

Australia's Carbon Farming Initiative: A world first

Michele Sabto James Porteous

The federal government's proposed Carbon Farming Initiative (CFI) is designed to unlock the potential benefits from reducing greenhouse gas emissions and sequestering additional carbon in Australia's agricultural and forestry sectors. It is also an international first.



Credit: R. Reid

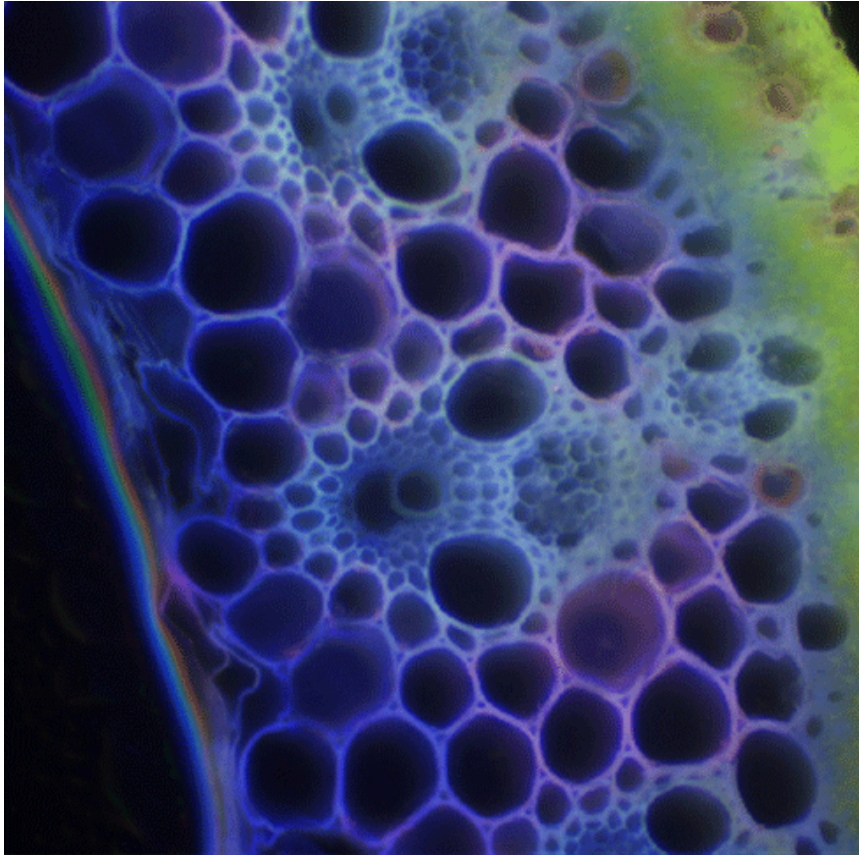
Australia's agricultural sector generates around 23.7 per cent of national greenhouse gas emissions (including emissions from deforestation for agriculture), but it also offers significant opportunities to reduce or offset emissions through carbon sinks, land management changes and technological solutions. The government's CFI Bill, introduced to Parliament in March 2011 by Climate Change Minister Greg Combet, creates financial incentives, via carbon credits, to encourage activity that either sequesters carbon or reduces rural greenhouse emissions. The government is seeking to have the legislation passed by 1 July 2011.

Professor Annette Cowie is Director of the National Centre for Rural Greenhouse Gas Research and is a member of the Domestic Offsets Integrity Committee, the body responsible for approving methodologies under the scheme. Professor Cowie explains there are three broad types of activities that could be included. First, there are the straightforward 'Kyoto-compliant'¹ reforestation carbon sinks. Then there are other Kyoto-compliant opportunities to reduce emissions from landfill, manure, livestock, and from fertiliser (nitrous oxide emissions). Third, there are non-Kyoto-compliant activities, including soil carbon management,² and feral animal management. The Kyoto rules are, however, in the process of being amended which may mean that some of these activities will be Kyoto-compliant by 2013.

Under the new scheme, farmers will receive carbon credits, which can then be traded on the international compliance and voluntary markets, and the domestic market, depending on the nature of the rural activity. The distinction is

important. The international compliance market will only be available for credits that are Kyoto-compliant, and these credits are likely to generate higher returns for farmers than non-Kyoto-compliant credits traded on voluntary markets.

Carbon offset projects³ established under the CFI will need to apply government- approved methodologies - the detailed rules for implementing and monitoring specific abatement activities and generating carbon credits under the scheme.



