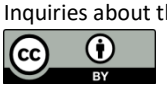
Australian Government

Department of Climate Change, Energy, the Environment and Water

Carbon Farming Outreach Program training package

Topic 4



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Carbon Farming Outreach Program training package

The Carbon Farming Outreach Program training package provides information to help farmers and land managers make decisions about reducing greenhouse gas (GHG) emissions and storing carbon.

The training package comprises 5 topics:

- Topic 1: Introducing carbon farming
- Topic 2: What carbon farming means for farmers and land managers
- Topic 3: Your greenhouse gas account
- Topic 4: Planning carbon farming activities
- Topic 5: The Australian Carbon Credit Unit Scheme

Watch these videos

In this video (4:38 minutes), presenters Gail Reynolds-Adamson and Matt Woods introduce the Carbon Farming Outreach Program, and the training package structure and content.

Video: Welcome to the Carbon Farming Outreach Program (youtube.com)

Transcript

GAIL REYNOLDS-ADAMSON: Hi, and welcome to Carbon Farming Outreach Training package.

Kaya Kepa Kurl Noongar Boodja. My name is Gail Reynolds-Adamson, and I'm a proud Noongar woman from Wudjari Country, on the eastern border of the Noongar nation in Kepa Kurl, also known as Esperance. 'Kepa' is water, 'Kurl' is boomerang, and its where the waters lie like a boomerang.

MATT WOODS: Hi, Gail, and welcome, everyone. I'm Matt Woods, an agricultural and science journalist.

Today, we're at my home, outside Bacchus Marsh, on the border of Wurundjeri, Woiwurrung, and Wathaurong Country of the Kulin Nation, and I pay my respects to Elders past, present, and future.

In the valley below me is the Bacchus Marsh agricultural district, where market gardeners and orchardists farm some of the deepest top soil in Australia.

I've been on hundreds of farms and spoken to thousands of farmers from one end of Australia to the other. And if there's one subject top of mind for every farmer, it's profitability.

And that's actually what this training package is about. Because, in most cases, good carbon farming practices will improve the profitability and health of your land. Whether you want to enter the carbon market or not, the truly great outcome with carbon farming is that it can be a win-win: good for your farm business, land, and the environment.

REYNOLDS-ADAMSON: Thanks, Matt. It's great to be part of this Carbon Farming Outreach Program training package, and to be able to share with farmers and land managers from all over Australia some of the who, what, when, where, and why, of carbon farming.

This includes evidence-based knowledge and practices both from Western and traditional Aboriginal Torres Strait Islander culture.

I'm the chairperson of Esperance Tjaltjraak Native Title Aboriginal Corporation in Western Australia. I'll be sharing more about the tree rejuvenation project we are running at Kardutjaanup to show you the many benefits, but also the risk requirements involved with this type of carbon farming.

WOODS: The aim of this package, through five short topics, is to give you the carbon farming essentials from expert practitioners, farmers, and land managers in all Ag (agriculture) sectors across Australia, like Gail, who've already embarked on carbon farming projects.

They'll share some tips and tricks with you, including why and how they did it, what technology and techniques they used, what worked, what didn't and who helped them along the way. We've also carefully researched and selected resources, materials, and tools that may benefit you and presented them by Ag (agriculture) sector and location for your convenience.

We know that you don't have loads of time to spend sitting in front of a computer. And that you need your learning to be relevant, targeted, accessible, and practical.

Each of the five topics should take you no more than one hour individually.

But we've also provided additional content and case studies if you want to find out more.

Short videos like this, as well as interviews and explainers, will allow you to access this package anywhere, anytime.

REYNOLDS-ADAMSON: The Carbon Farming Outreach Program training package won't make you an expert in carbon farming, but it will teach you the essential things you should know before embarking on carbon farming.

This includes benefits and risks, potential pathways to action, and the decision you will need to make, including whether or not to trade carbon credits, and some resources you can refer to for your location and type of practice. Importantly, we will help you to understand who you should talk to, what you should look out for when you are choosing advisors, and to ensure that you are getting quality, trusted, independent advice.

WOODS: Finally, each topic concludes with some relevant focusing questions, for you to consider in relation to your own circumstances.

Whether you're just learning about carbon farming for the first time and are exploring your options or had some experience and want to find out more, this package can help you. Think of it as like having a yarn with your neighbours over the fence about their carbon farming project.

In this video (4:03 minutes), Professor Richard Eckard discusses the need for carbon farming.

Video: Carbon Farming Outreach Program (youtube.com)

Transcript

PROFESSOR RICHARD ECKARD: For farmers and land managers to meet the goal of reduced emissions starting in 2030 through to 2050, they need to know what to do next, what steps to do next, and they need to know where the policy environment is coming from, who's asking them to be low emissions, what the targets are, and then what the options are for them to start responding.

Hi. I'm Richard Eckard, professor in the Faculty of Science at the University of Melbourne. I lead the Primary Industries Climate Challenges Centre, which researches the impact of climate change on agriculture and agriculture on climate.

What we're seeing is all the multinational supply chain companies that deal with agricultural produce have set targets, targets for reduced greenhouse gas emissions. And they average somewhere around 30 percent less emissions by 2030 and net zero by 2050. What we also know is about 70 percent of Australian agricultural produce is exported down these multinational supply chain targets. And so how does Australia perform on the global stage when those companies start buying globally to meet their target?

So it's really imperative that farmers and land managers get on board to know how do they gear their system to deliver the low emissions product that the supply chain will want to buy by 2030. What we're trying to do is just bring up the knowledge that carbon farming is a part of their future.

There is this trajectory towards lower emissions. So making them aware of the policy environment, of the supply chain constraints, of how they need a partnership with their supply chain, to achieve this. And then some awareness of what is their number, how do they get their number, and how do they move down the track towards improving that number. And what are the technologies they can bring to bear to reduce their number, their greenhouse gas footprint?

So these will be things to start with are just best practice. Best practice that we've known for the last 40 years. Things like nitrogen use efficiency, better crop yields, better soil testing, better growth rates in livestock, feeding animals better, bringing legumes into agriculture. These are all things we've known for a long time that improve efficiency, but also reduce the greenhouse gas footprint.

Australia is already 22 percent more rainfall variable than any other country in the world, and the historic management of the land took that into account. Now we're becoming aware of this in how we do carbon farming, that we have to actually change from strictly European farming systems to

systems that are more attuned to this high variability we're encountering. And so there's a lot to be learned from the Indigenous land management practices that we need to then incorporate into traditional farming, non Indigenous farming, so that it actually is a bit more in tune with the high variability we have in Australia.

Now the world needs to go net zero by 2050. What we haven't really reconciled is where does the big emission reduction take place? Obviously, it has to happen in the fossil fuel sector.

