Carbon farming to improve production and reduce greenhouse gas emissions

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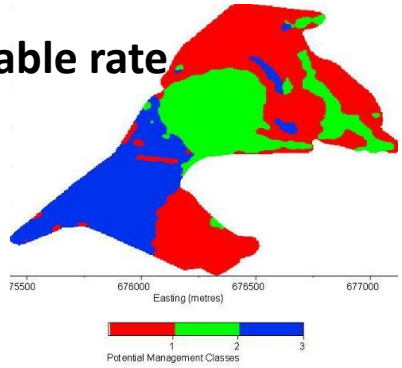
CARBON FARMING EXTENSION AND OUTREACH PROJECT

This project is supported by funding from the Australian Government

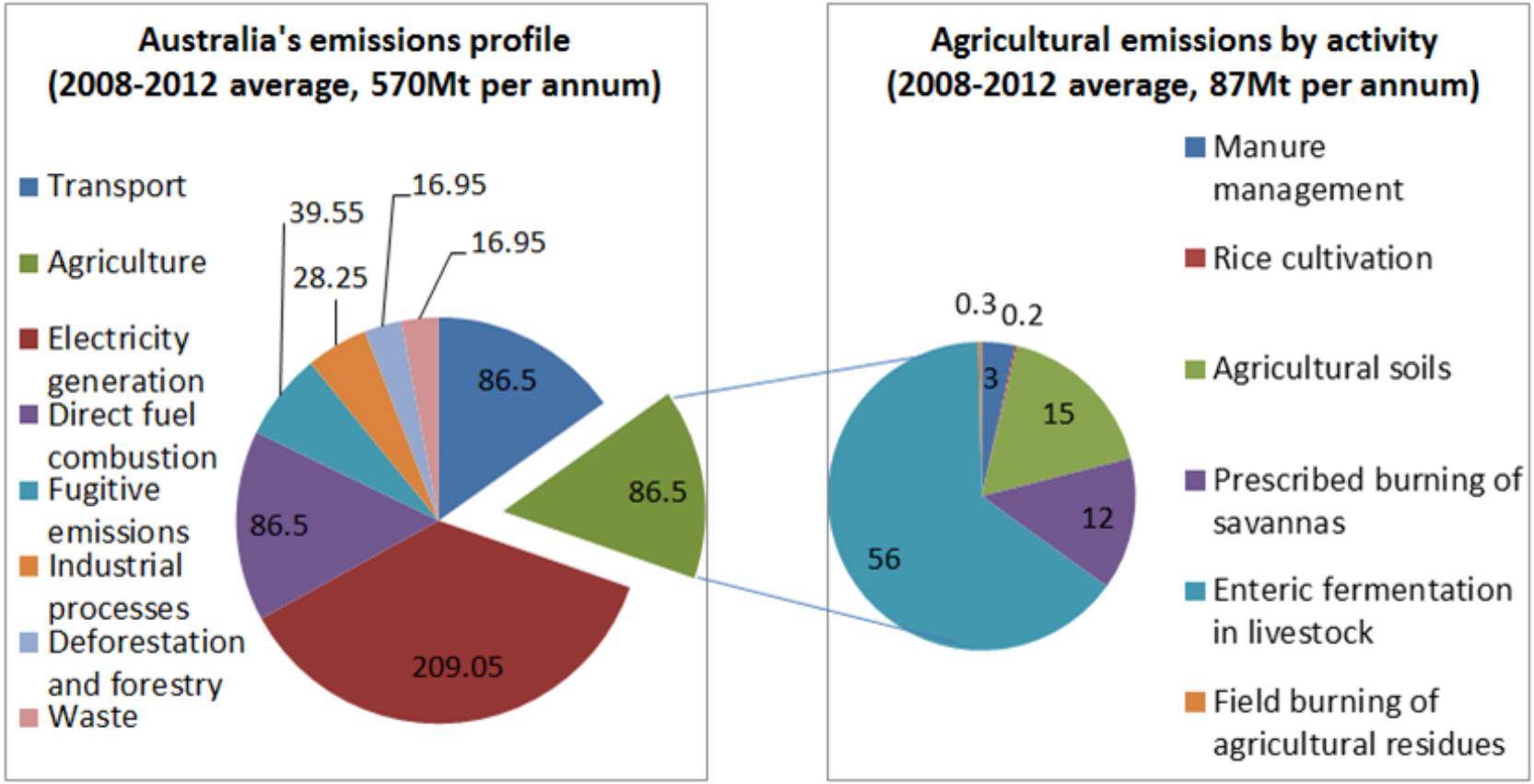
What is carbon farming?

