to measure a baseline, i.e. the existing soil carbon stocks. The excess accumulated carbon above this baseline due to a shift in management can then be sold as credits for supplementary income.

See Fact Sheet 3 in this series for more information on carbon farming.

#5 - Selling Carbon Credits

If carbon credits are sold that have been generated on the farm, someone else will own that carbon offset and this can no longer be counted towards the farm's carbon status. This may make it difficult for the farm to be carbon neutral, at least in the short term. Note that if the credits are sold into international markets, they will be counted towards another country's net-zero aspirations. Therefore, they will not count for Australia.

#6 – The Decision to Sell or Keep

In deciding whether to focus on being carbon neutral or selling offsets, it is important to weigh up the relative advantages.

For example, if the farm business can take advantage of a market opportunity to make a significant premium by providing a carbon-neutral product (e.g., grain, milk, meat, wool or eggs), this may influence the decision.

If no such opportunity exists, a carbon offset project could add an income stream over the next 25-30 years. If a carbon-neutral product opportunity arises, measure the carbon baselines today, make the management intervention shift to improve the rate of gain of carbon, and then keep rather than sell carbon credits (though this would still incur ongoing project costs).

#7 – Australia's National Greenhouse Gas Emissions

Carbon credits generated in Australia will be counted towards meeting Australia's emission reduction goal, provided these credits are sold in an Australian market to either the government or private buyers.

#8 – Carbon Calculators

Farm carbon calculators are used to identify and calculate the farm's carbon emissions and sequestration. These can assist you to determine how close the farm is to being carbon neutral. A range of calculators exist, many are updated regularly, and all take different aspects of farm carbon into account.

#9 – Benefits of Carbon Management and Sequestration

Being carbon neutral or making carbon credits relies on capturing and locking up atmospheric carbon (sequestration) and/or reducing farm emissions through increased production efficiency and/or product substitution. In addition to the potential for additional farm income through the carbon market, supplementary benefits to storing more carbon are increased crop and stock shelter and improved soil health. Increasing production efficiency can lead to higher margins and reduced environmental impacts.

Often, individuals or organisations need to purchase some ACCUs to reach a net zero position. This is not sustainable in the long run. If everyone did this, the atmosphere would see no real gains in terms of GHG emissions mitigation and global warming would continue. It would also create excessive demand for ACCUs, and the carbon price would rise. Purchasing ACCUs to offset GHG emissions should be discouraged.

#10 – Carbon Offsetting vs Carbon Insetting

Offsetting emissions is balancing your carbon emissions outside of the farm business through an external source, such as by buying carbon credits.

Carbon insetting is the ability to sequester your own carbon within the farm business unit or value chain, such as growing trees, to reduce the farm's emissions. Insetted emissions are not typically monetised or sold.

More Information

The Carbon Farming Series Fact Sheets have been produced to support carbon farming literacy. Download more from: nrmnorth.org.au/resources/

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