But we need to move towards, well, what can agriculture contribute to that inevitable net zero? And what can they contribute towards the 2030 goal? Now not every agricultural sector has the identical opportunity. We've got some intensive horticulture for example that have very low emissions and almost nothing to do to get to net zero apart from renewable energy. But you've got an extensive livestock sector where a lot of northern cattle stations, we don't even know how many cattle are there. So the challenges are vastly different, and this is what the program is trying to address is who has what options to move forward and what are those options.

Using this training package

This training package provides introductory information, and sources of further information and advice. References to third-party material, information or products or services do not represent endorsements. This training package does not provide detailed information that farmers and land managers may need when making decisions about carbon farming for their own particular circumstances. This training package is not a substitute for independent professional advice. Before making decisions about carbon farming, you may need to obtain more information and independent advice relevant to your particular circumstances.

Acknowledgement of Country

The Australian Government acknowledges the Traditional Owners and custodians of all the lands across Australia. We pay respect to all Aboriginal and Torres Strait Islanders, including elders, past and present. We also express our gratitude and appreciation for the ongoing stewardship of Country that Aboriginal and Torres Strait Islanders have practised for thousands of years. We understand that we all have much to learn from traditional ways of knowing, being and doing.

Statement of intent

This training package has been developed in consultation and collaboration with an Aboriginal and Torres Strait Islander reference group. We thank them for their generosity with time, expertise, and patience. We recognise Aboriginal and Torres Strait Islanders as rights holders and value the opportunity for Aboriginal and Torres Strait Islanders to engage with farmers and land managers in meaningful dialogue to weave traditional practices into carbon farming. Aboriginal and Torres Strait Islanders offer invaluable traditional ecological knowledge that complements the expertise of other farmers and land managers. Together, farmers, land managers and Aboriginal and Torres Strait Islanders are practising carbon farming methods that respect traditional insights and modern science. As co-innovators, we are exploring new pathways to reduce carbon footprints through joint carbon farming initiatives and preserving the land for future generations.

Aboriginal and Torres Strait Islander people should be aware that this website, the videos it contains and links to First Nations resources may contain images, voices and names of deceased persons.

Topic 4: Planning carbon farming activities

Time to complete this topic

About 60 minutes to read the information in this topic. Additional content includes videos, activities and links to other resources which may require extra time to complete.

In this topic:

4.1. Overview and learning outcomes

4.2. Identifying your carbon farming purpose or motivation

4.3. Planning for carbon farming

4.4. Understanding greenhouse gas accounting requirements

4.5. Climate Active

4.6. Case study and expert interviews

4.7. Activity

4.8. Other resources

4.1 Overview and learning outcomes

Overview

This topic examines steps you might want to take to prepare to engage in carbon farming, starting with understanding your purpose or motivation. The topic then sets out some considerations you need to take into account when planning for your carbon farming activity or project. Once you understand these considerations, you can start to decide which carbon farming activities, practices or programs are most appropriate for your operation.

Topic 2 looked at carbon farming activities and practices you can implement, either outside of any private or government program or by participating in the ACCU Scheme, Climate Active or another program.

Conducting an ACCU Scheme project or seeking Climate Active certification have requirements with which you must comply. This topic examines some Climate Active requirements and refers you to other useful sources of information relevant to the Climate Active program, while Topic 5 expands on ACCU Scheme

requirements. Topic 5, as well as the Clean Energy Regulator's website, will help ensure you are accessing the most up-to-date information about the ACCU Scheme.

Learning outcomes

After completing this topic, you will be able to:

- identify your purpose or motivation to engage in carbon farming
- recognise important considerations for planning a carbon farming activity or project, including existing relevant plans, carbon farming opportunities, requirements, available advisers and support, and the feasibility of your preferred activity or project, including estimated revenue and costs
- describe greenhouse gas (GHG) accounting requirements
- determine the most appropriate carbon farming activities or practices for your operation.

Watch this video

In this video (2:20 minutes), presenters Gail Reynolds-Adamson, Matt Woods and Nigel Sharp introduce Topic 4 and provide important context.

Video: Planning carbon farming activities (youtube.com)

Transcript

MATT WOODS: Welcome to topic four, planning carbon farming activities. This is where the rubber really hits the road as we start to look at some of the actions, pathways, and decisions you'll need to make before embarking on carbon farming.

GAIL REYNOLDS-ADAMSON: We'll also get our hands dirty. As we start to plan carbon farming activities for emission management and restoration based on what we've covered in this package so far, by the end of this topic, you'll have carefully considered which carbon farming activities are most useful for your sector, farming system, location, and particular circumstances.

WOODS: We'll explore key sector specific carbon farming techniques and technologies and hear their benefits and drawbacks firsthand from experts, including farmers who are using them.

REYNOLDS-ADAMSON: This topic will also guide you with your decision about whether or not to participate in an Australian Carbon Credit Unit or ACCU scheme or seek Climate Active certification.

And importantly, it will help prepare you through focused questions to have informed discussions with advisers before making any final decisions.

If you are considering participating in an ACCU scheme, then the next topic will explore this in detail.

NIGEL SHARP: This topic is laying out a systematic process that farmers can use to decide their carbon farming purpose.

The process starts with farm planning, which should inform your objectives and what drives you to carbon farming.

Do you want to earn carbon credits?

Do you only want on farm co-benefits like healthy soil, water, and produce, more productive livestock, and better managed pastures?

It's essential to be clear about your purpose because some purposes, like earning carbon credits, have lots of work and responsibilities you might not want to take on.

What is your purpose for carbon farming, and what sort of factors did you take into account when deciding to do it?

4.2 Identifying your carbon farming purpose or motivation

Understanding what motivates you to engage in carbon farming is an important step in deciding your best pathway. You may be motivated to participate in carbon farming for one or more of the following reasons.

Meeting increasing demand from investors, creditors and supply chains for less emissions-intensive production

The Australian Government is improving the quality of climate-related financial disclosures to provide greater transparency and more comparable information about an entity's exposure to climate-related financial risks and opportunities and climate-related plans and strategies.

This and other domestic and international initiatives (such as the Science-Based Targets Initiative) are increasing climate-related reporting requirements for investors, creditors and supply chains that, as a result, are increasingly preferring lower-emissions investments, transactions and suppliers.

Meeting increasing demand from consumers for more sustainable products

As the world shifts to a net zero emissions trajectory, it is likely that people will increasingly prefer lower-emissions agricultural products. For example, a 2023 study by McKinsey and NielsenIQ in the US found that products making environmental, social and governance (ESG) related claims averaged 28% cumulative growth from 2017 to 2022, compared to 20% growth for products that made no such claims over the same period. The study found that products that made ESG-related claims grew faster than those that didn't, and it revealed, in many categories, a clear and material link between ESG-related claims and consumer spending.