The capture and storage of carbon in vegetation and soil or reducing greenhouse gas emissions from agricultural practices

Variable rate

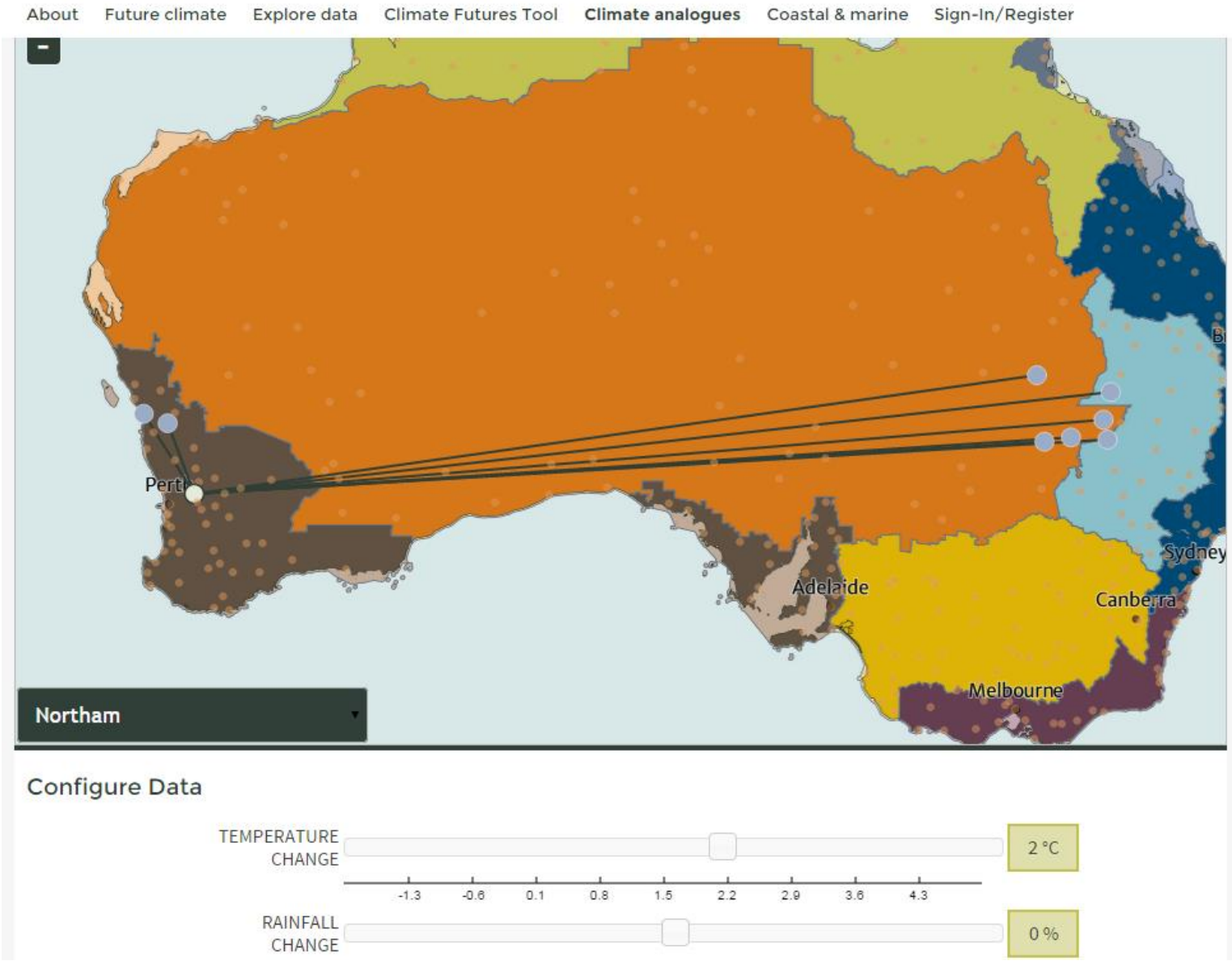


Why reduce greenhouse gas emissions from agriculture?