Credit: Shi-You Ding, National Renewable Energy Laboratory, USA

The role for trees

Professor Cowie says that in relation to the ‘straightforward Kyoto reforestation sinks’, there are many well-established opportunities to incorporate trees into farming systems including shelterbelts to protect stock and crops, riparian revegetation to reduce risks of erosion, and woodlots. ‘And then there could be further possibilities of non-Kyoto-compliant credits such as tree plantings that don’t meet the Kyoto forest definitions or land eligibility requirements,’ she says.

Forestry and forest-related options are well placed for inclusion in the CFI, according to Dr Michael Battaglia, a scientist with CSIRO Sustainable Agriculture Flagship. Modelling done by Dr Battaglia and his team for the Queensland government found that forest carbon sinks make up about 75 per cent of the total figure attainable for agricultural carbon abatement in Queensland from 2010-2050.⁴

Dr Battaglia says, ‘We have been very involved in quantifying the carbon sequestered by forests and trees. It’s relatively straightforward to measure, verify and predict the amount of carbon that can be stored annually in a hectare of trees.’ However, it is not so easy to predict what the commercial uptake of ‘carbon forestry’ might be. ‘Even under a relatively high carbon price, the area of opportunity for carbon forestry, and the rate at which afforestation occurs, is likely to be limited by establishment costs, water and seed availability, alternative land use options, landholder attitudes and commodity prices.’

Andrew Macintosh of the ANU’s Centre for Climate Law and Policy says ‘Most rural land managers are concentrating on soil carbon and reforestation projects, but personally I think that credits for preserved regrowth on deforested land units (avoiding clearance of regrowth on previously deforested land) and forest management credits will dominate the Australian scheme. Forest management credits will particularly be derived from changes in forestry practices —

especially in Victorian and Tasmanian forests located on public and private lands. Regrowth on deforested land raises few perverse outcomes because most of it is on dry landscapes, unlike reforestation where there are greater perverse outcome risks, including adverse impacts on biodiversity and water.’

The National Farmers Federation (NFF) has made key submissions to the CFI’s development. Charles McElhone, NFF’s manager of economics and trade, says while the organisation recognises the inherent benefits of the scheme, and acknowledges that the Government has recently included provisions to mitigate against perverse outcomes, concerns remain about potential unexpected effects. ‘Based on experience with managed investment schemes, we’re urging particular caution around new forestry impacts on food provision, biodiversity, water supply, employment and other community effects,’ says Mr McElhone.

The soil carbon opportunity

The challenges of bringing non-forest agricultural activities into carbon emissions abatement also come with unique opportunities, particularly in the area of soil carbon.⁵ Dr Jeff Baldock of CSIRO’s Sustainable Agriculture Flagship points out that agriculture, and particularly land clearing and cultivation, have resulted in average losses of 20 to 70 per cent of soil carbon compared with native conditions. ‘This has created an opportunity for farmers to rebuild soil carbon,’ Dr Baldock says. ‘The challenge facing farmers is to work out how to change their management strategies to either add more carbon to the soil or reduce the amount of carbon that may be lost through decomposition and erosion’.

A review of Australian research has suggested that adoption of carbon friendly management strategies may result in relative carbon benefits of 0.1–0.5 t C/ha/year according to Dr Baldock. ‘The ability of emerging management practices to offer greater rates of carbon capture requires assessment. Additionally research is required to quantify the effects that changed farm practices have on actual rates of carbon sequestration and to assess the economic implications of such changes.’

Dr Baldock outlines two broad approaches to soil carbon abatement including looking for better efficiencies, carbon sequestering avenues and examining options for carbon-friendly agricultural management changes. ‘In the first approach, if we, for example, boost crop water-use efficiency, our modelling would suggest we can, say, get higher wheat yields and also higher soil carbon levels through increased plant residues returned to the soil.’ The second approach attempts to ‘push carbon sequestration beyond what current systems can deliver and involves alternative farming systems such as use of perennial crops and pastures, no-till systems, rotational grazing and pasture cropping.’

Michael Kiely of Carbon Farmers of Australia is advocating just such a widespread shift in farming systems. ‘The position of Carbon Farmers of Australia is that soil carbon sequestration should be seen as a purpose-built offset: it’s the only device that we have at our disposal that will be able to slow the process of global warming long enough for alternative energy sources to reach baseload capacity. And it comes with a range of co-benefits, including improved water management, soil health, biodiversity, and general landscape regeneration. We’re not talking about anything other than a paradigm change in the way people think about the natural processes that go on in the soils while farming takes place.’