Securing continued market access in the face of increasingly stringent climate-related requirements in trade agreements and potential future trade barriers

For example, Australia's four largest beef export markets — Japan, the United States of America, China and South Korea — all have net zero emissions targets to be met by around mid-century. Adopting carbon farming activities and practices in our beef production would strengthen our existing reputation for clean and safe produce, enabling Australian producers to prosper in emerging markets for low-carbon meat products.

In 2023, Deloitte Access Economics undertook a global scan of carbon taxes, including the European Union's Carbon Border Adjustment Mechanism, and investigated what this means for Australian agriculture. It found that if agricultural products were to be included in the mechanism in the future, Australian agricultural output could be reduced by a total of $1 billion between 2026 and 2040 in present value terms. Emerging climate-related trade demands will be better met with agriculture products that are less emissions-intensive.

Diversifying income streams by taking advantage of increasing demand across the economy for carbon offsets

Farmers and land managers can participate in carbon markets (such as the ACCU Scheme) to diversify their income streams. However, they need to be aware that selling carbon credits means they can't claim the same benefit towards their (or their supply chain's) low-emissions claims, which would limit their capacity to meet other purposes or motivations for participating in carbon farming.

Supporting the agriculture sector to meet climate mitigation goals, including improving industry's resilience to climate change

As Topic 1 explained, Australian agriculture industry bodies have ambitious climate targets driven mainly by emerging domestic and international market requirements. Examples include the red meat industry's carbon neutral by 2030 target, Dairy Australia's aim for a 30% reduction in emissions intensity across the industry in the same timeframe and wool production's move towards carbon neutrality. Meeting these targets relies on emissions reductions and carbon storage by producers.

Supporting Australia to meet its emissions reduction commitments

The Australian Government has committed to reducing Australia's emissions by 43% below 2005 levels by 2030 and to reach net zero emissions by 2050. It is developing a plan to guide Australia's transition to net zero emissions by 2050, as well as six sectoral plans, including one for agriculture and land, to support the net zero plan.

Australia is a signatory to the Global Methane Pledge, a voluntary global commitment to reduce global methane emissions by at least 30% below 2020 levels by 2030. The pledge commits Australia to comprehensive domestic action to achieve this target, including seeking abatement of agriculture emissions through technological innovation as well as incentives and partnerships with farmers.

Achieving economic, social and environmental co-benefits

Carbon farming co-benefits that may be of interest to farmers and land managers include: improving biodiversity, soil quality, water quality and farm productivity; reducing erosion and run-off; and enhancing cultural connection and opportunity for social and economic advancement.

Activity: What is your motivation?

What is your purpose or motivation for doing carbon farming? And what factors did you weigh up when deciding your purpose or motivation?

Activity: A tale of 2 purposes

This case study presents 2 carbon farming projects, each with different purposes. As you read about each of the following projects, reflect on whether either of these purposes aligns with your motivations for a carbon farming project.

Victorian beef producer Julian Carroll participated in Agriculture Victoria's On-Farm Emissions Action Plan Pilot. In the video, Reducing emissions and being feed additive ready (3:37 minutes), he explains how his farm reduced emissions by improving its feeding systems.

The Nyaliga Aboriginal Corporation manages a savanna fire carbon project across 6,400 km^2 of traditional Country a short distance from Wyndham in Western Australia. In the Clean Energy Regulator's article Fighting fire with fire, board member and Elder Kathleen O'Reeri explains the corporation's ACCU Scheme project, which started in 2017. The project is improving the landscape, earning ACCUs, protecting sacred places, making areas for food gathering and hunting and providing jobs and fire training opportunities to the Nyaliga people.

4.3 Planning for carbon farming

Once you understand your carbon farming motivations, you can consider planning and seeking advice about taking the next steps.

Draw on existing plans

Existing plans can help you start your carbon farming planning process. For example:

- a farmer might have a farm plan that identifies their farm or product objectives and activities to meet those objectives
- a land manager is likely to have some form of land management plan
- a First Nations land manager may have a whole of Country plan or a caring for Country approach that may include carbon farming considerations.

A plan sets the operation's high-level context. It helps bring long-term vision into quarterly, weekly and daily actions and decisions. It identifies personal and business values, key metrics and risks. It can be considered a living document, evolving continually with use. It might also draw on an audit of natural resources and infrastructure, providing helpful planning information.

If your plan is old or out of date, this is an opportunity to update it. If you haven't done planning before, preparing one can support your decisions on carbon farming.

A plan is likely to identify the main business objectives (such as profit and productivity) but may also provide insights into the implicit or explicit carbon-related objectives you aim to achieve. For example, your plan may refer to:

- enhancing your sustainability credentials to access new markets or price premiums
- unlocking additional potential sources of income
- increasing soil health and water quality
- restoring your operation's landscape and environment, including habitat for birds, pollinators and wildlife.

Plans come in many forms. For example, a whole of Country plan developed by Traditional Owners may identify direct and indirect co-benefits for First Nations farmers and land managers. Direct benefits include jobs on Country, independent revenue, getting back to and caring for Country and protecting cultural sites. Indirect benefits may include meeting cultural obligations, strong governance, community cohesion, self-determination, pride in community and healthy Country.

A plan can also identify other helpful information (such as locations for carbon farming activities and the broader catchment management context).

Short courses, including online courses, are available about farm planning. Many of these courses are based on the unit of competency AHCAGB513 - Develop a farm plan from the national Agriculture, Horticulture and Conservation and Land Management Training Package.

Identify carbon farming opportunities

Once you determine your carbon farming purpose, you can decide what carbon farming opportunities you want to pursue. Topic 2 provides information about carbon farming activities and practices you can implement.

The AgriFutures Australia Carbon Opportunity Decision Support Tool takes users through a decision tree questionnaire to identify carbon farming opportunities (including some government programs). The tool identifies the following possible opportunities:

- Emissions Reduction Fund (now the ACCU Scheme) participation
- private carbon markets, which refers to markets for types of carbon credits other than ACCUs
- sustainability-linked loans
- low-emissions certification
- productivity gains.

The tool invites users to 'choose their own adventure' and encourages them to consider the pros and cons of the different opportunities. It asks users questions about their business situation, plans, risk appetite and attitudes. There are also fact sheets for each opportunity.

AgriFutures' A farmer's handbook to on-farm carbon management is another helpful tool for identifying opportunities for on-farm carbon farming focused on carbon storage. It has a graphic decision tree on page 6 that takes account of the type of farm, its location and other factors to identify applicable ACCU Scheme methods, which Topic 5 explains.