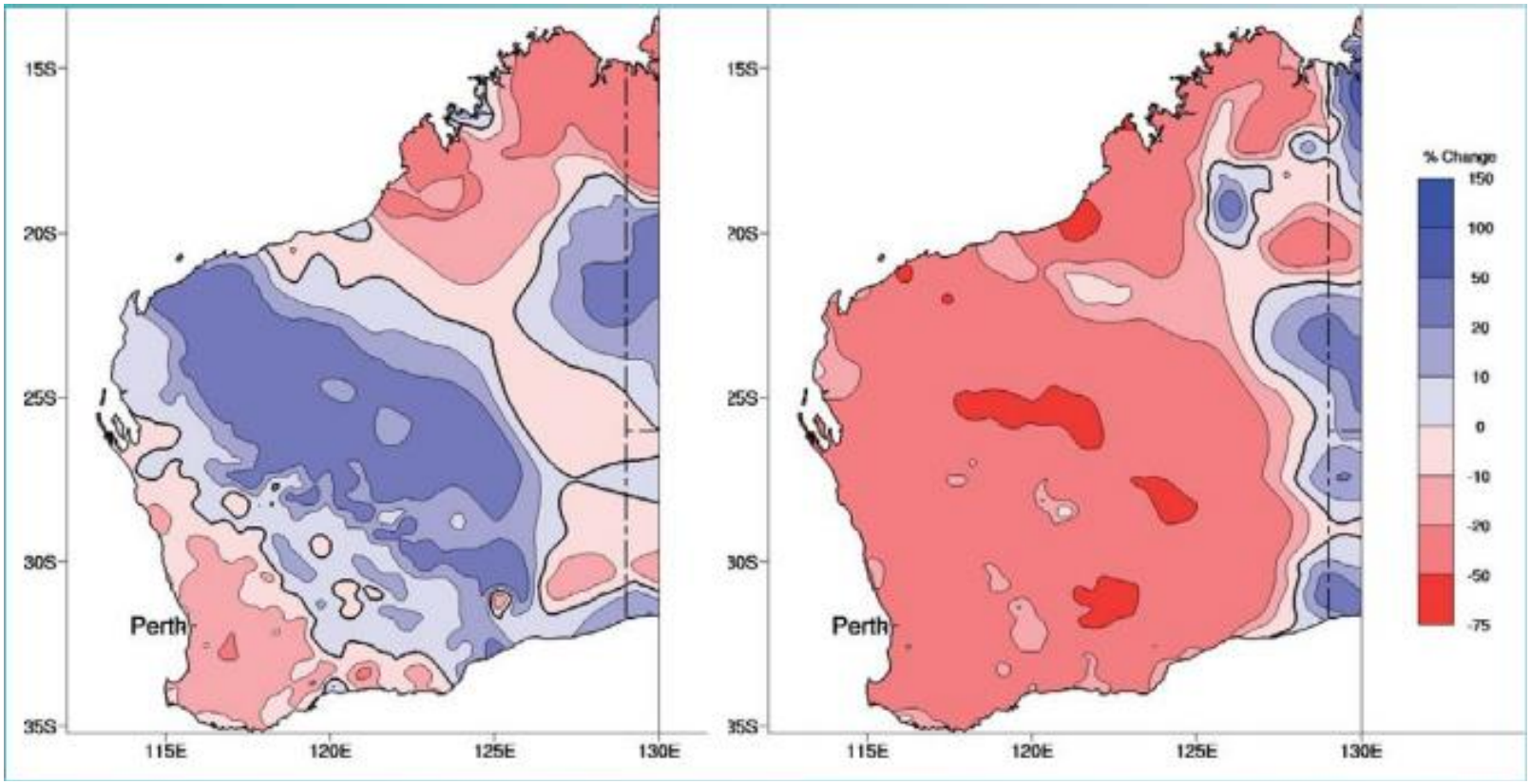
Source Data: National Greenhouse Gas Inventory 2011 and CIE (2010), ABARES (2010)