Eucalyptus woodlot on a farm in the Hunter Valley, NSW.

Integrity standards

The ‘integrity’ standards in the CFI bill are designed to ensure that abatement projects provide real, lasting offsets. Permanency is one such standard. It reflects the fact that carbon in agricultural systems is mobile: carbon that is removed from the atmosphere and stored in the landscape can be re-released. A forestry-sector derived benchmark of 100 years has been incorporated into the CFI as the permanency requirement for carbon proposed to be stored not only in trees, but also in other forms of vegetation and in soils.

‘We think permanence is a major barrier,’ says Mr Kiely. ‘The government says it is seeking broad involvement. But they have to analyse the situation from the perspective of the farmer, and I personally don’t know of any farmer who would be willing to sign up for a 100 years.’

NFF’s Charles McElhone says, ‘Farmers and landholders should be extremely cautious and aware of the enormous upfront commitment. We are urging heavy investment in the education component around the CFI.’

According to Rowan Reid of the Master TreeGrowers Program, multipurpose forests integrated with farming can provide a range of private and public benefits of which carbon sequestration is only one. ‘Some farmers have doubts whether the CFI will encourage this type of forestry because of the eligibility criteria, the costs of entering into a carbon trade and the contractual requirements that make future generations liable for the carbon, reducing their management options in the face of increasing risks of drought, flood, fire and disease. In practice, it is more likely that the CFI will result in whole farms being converted to monoculture forests threatening rural communities, water supplies and biodiversity.’

Additionality is another integrity standard in the draft legislation and it derives from the Kyoto protocol. In the original Bill, CFI projects would not have been considered valid, or ‘additional’, if they were already financially viable without a carbon price. Under the revised legislation, projects will now be deemed to be additional if they satisfy a ‘positive test’, that is, if they are listed in the regulations, and are not required to be undertaken due to other laws. The key criteria for inclusion on the list is that the abatement activity is not common practice in an industry or under specific regional conditions.⁶

Charles McElhone is pleased that the CFI has not been overly restrictive in its interpretation of this principle. ‘The vast majority of rural carbon abatement options convey productivity gains, which would have been excluded from the scheme had the changes to the additionality clause not been made.’

Next steps to the CFI

What is next in the progression and timeline of the CFI? Andrew Macintosh says that it is demand stimulation. ‘The government’s been presenting it [the CFI] as a voluntary measure but everybody knows that if it’s a purely voluntary measure, it’s going to go nowhere. They need the domestic demand.’

According to Macintosh one strategy would be to link the CFI directly to the government’s proposed new carbon pricing mechanism. ‘This would mean that people with liabilities under the carbon pricing mechanism could buy CFI credits to meet their liabilities. Presumably CFI credits would trade at a discount to the going rate ... otherwise why would you buy a CFI credit when you could just buy a standard credit issued at a set price? And when it evolves to an ETS, you have ongoing demand ... and presumably the price will then stabilise to the general market price. There won’t be two prices. The other way is a fund - the government would sell the fixed price permits, place the revenue in a fund and then use the fund to buy CFI credits.’

The Government is working cooperatively to fine-tune the CFI, alongside development of the carbon pricing legislation. When approved, the CFI will be the first nationally legislated carbon credit scheme for farm projects.

¹ Kyoto-compliant’ means emissions reduction activity that may be recognised as contributing to Australia’s Kyoto Protocol target. Here ‘Kyoto Protocol’ is shorthand for the UN Framework Convention on Climate Change’s Kyoto Protocol and its flexible emissions trading and Clean Development Mechanism schemes.

² Soil carbon management’ usually refers to soil carbon in crops or pastures, and in this context it does not count as ‘Kyoto-compliant’ for Australia, as Australia elected to exclude cropland and grazing land management from its Kyoto accounting. In contrast, ‘soil carbon’ is included in forest accounting, as it is one of the carbon pools considered when accounting emissions and removals from afforestation, reforestation or deforestation.

³ An offset project is a carbon sequestration activity which results in a net, proportionate compensation for a parallel carbon/emission polluting activity. The sequestration project’s compensation may be measured in carbon credits which can be sold.

⁴ <http://www.csiro.au/resources/carbon-and-rural-land-use-key-findings.html>

⁵ See ECOS <http://www.ecosmagazine.com/?paper=EC156p24>

⁶ <http://www.climatechange.gov.au/en/government/initiatives/carbon-farming-initiative/outcomes-of-consultation.aspx>

From **ECOS** online <http://www.ecosmagazine.com/?paper=EC10100>