Increasingly, there are government programs to support farmers and land managers to deliver environmental, social and economic co-benefits as well as reduce or avoid GHG emissions and store carbon. For example:

- the Platform for Land and Nature Repair, an Australian Government website that will support the Nature Repair Market, allows users to identify opportunities to earn income from protecting and improving biodiversity
- the Western Australian Carbon Farming and Land Restoration Program, which supports projects to realise agriculture's potential to store carbon, generate ACCUs, growWA's carbon farming industry and deliver environmental, economic and social co-benefits
- the Queensland Government's Land Restoration Fund, which helps farmers and land managers turn carbon into income while restoring the state's soils and vegetation and delivering other co-benefits
- the New South Wales Government's Primary Industries Productivity and Abatement program which supports farmers and land managers to reduce emissions, improve carbon management and enhance biodiversity on their land alongside production.

Identify carbon farming requirements

Before deciding on a carbon farming activity or project, you must understand its requirements fully. For example, the ACCU Scheme's methods set out rules for estimating, measuring, verifying and reporting GHG emissions and carbon storage, among other things. ACCU Scheme projects that store carbon in vegetation and soils are required to maintain the carbon stores for either 100 or 25 years. The project proponent must understand these responsibilities and obligations (and consider the associated risks) and be prepared to comply with them. They also need to consider legal and financial implications.

State and territory government schemes supporting carbon farming activities may also have requirements for participants.

Recognition of Free, Prior and Informed Consent

It is important to consider the principles set out in the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), in particular the principle of Free, Prior and Informed Consent (FPIC), when planning carbon farming activities on land subject to native title. FPIC is a decision-making process and a framework for ensuring First Nations people are properly engaged in any decision that may affect their lands, territories or livelihoods and that outside organisations engage with First Nations people in a culturally appropriate way. Engagement with First Nations communities should be considered when planning for carbon farming.

For more information and guidance on how FPIC applies to ACCU Scheme projects, refer to Topic 5.3 Establishing an ACCU Scheme project.

Identify carbon farming advisers

Farmers and land managers planning a carbon farming activity or project will benefit from independent, professional advice about its feasibility and integration with current activities. These advisers may include agronomists, environmental planners, other agribusiness advisers and financial and legal advisers. Carbon farming specialists in government agencies and universities can also provide advice.

Several state government agencies publish lists of advisers about carbon farming and state government carbon farming support programs. These advisers can help farmers and land managers decide whether carbon farming suits their land and business. Some examples are:

- Western Australia's Service Provider Directory – Carbon Farming Advisors
- Tasmania's Carbon Farming Advice Rebate Pilot Program
- Queensland's Approved Adviser Directory under its former Carbon Farming Advice Scheme.

Farmers and land managers aiming for ACCU Scheme participation sometimes engage a carbon service provider. These businesses offer services to help establish and manage an ACCU Scheme project in exchange for a fee (for example, a payment or some of the ACCUs issued for the project). Their services may include project planning and feasibility studies, preparing a carbon farming plan or land management strategy, calculating carbon stored using an ACCU Scheme method's rules and

preparing project reports. They may also act as the project proponent. Topic 5 examines ways to engage with carbon service providers.

The Australian Carbon Industry Code of Conduct is a voluntary, industry-led code for entities providing services in relation to carbon activities, projects and credits. It aims to enhance the integrity, transparency and accountability of Australia's carbon industry by using the code's framework to monitor, review and define industry best practice. The code is intended to protect consumers' rights in the carbon market by defining the minimum standards that all signatories, which are listed on the code's webpage, agree to meet.

For Climate Active, DCCEEW publishes a register of consultants for Climate Active certification that users can filter by state and search by keyword. Registered consultants help prepare applications for certification, help with ongoing reporting and can carry out technical assessments for certification.

Some criteria to consider when choosing an adviser are whether they:

- have worked with enterprises of a similar size in your industry and preferably in your sector
- have relevant training and credentials (such as qualifications, membership of a professional association or a licence)
- provide the range of services you need if you want to engage just one adviser
- communicate well, are up to date with the latest requirements and technologies and will take the time to give you the information you want
- are good value for money
- have had experience working with First Nations people, if working with First Nations farmers and land managers
- can demonstrate relevant cultural awareness and competency before engaging with a First Nations project.

Inclusion in a list of advisers is no guarantee the adviser meets the criteria above. Before engaging an adviser, you should talk with them and get evidence they meet your criteria. You may also want to consider getting a second opinion on any advice.

If an adviser provides financial advice, they must have an Australian Financial Services License by law.

Identify other support services

To obtain information, land managers could also contact their local Natural Resource Management organisation and, for farmers, be active members of their grower groups.

Commonwealth, state and territory agriculture and land management agencies also have many online resources. For example, the CSIRO's Soil and Landscape Grid of Australia provides detailed digital maps of the country's soil and landscape attributes so farmers and land managers can better understand their soils and, therefore, their potential to store carbon.

Many industry bodies are leading the development of tools and resources to help farmers understand carbon farming.

There are also many not-for-profit and private fee-for-service consultancies working with farmers and land managers to understand the feasibility of carbon farming on their land.

Determine feasibility

Making as realistic an estimate as possible of the likely revenue and expense of your carbon farming activity or project is an essential part of carbon farming planning.

Revenue

If, for example, you are conducting an ACCU Scheme project, you must provide at registration an estimate of the total amount of GHG emissions your project will reduce or avoid and/or the carbon it will store. This can provide the basis for estimating revenue. Actual revenue will depend on the effectiveness of project activities, as well as ACCU prices.

Other government programs may also offer financial incentives for carbon farming (such as the Western Australian Carbon Farming and Land Restoration Program and the Queensland Government's Land Restoration Fund).

Indirect revenue sources can include higher prices for premium, low-emission products and increased sales into new domestic and overseas markets. Carbon farming activities can also reduce on-farm costs, for example, by reducing water and fertiliser use and having more productive livestock.

CSIRO's LOOC-B: biodiversity co-benefits calculator enables users to quantify the biodiversity co-benefits of land management actions (such as carbon farming) anywhere in Australia. This may allow biodiversity co-benefits to be fully accounted for, realised and rewarded.

Although it is uncommon for Australian farmers and land managers to do so, they can sell other types of carbon credits (not ACCUs) on the voluntary (non-ACCU Scheme) market through organisations such as Verra and Gold Standard.

Costs

Costs to establish and maintain a carbon farming activity or project include:

- time and money to design, implement and manage the activity or project
- professional planning and establishment advice (such as from a professional adviser about agronomy, livestock nutrition, soil sampling or revegetation)
- technology replacement or purchasing of other assets
- ongoing monitoring, compliance, auditing, verification and reporting costs.

Some examples of costs of carbon farming activities are:

- the Indicative costs for projects related to soil carbon and Indicative costs for planting or forest related sequestration projects on the Kondinin Group's website

- the Western Australian Department of Primary Industries and Regional Development's WA Carbon Farming and Land Restoration Program – Costing Guide (XLSX 38 KB), which has typical expense items for establishing a carbon farming activity.