Climate Change in Australia – Projections for NRM Region



Information from : http://www.climatechangeinaustralia.gov.au/en/climate-projections/climate-analogues/analogues-explorer/

Change in rainfall over 50 years

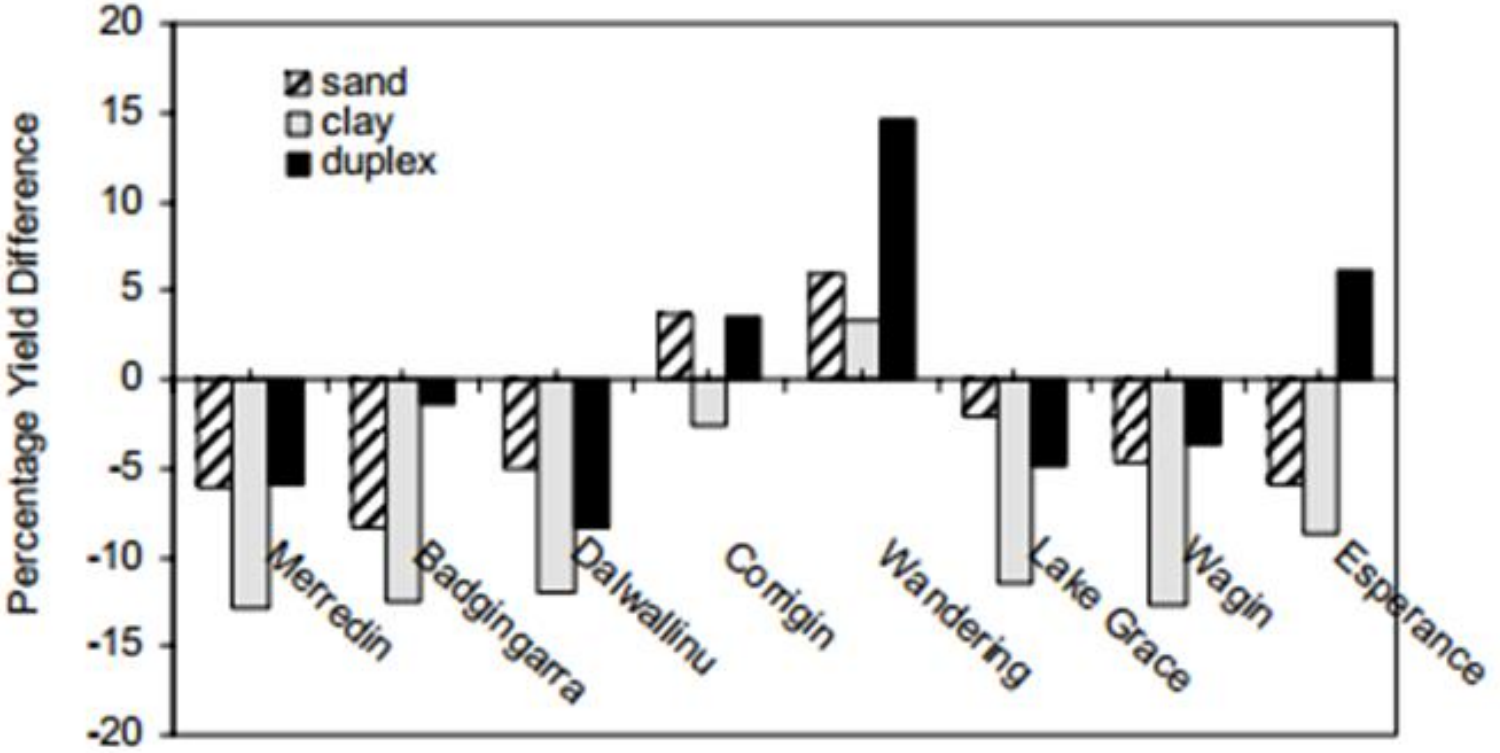


(Left) The percentage change in average 1969-1999 May to July rainfall from the 1910-1968 mean.

