

Carbon farming in broadacre agriculture

The WANTFA Carbon Farming project is an Extension and Outreach Project supported by funding from the Australian Government. WANTFA was keen to have a project in this field because the objectives of carbon farming and emissions management in broadacre agriculture fit nicely within the aims and objectives of conservation agriculture and we recognise the implications of climate changes on farmers in Western Australia.

This project will identify and promote the synergies that exist between grower participation in the Emissions Reduction Fund (ERF) and profitable agricultural practices. Currently there are a range of research and demonstration projects being undertaken in the WA wheatbelt that will provide several management options for growers.

Carbon farming

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 (nitrous oxide and methane) from agricultural soils and livestock. Adoption of carbon farming practices is one option to help farmers to mitigate and adapt to climate change. Mitigation involves actions that are intended to reduce the magnitude of our contribution to climate change. Adaptation actions are those undertaken to reduce the adverse consequences of climate change, as well as to make the most of new opportunities.

Practices that help to maintain or even increase soil carbon include:

- conservation tillage, most ideal is zero-tillage cropping practices
- crop residue retention (stubble retention)
- allowing and assisting the regrowth of native vegetation
- eliminating or reducing the frequency of fallow in rotations
- shifting from annual to perennial pastures and crops
- improved grazing management by using relatively intensive rotational grazing

Practices that can help to reduce nitrous oxide emissions:

- variable rate technology
- controlled traffic farming (to reduce compaction)
- enhanced efficiency fertilisers

Practices that can help to reduce methane emissions from livestock:

- Feed additives
- Grazing of shrubs that have anti-methanogenic properties
- Selecting livestock with genetic traits for high reproduction rates and high productivity (feed conversion efficiency)
- Early weaning of livestock (to reduce emissions intensity per unit of output)

Co-benefits of carbon farming practices

Building up carbon in agricultural soils provides can offer production benefits. Increasing soil carbon content can help to improve soil structure, reduce erosion, improve soil moisture retention, and increase plant available water and nutrient storing capacity. Revegetation has many benefits aside from promoting carbon sequestration. Areas planted on farmland can contribute to reduced salinity, improved water quality and improved ecosystem service provision

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