If you are considering the costs of conducting an ACCU Scheme project, the Clean Energy Regulator website provides the latest information about the scheme's requirements, including current methods.

Watch this video

In this video (3:15 minutes), New South Wales graziers Mike and Helen McCosker share their insights and experiences in planning their carbon farming project.

Video: Carbon farming case study: On farm planning (youtube.com)

Transcript

HELEN MCCOSKER: Our farm planning process has been a really long process. We make sure that it's a living document. That's the most important thing. So we're always adapting and changing our farm plan. But I think to start with, we look at our vision. So what is the vision that we want on our farm long term? So for us, our vision is that we're a generational farm, and we want to leave a legacy. So that's really important to us. And then the other thing is what are the goals to get to that vision, you know. So we sort of talk about what our goals are. So for us, one of our goals is to make sure that we have longer term goals, it includes

MIKE MCCOSKER: It includes regeneration in the soil.

HELEN MCCOSKER: Yep.

MIKE MCCOSKER: We grow the best food that we possibly can. Yeah. We're community-focused, where possible.

HELEN MCCOSKER: Yeah.

MIKE MCCOSKER: Yeah.

You know, our business is our business, and we make money. But, we're also aware of the community around us and how we engage with that.

HELEN MCCOSKER: Yep.

MIKE MCCOSKER: So, you know, how that has probably landed, how we turn sort of long term vision into practical day to day stuff is that, you know, we started probably 20 years ago with a map of the farm and looking at how and where we were gonna break up into smaller paddocks. You know, we changed the fences, so they ran up and down the hill, or across the slope, and we broke what was

originally sort of 200 acres into four paddocks, first. Then we broke that down in half again. And so we came down in a couple of steps.

So one of the ways that planned grazing sort of originally turns up in the first few years is all about water and wire. Where are we gonna put the water points and when is it appropriate to break a paddock in half so that we've got smaller paddocks to manage.

We can then plan out 12 months in front. So we'll go through this plan, and we know that we wanna be near the cattle yards, you know, in early May, for weaning, So we can actually work back from there and know exactly where we're going to put the cattle and when, for how many days. And then how many days of rest we need before we're back in that paddock again. So we plan that out just as a mark on the page. And then what we plan and what we achieve is sometimes just a little bit different.

So we go through with the highlighter and colour in the days that we were actually in the paddock, and that just gives us a really easy visual aid because I can see there that I've had 120 days of rest from that grazing to that grazing.

4.4 Understanding greenhouse gas accounting requirements

Whatever your carbon farming activity or project, GHG accounting, which Topic 3 explained, is increasingly an indispensable part of farming and land management.

What type of GHG accounting do you need?

A farmer's or land manager's first GHG account might be as simple as one produced by the MLA Quick Start Carbon Calculator, in which it takes only a few minutes to estimate your carbon footprint. It will give an indicative starting point. It also starts your journey to collect and understand the data required for a more precise carbon footprint. Also, even a basic GHG account can yield valuable insights (for example, that fertiliser use is appropriate or that herd management is optimised) about what you're doing right and what can be improved.

The ACCU Scheme requires robust calculations of emissions reduced or avoided and carbon stored to ensure the integrity of ACCUs and market confidence.

Climate Active certification requires setting an emissions boundary and measuring emissions. Businesses can use the Register of consultants for Climate Active certification to help prepare their reports if they don't have expertise in GHG accounting.

Many farmers and land managers doing carbon farming for co-benefits other than earning ACCUs or Climate Active certification (for example, to improve soil health) may not keep a GHG account. However, as Topic 3 explained, a GHG account enables a farmer or land manager to:

- access low-carbon product market opportunities or meet potential market access requirements
- demonstrate their emissions and storage performance, for example, in agricultural supply chains

- work with others (such as regional NRM organisation) to reduce GHG emissions and store carbon at the landscape scale
- baseline their GHG emissions and changes in carbon storage, allowing them to benchmark and monitor their performance'
- identify on-farm productivity improvements and track the effectiveness of good farming practices.

A GHG account's opening balance (or baseline) is a point for future reference. Changes in the account (that is, in the carbon footprint) show the overall performance of carbon farming activities in reducing emissions and storing more carbon. For example, GHGs emitted and carbon stored might be measured every 12 months to identify changes that can be further investigated.

Validation, monitoring and reporting

A farmer or land manager may choose to calculate indicative estimates of their GHG footprint to guide management decisions. But for the ACCU Scheme, the data must be high quality, verified and compliant with reporting timelines and standards.

Climate Active requires independent third-party validation for organisation and product certifications, including verification of the source data in the farmer's and land manager's GHG accounts. According to the organisation's size (which is determined by various criteria), they might also need a technical assessment for certification to help ensure their reporting aligns with Climate Active program requirements. Both schemes also have monitoring and reporting requirements.

A farmer or land manager not involved in either scheme may not be required to monitor their carbon footprint over time or report externally. However, as explained above, supply chain expectations for them to do so will likely increase. Also, monitoring is a good part of adaptive planning, demonstrating successes and failures and where farmers and land managers can improve their operations.

As Topic 3 explained, many calculators are available to estimate GHG emissions and carbon stored. They range from simple and straightforward, requiring basic data while producing robust outputs, to comprehensive and tailored to particular agriculture and land management sectors. The government is developing voluntary GHG estimation and reporting 'standards' (VEERS) for agriculture, fisheries and forestry industries. The 'standards' aim to improve the quality and consistency of accounting methods and tools.

4.5 Climate Active

The steps in previous sections are common to any carbon farming activities or practices. The ACCU Scheme and Climate Active certification have additional requirements. Topic 5 examines ACCU Scheme requirements.

Climate Active certification is available for a farm (as an organisation) or agricultural products or services. Once certified, businesses can use a trade mark to promote their certification (subject to Climate Active approval of the use of its trade mark).

To be certified, a farm, agricultural product or service must meet all the requirements of the applicable Climate Active standard and supporting documentation available on the Climate Active website.

4.6 Case study and expert interviews

The following videos provide further information and discussion on soil and vegetation carbon farming through a case study and interviews.

Watch these videos

In this video (8:28 minutes), Nigel Sharp, CEO of Tiverton Agriculture Impact Fund, discusses soil carbon through pasture.

Video: Carbon farming case study: Soil carbon through pasture (youtube.com)

Transcript

My name is Nigel Sharp. I'm CEO of Tiverton Agriculture Impact Fund.

Our main objectives include demonstrating carbon farming and assisting other farmers with their carbon farming ambitions.

Carbon farming is about drawing carbon out of the atmosphere into our soils and growing trees. It's about sequestering carbon, as it's called, the drawdown process. My inspiration for carbon farming comes from the concern of future generations and their livelihoods.

It comes from making profits on the farm and having longevity and resilience in our farming practices.