(Right) The percentage change in average 2000-2008 May to July rainfall from the 1910-1968 mean.

Source: Indian Ocean Climate Initiative - http://www.ioci.org.au/pdf/Fact%20Sheet%204.pdf

Impact of future climate on wheat yield expressed as percentage yield difference between future and current simulated yields for eight locations and three soil types in Western Australia.



Simulated climate obtained from the CSIRO CCAM model.
Simulated yields with APSIM-Wheat model.
Source: Farre and Foster 2007

Adaptation and mitigation

Adaptation: Actions undertaken to reduce the adverse consequences of climate change, as well as to benefit from any opportunities.

Aim to reduce the risks and impacts of climate stresses
Changing what we do to get what we want

Mitigation: Intention is to reduce the magnitude of our contribution to climate change. Mitigation refers to strategies to reduce greenhouse gas emissions and enhance greenhouse gas sinks.

Farming mitigation options

Variable rate technology

Controlled traffic farming

Understanding soil condition and constraints

Different crop rotations

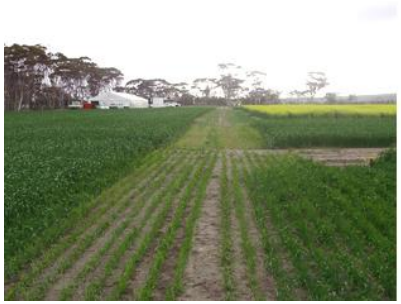
Using areas of unproductive land

What to do with the tree plots we have

Fallow management options

Soil amendments

Livestock management



Emissions Reduction Fund

Australian Government's plan to efficiently and effectively source low cost emissions reductions

Designed to encourage farmers, land managers and industry to reduce greenhouse gas emissions and store carbon in soil and vegetation.

For each tonne of CO_2 -e reduced or stored by using an **approved method** a farmer can be issued with an Australian Carbon Credit Unit (ACCU)

ACCUs can be sold at auction or privately into the secondary market.

ACCUs can be an extra source of income

Participating in the Emissions Reduction Fund

Source: Clean Energy Regulator

Example

Carbon Conscious Ltd. Afforestation project (WA project)

Soil types matched to one of three Eucalypt (mallee) species.

Two years in, agistment based grazing was introduced in the winter-spring to manage weeds and fire loads.

In years 3 and 4, processes to sample and calculate sequestered carbon were conducted in accordance with the approved method.

This project was started under the CFI and has transitioned to the ERF.

Carbon Conscious offered a project into the first auction and were successful in obtaining a Carbon Abatement Contract to abate 110,138 tonnes of CO_2 –e over 7 years.

Source: http://www.cleanenergyregulator.gov.au/Emissions-Reduction-Fund/Want-to-participate-in-the-Emissions-Reduction-Fund/step2/auction-results-april-2015/Pages/Carbon-Abatement-Contracts-table.aspx

Photos available at mycarbonfarming.com.au

WANTFA E&O Project

Project focus:

1. Identify synergies that exist between profitable crop production, soil carbon sequestration and reductions in soil greenhouse gas emissions and communicate these to farmers in south-west WA

2. Encourage broad acre farmers in WA to consider emissions management

Desired implications and outcomes (by 2017):

1. Growers will be in a better situation to make informed decisions about how to meet their productivity objectives whilst reducing land sector emissions and sequestering carbon into agricultural soils

2. Growers would be better to able understand how farming practices can affect carbon sequestration and greenhouse gas emissions and identify opportunities to participate in the Emissions Reduction Fund

Want to know more?

Are you a scientist, agronomist, management consultant, extension provider?

- You can join the ‘core carbon group’ established under this project
- Receive email updates, newsletters and alerts for upcoming events
- Opportunities to interact with scientists and industry professionals working on high level research and integrating new management practices into WA farming systems

Are you a farmer with some cool ideas or an interest to know more?

- Receive email updates, newsletters and alerts for upcoming events
- Participate in a workshop in your local area. Advise me of your interest and where you would like to see a workshop held