

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.

Session 3: The emissions story; globally, nationally and locally

Summary of the March 2106 advisers workshop presentation by Richard Eckard, University of Melbourne and the Primary Industries Climate Challenges Centre

Background

The Emissions Reduction Fund (ERF) is a program used by the Commonwealth Government to reduce greenhouse gas (GHG) emissions. In the ERF, the Government buys Australian Carbon Credit Units (ACCUs) through reverse auctions. To be eligible to participate in a reverse auction, projects must use an approved method to abate emissions or sequester carbon. At the first ERF auction in April 2015, a total of 107 projects were funded, covering 47 million tonnes of carbon dioxide equivalent (CO_{2-e}) at an average price of \$13.95 per ACCU.

A changing climate

Climate change is progressing more quickly than anticipated, with pasture growth rates over the past 10 years representing rates forecasted for 2030 (Cullen et al. 2009). This change is being noticed in all agricultural industries, from viticulture – where maturation dates are advancing by about eight days per decade – to silage – where Gippsland contractors have moved silage baling from early November to early October.

The changing climate is resulting in less winter rainfall and more summer rainfall in southern Australia (Figure 1). The challenge for agriculture advisors is to help farmers adapt to manage the reduced winter rainfall and make better use of sporadic summer rainfall.

COP21 Paris Agreement

In December 2015, 195 countries adopted a new global climate deal known as the Paris Agreement (COP21). Key components of the agreement relevant to agriculture include (key words in bold):

- Article 2a: **Limit** global warming to well below **2°C**
- Article 2a: ...to **pursue efforts to limit** the temperature increase to **1.5°C** above pre-industrial levels
- Article 2b: ...increasing the ability to adapt to ... climate change and foster climate resilience and low GHG emission development, **in a manner that does not threaten food production**
- Article 5: Take action to conserve and enhance, as appropriate, **sinks** and reservoirs of greenhouse gases.
- Side event at Paris: “Tackling short-lived climate pollutants (SLCP)” (*Methane is a SLCP*)

An interpretation of these statements is that growers should be ready to adapt to global warming of 1.5-2°C, that food production has been singled out as a non-negotiable objective, and that carbon sequestration and methane emissions will be a key focus.

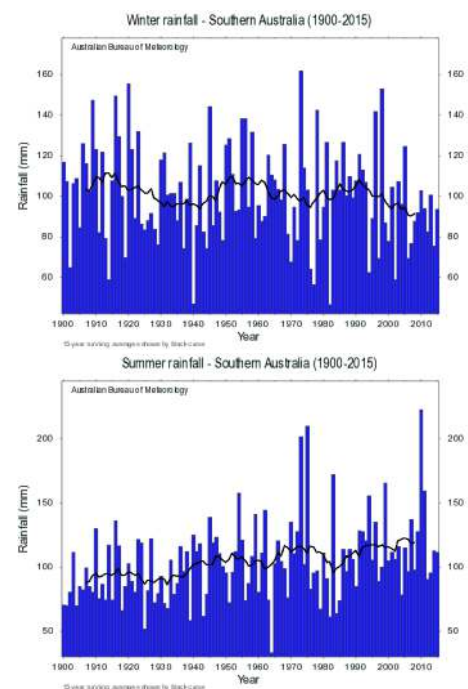


Figure 1: Trends in average rainfall in winter (top) and summer (bottom)

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The global average temperature in 2015 was 1°C above pre-industrial levels. The level of accepted global warming will be another 0.5-1°C warmer than this, indicating that future agriculture in Australia will need to undertake significant adaption to remain viable.

ERF Auctions

A second ERF auction was held in November 2015. As shown in Figure 2, over the two auctions held to date, 92.8 million tonnes have now been contracted at an average price of \$13.12 per ACCU. There has not been significant uptake of agricultural methods so far, with the exception of piggeries. It is expected that most of the growth in future auctions is likely to be in the newer methods of energy efficiency.

Modelling has shown that, in the approved land sector methods, the proceeds from ACCUs alone will not provide a financial payback; successful projects are those where there is already a significant benefit without ACCUs. For example, there will only be 10 per cent benefit to come from ACCUs in planting trees, with the main driver coming from benefits such as improved lamb survival rates.

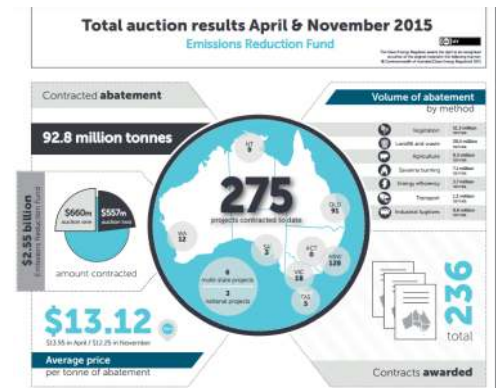


Figure 2: Summary of first two ERF auctions

Emissions Intensity

One key difference between the previous Carbon Farming Initiative and the ERF is the focus on emissions intensity as compared to net emissions. Given COP21 enshrined the requirement to meet world food production requirements, the key focus for producers is likely to become reducing the emissions intensity of farm products. As a result, other industries such as energy and transport will have to bear a larger part of the overall emissions reduction.

A key reason for this position is that, unlike energy and transport sectors that have the capacity to change to lower-carbon options given the right price signals, there is no technological solution currently available to significantly reduce greenhouse gas emissions from farming. Ongoing research is investigating methods to reduce the two key GHG sources; enteric methane and nitrous oxide, but in the meantime, modelling has shown there are few, if any, economic options available other than reducing food production.

New methods

A new beef herd method has been approved based on a range of efficiency improvement measures, though no ACCUs were issued for this method at the November auction. A sheep herd method is in development. It is expected this will require a herd of at least 30,000 sheep and will exclude wool. Modelling has shown the value of ACCUs could account for one per cent of business turnover, so, alone, it will not be a significant driver and economies of scale will be needed.

Useful resources

- Emissions Reduction Fund - www.environment.gov.au/climate-change/emissions-reduction-fund
- The National Greenhouse Gas Inventory - <http://ageis.climatechange.gov.au/>
- Building Farmer and Advisor Knowledge in Carbon Farming Project - www.carbonfarmingknowledge.com.au
- Greenhouse in Agriculture - www.greenhouse.unimelb.edu.au
- Primary Industries Climate Challenge Centre - www.piccc.org.au

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