We have a concern about the longevity of our soils, and so carbon farming helps us think long term about the soil, which helps to build the value of our property. Land appreciation is a key part of our farming productivity.

When we acquired Orana Park, we master planned it so that we could bring changes from conventional agriculture to a carbon farming project. We included shelter belts in our master plan, and we wanted to look at broad acre cropping and olive groves so that we could achieve diversification of income and bring horticulture into the picture. With our shelter belts, we included a sanctuary, which is not that common in farming, but we had some beautiful remnant vegetation that would be home to some fantastic biodiversity, and that could complete our carbon farming picture. Orana was a conventionally fertilised farm at the start. When we acquired it with our master plan, we decided to start using compost, so we were making a lot of compost on the farm.

It was an expensive process, the composting, so we've evolved to a liquid biofertiliser product that we develop on the farm here. The soils have changed since we developed the farming system we've put

in place here. The soil structure is stronger, we've got a much higher water holding capacity and a far greater worm count.

As we've evolved the liquid biofertiliser, we've started applying it to all of the crops and the olives here.

In the canola, our oil content is now 52 per cent, which is 10 per cent higher than the district average. So we're seeing, significant changes to the health of the produce, and we're seeing the soil starting to sequester carbon.

Orana Park has been master planned over a long term. So in putting in a thousand hectares of olives, they take seven years to develop. We started the the changes of composting moving to liquid biofertiliser.

So the profitability is a steady grow that then hopefully ends up in an exponential type curve. So we're expecting in another three years, which is seven years into ownership of this property, to be highly profitable, much more significantly profitable than when we commenced. The resilience in having a more resilient cropping regime as a result of carbon farming is really critical because it can extend the season in a dry season. It can assist us in a wet season. So it makes the farming, more adaptable to climate change and varying weather conditions that we're experiencing.

We've registered a soil carbon project here. When we started the soil carbon project, there's 0.7 per cent carbon in the soil. We're hoping to take that to 2.7. That should lead to carbon credits and carbon profitability for us.

Also, in developing our shelter belts and setting up the sanctuary, we're looking forward to biodiversity credits becoming a market. Asset value is critical to farmers. Carbon farming is extending the life of our soils, hopefully, in perpetuity, and that it's a productivity of a farm that ultimately drives the value of your asset. We believe carbon farming is going to increase our asset above the historical asset growth targets.

The measurements are guided by the Clean Energy Regulator, we're also using some satellite technology to help us monitor the changes to our soil and the carbon content, and to help us in making predictions and our planning, with the use of our interventions such as the liquid biofertiliser.

Being able to get, almost on time measurement, means that we can have a look at the changes, and the applications that we might make even within one calendar year. There's a significant process to register a soil carbon project. There's completing the application. There's doing a farm plan. There's baselining and collecting all the samples so that the baseline can be registered as well. So, again, we're coming back to talk to other farmers that have been through this process to make it easier because when you just start reading all of the information required, it can feel overwhelming.

When we acquired Orana Park, we set up a master plan, which included shelter belts and biodiversity corridors throughout the entire farm. Those plantings qualify for carbon credits through the REMP, part of the Emissions Reduction Fund. We're intending to complete those plantings, and they become part of our carbon farming story. You can have soil carbon and tree carbon projects on your property.

There's not a double count where soil and trees are grown on the same piece of land. That is a tree carbon project. The soil carbon project will sit separately from where you are growing trees. It's important to be aware of the risks when you transition to carbon farming.

It may be such as changing some of your machinery or equipment. In our experience, it was putting a liquid injection system into our seeder. It can be owning additional tanks. Some of the other

transitional pieces will be watching and monitoring your soil changes so that your application rates of the change of your practice is fully understood as well.

We've all made changes in our lives, and this is a major change for a farmer. But if you're fully informed and then you can look at what you need to do and change your equipment, how your soils will change, and you can monitor the changes. You can continue to make the decisions down the pathway to achieve that objective.

Internationally, the EU is really interested to see carbon farming taking a hold in Australia, and they wanna see farming on a trajectory to reduce their carbon emissions.

I think that the markets are going to start to dictate our carbon farming practices, and that will drive the change. So we might as well take a step forward and be farming down this direction ourselves. I think there's a significant risk if we don't adopt this carbon farming practice for Australia. A lot of farmers that we talked to are worried about the longevity of their soil and having to apply more and more fertiliser to get the same productivity so asset values are relying on longevity of productivity.

We've got a human health issue.

We can use less pesticide. We can use less herbicide. All of those things flow through to the quality of the food that we're all eating.

We're convinced that carbon farming is a win win. The improvement in the land value from carbon farming is gonna help the future generations as they come through. Carbon farming is also a win for the planet in that we're addressing sustainability.

Carbon farming is a win for the health of the consumer and that they're eating healthier food. So there's there's a triple win sitting in carbon farming. If you're interested to become a carbon farmer, our advice would be to talk to farmers that are in the game, talk to farmers that are carbon farming now, ask lots of questions, develop support groups amongst yourselves.

You can approach Tiverton. We're a demonstration farm. We're very happy to share all of our knowledge and help people on the carbon farming journey. It's critical to become very informed. Doing courses like this will help you gain your knowledge, talking to others, and being part of support groups. Being informed will give you the confidence to go forward because conventionally, there'll be a lot of people that'll try and talk you out of carbon farming.

There's no reason from our experience not to take that risk.

The opportunity is there for us. In 15 years, well, hopefully, we're not talking about carbon farming. We think it'll be an embedded practice because we're all interested in profitability, soil health, the health of the consumer, the products that we're selling to the world.

Hopefully, we're just talking about farming.

In this video (9:40 minutes), Matt Woods and Harry Youngman discuss soil carbon.

Video: Soil carbon: Expert Interview with Harry Youngman (youtube.com)

Transcript

MATT WOODS: Hello. I'm Matt Woods and I'm with Harry Youngman to talk about soil carbon. Harry is a fourth generation farmer on the family property Ardgartan in southwest Victoria, where they run prime lambs, beef cattle, and some agroforestry.

Back in 2003, Harry began getting a bit disgruntled with certain aspects of the traditional farming system, and he decided to trial something different on Ardgartan. Harry, what did you trial and why did you do it?

HARRY YOUNGMAN: So, Matt, what prompted it was a sort of a diminishing return from the traditional systems of fertilising and stock ill-thrift and a demise in species composition.

So what we did was initially do a heap of plant tissue tests and showed up an imbalance of certain elements. And so then to rectify that, we first adopted a liquid fertiliser system using sulfates.

And then that was from sort of 2003 to 2008. And about 2008, we were introduced to compost, properly humidified compost.

And we embarked on a four year trial from 2008 to 2012, and we had some pretty spectacular results from that compost process.

We had control, zero tonnes and up to four tonnes per hectare. And then each year, we did quite a lot of microbiological testing and found some really impressive improvements.

WOODS: So I'm a farmer and or land manager, and I'm looking to improve my soil carbon. What's the sort of top line advice that Harry Youngman would give to a farmer or land manager looking to do that?

YOUNGMAN: So my advice would be to improve your knowledge of soil science or understanding of how the soil works in the first instance.

WOODS: What about, I know on Ardgartan, you did some trials before going into, heavily into certain aspects of this farming style. Should other farmers, do you think, put aside a portion of the property just to do a trial before they invest too heavily in this?

YOUNGMAN: I think we're blessed at the moment, where there's so much information and there's so many trials that have been done that people can research that, and understand what's happened. There's some great early adopters that are well down the path of the benefits of some of these processes.

However, there's nothing better than seeing is believing. And so if you do have a small scale trial or you wanna trial something like you may have done with your fertiliser trials on the farm, set something up. There's certain technology around that can allow you to do it on a paddock by paddock basis now, which is fantastic.

But there is no better education tool than seeing it for yourself. Now whether that's at a field day on your own farm, highly recommend undertaking some on farm trials.

WOODS: And can farmers expect to see instant results, or are they gonna need a bit of patience here to sort of keep going with the program?

YOUNGMAN: Farmers will see response in certain aspects very rapidly. For instance, they may see a reduction in red-legged earth mite infestations within 12 months.

However, they might not see soil carbon improvements for four to five years. So it's not a miracle that happens overnight, but there are definitely some canary in the coal mine type principles that you can pick up on and see change pretty quickly. You just gotta know what to anticipate and what to look for and most importantly, what to test for.

WOODS: Well, let's move on to testing then. What can they test for? How do you monitor this and know that your soil carbon is improving?

YOUNGMAN: So some of the early indicators that we've found to be reasonably good and reliable proxies for improvement in soil health. As I said at the start, after we did the four years of compost, we did some soil DNA testing, which showed dramatic improvements where extra compost had been put out.

Those tests have morphed, and you can have them done all around the world. We are using two tests based out of America now, which are testing DNA and improvements in soil microbial fungal populations and bacterial populations and the various diversity of microbes.

Bearing in mind that there's about eight billion microbes in a teaspoon of soil, you are not gonna see it with the naked eye. So you have to go to a DNA type of testing. As discussed, it's like the canary in the coal mine. So you are picking up well in advance DNA tests that you can't see with the human eye.

WOODS: Harry, what's some of the advice you would give farmers and land managers who are looking to improve their soil carbon and their soil health?

YOUNGMAN: One of the first things I'd look at doing is is getting a piece of paper out and writing down all those things in the current production system that are frustrating you.

Maybe broadleaf weeds, maybe dags on sheep, it may be tensile strength in the fine wool merino operation, all those sorts of things that you just keep scratching your head about why is this happening.

Once you've done that, it'll help you synthesise down what are the important things that you might wanna try and address that no one's been able to help you with.

Secondly, you need to think through if you are going into a carbon project, how you're going to record everything that's going on on the farm in a concise and logical manner. It's a major part of any soil carbon project and it needs to be well thought out because the questions from the clean energy regulator and any auditors that might come onto your property will be pretty forensic.

WOODS: What about the knowledge that they're gonna need? Is that important to ensure maybe you're not talked out of your approach?

YOUNGMAN: Absolutely. Most of the time, people that have an agenda or a product to sell you will invariably talk down the benefits of self help, and they'll want to peddle you more of their product.

And so what my advice would be is just to empower yourself to be able to argue or discuss the point objectively and make it clear that you understand exactly what you're going to potentially replace their product with and be comfortable that it's going to work.

WOODS: Harry, it sounds like for farmers, it just makes business sense to improve the health of their soil. How did it work on Ardgartan in terms of the business outcomes?

YOUNGMAN: So what we've found on Ardgartan after benchmarking our whole operation, each enterprise for 20 plus years, is that we've been able to improve our output per hectare as measured

by our dry sheep equivalent carrying capacity or DSE capacity. For instance, our district average is about 14 DSE per hectare.

WOODS: Harry, a farmer or landholder has gone down this path to improve their soil health. How are they gonna know if it's working or not?

YOUNGMAN: So some of the things that we saw were improved clover content, improved clover nodulation, less broad-leaf weeds, less dags on sheep. Cropping enterprises can probably look to see, less fungal infestations and other diseases. So I would think that healthier plants are more resilient and perform the way they are supposed to perform.

WOODS: Harry, why is it important that farmers and land managers get soil testing done, and and what sort of tests are out there that they can utilise?

YOUNGMAN: It's a bit like weighing your lambs or your cattle or measuring the yield of your crop. You need to measure so you can manage. There's chemical soil testing, there's biological soil testing, and there's soil structure soil testing. There's practical on farm soil testing you can do as simple as getting a shovel, digging some holes on your farm, and counting the worms that are in your shovel full.

That's a really good litmus test of how well your soil is functioning right now. The chemical soil tests will give you a really good picture on your macro elements, but also your carbon. You've probably already got carbon measurements going back many years if you've been testing for a long time. And you can sort of understand the cause and effect of different management practices that you may have overlaid across your property.

WOODS: Great. Harry, thank you very much for your time. Appreciate it.

YOUNGMAN: Thank you, Matt.

In this video (11:14 minutes), Matt Woods and Harry Youngman discuss vegetation carbon.

Video: Vegetation carbon: Expert Interview with Harry Youngman (youtube.com)

Transcript

MATT WOODS: Hello. I'm Matt Woods, and I'm talking with Harry Youngman. Harry is a fourth generation farmer on the family property Ardgartan in southwest Victoria, where they run prime lambs, beef cattle, and some agroforestry.

Harry, you've planted a lot of woodlots and shelter belts on your property. Why did you choose to do this?

HARRY YOUNGMAN: Matt, I think my forebears possibly over cleared the property. And if you've ever been to the southwest of Victoria, you know, it's fairly inclement and harsh conditions. And so taking the lead from the Pastoral Veterinary Institute in Hamilton, and doctor Rod Bird back in the eighties,

clearly demonstrated the benefits of shelter belts on farm. And I think he actually, deduced that you could put between 12 and 15 percent shelter belts back on the farm before losing any productivity, such was the benefits of breaking up that wind and the benefits to livestock, etcetera, etcetera, which we've actually found on r

eplicated trials across the farm. Our lambing percentages in our more sheltered paddocks are consistently between sort of seven percent to 13 percent better.

And, we're also finding good interception of recharge areas down to discharge areas and sort of combating some of the smaller salinity areas on the property. We've also observed the local indigenous bush around the farm, and we've sought to perpetuate that out in as groynes of biodiverse plantings.

The theory behind that is we create harbour for, birds and insects to help combat things like red-legged earth mite, and other parasites.

So they're the main benefits apart from the obvious beautification of the property.

WOODS: Planting trees contributes to storing carbon in vegetation, and that's all part of the carbon cycle.

Can you just give me a little brief overview of what the carbon cycle is?

YOUNGMAN: So we're blessed with a process called photosynthesis.

Plants will absorb CO_2 out of the atmosphere.

They will respire O_2, which keeps us alive, and they'll make complex organic compounds, which we see as biomass above the ground.

WOODS: So even if a farmer or land manager is not looking to get carbon credits by planting trees and getting vegetation carbon, what are some of the financial and business benefits they might see out of plantations?

YOUNGMAN: So on the plantation front, we've done both radiata pine and eucalyptus globulus, which is short rotation and long rotation plantations, both of which provided, very good return on investment and provided also blocks of capital for things like succession planning and debt repayment and also smoothing out or compensation of poor years.

WOODS: Harry, in terms of shelter belts then, what sort of advantages are farmers gonna see in their business by planting those?

YOUNGMAN: So in addition to the livestock benefits that we've talked about, the evapotranspiration is a massive factor that isn't talked about a lot.

And so breaking up that wind flow has been very, very beneficial to extending the growth of the season and maintaining or not losing so much moisture. The shelter belt's also at a micro scale on the farm. We're aiming to try and fit in with the macro sort of catchment management planning and thinking, and we've sought advice from our catchment management authority and indeed received grants for plantings to enhance that macro catchment benefit.

WOODS: And are they gonna see benefits in terms of predatory insects and things in those shelter belts?

YOUNGMAN: Yes. So our shelter belts consist of sort of shrubs, medium trees, and then even taller trees, which could potentially be used for, timber lot or, furniture grade material in the future. So in our plantations, we actually view the shrubs and small trees as being very, very valuable for the

harbouring of important insects and bird life. An example of some of those insects might be a special wasp, which lives in the shrub called bursaria.

And that wasp is actually really effective in controlling red headed cockchafer.

The red headed cockchafer grub, which is the bane of the pasture farmer's life, is beyond control with conventional chemistry, but, interestingly enough, these wasps seem to be able to control them.

WOODS: And your own experience with that? You've seen that effectively happening on your property?

YOUNGMAN: Yes. So we have, had a dramatic reduction in the need for spraying red headed cockchafer and black headed cockchafer.

In fact, we don't spray for it anymore.

WOODS: So if I'm a farmer or land manager looking to get into this, what's Harry Youngman's kind of top level advice to start getting into it?

YOUNGMAN: So one of the key things is to develop and understand, what you want, and part of that process is developing a whole farm plan or a farm plan.

And that needs to respect things like waterways, roads, current roads and future roads, easements, title boundaries, council planting requirements, the right to harvest, and access to good public roads.

So shape and also the shape of plantations need to obviously consider the prevailing winds. Not only that, we need to understand that a whole farm plan is a microscopic or micro look at the broader, catchment and that in conjunction with people like your catchment management authority, you can look at the macro benefits of your plantings and how that may tie in with local indigenous bush or neighbours' plantings and indeed the waterways that feed into the major rivers in your catchment.

WOODS: So planting all those trees, you can add to your vegetation carbon. How are you gonna measure that vegetation carbon?

How are you gonna know how much you're sequestering?

YOUNGMAN: So the conventional forestry measurement systems are one method, and that's more in woodlot and having a random plot measurement system. The next level is, using the government provided FullCAM or full carbon accounting model, which actually predicts on a point and shoot basis how many tonnes of CO_2 equivalents you may be able to generate in your particular area using either mixed indigenous plantings or indeed Mallee plantings depending where you are and whether they're block or whether they're belt.

And so all those considerations need to be put in place. So they're all found in the Clean Energy Regulator's website.

WOODS: A farmer or land manager may not be looking for carbon credits now, but is there anything that they should think about or take into account? Because down the track, maybe they will be looking for carbon credits.

YOUNGMAN: So there are certain protocols that require a project to be registered before you actually plant. So you can't, today, retrospectively claim carbon credits on plantings that you have done. There's also some really good, technology coming along with not only from satellite, measures the volume of timber, but it also measures the health of the planting by picking up the gases that should be coming out, and it can give you a score out of 10 as to how healthy your biodiverse planting or your monoculture may or may not be.

So there's lots of, technology that's gonna help us do this for less cost and also do it more regularly.

WOODS: Harry, if a farmer or land manager wants to get into the carbon credits, is there any legal considerations they need to take into account?

YOUNGMAN: Matt, there are. There's, when you do go into a project, you need to consider, what encumbrance you are going to put on your land. And that may be determined by whether you elect for a 25 year permanence or a hundred year permanence, and it will vary. And also, in that process, they might like to consider the shape and style of project that they're going into, whether they're going to be employing a shelter belt model or a block planting model.

WOODS: It gets pretty complex, this stuff. Is there a place that farmers and land managers can go, you know, advisers or something that might be able to help them?

YOUNGMAN: Yeah. I strongly recommend getting not only legal advice, but also, try and find good carbon project developers that will help you work through not only the planning, the obligations, but also the potential pooling of those credits and effecting more lucrative sales.

WOODS: Harry, you mentioned FullCAM. What is that?

YOUNGMAN: So FullCAM stands for Full Carbon Accounting Modelling. And essentially, it's a point and shoot system, which was developed by the CSIRO and allows you to put in your coordinates and it will predict how many tonnes of CO_2 equivalents per hectare you can generate over a 25 year period.

WOODS: Harry, it all gets fairly complicated when you get into the carbon credits side of things. So where should land owners and farmers look for more information or maybe some expert advice?

YOUNGMAN: So we are blessed with a central body called the Carbon Market Institute, and all of the reputable, providers or service providers are actually subscribers to the agreed protocols of the CMI. And I would start with their website, and that will give you a list of, service providers.

In addition obviously, you need to canvass your trusted legal and accounting advisers as well.

WOODS: And maybe farmers could ask advice from other farmers that might have gone down this track?

YOUNGMAN: Absolutely. Yes. There's, so certainly, the Bush Telegraph is very, very appropriate in this situation where service providers have failed to provide the base service, farmers will be able to recognise that.

WOODS: Harry, that's been fascinating, and thank you very much for your time.

YOUNGMAN: Thanks, Matt.

4.7 Activity

This topic provides you with information, case studies and resources to help you understand some considerations when planning for carbon farming. Consider how this topic might apply to your land management or farming practice. Consider the following questions and make notes about carbon farming activities that might suit your enterprise.

Activity: Using the Clean Energy Regulator's decision tree

The Clean Energy Regulator's Soil and vegetation sequestration decision tree (PDF 330 KB) sets out decision-making paths for the ACCU Scheme's soil and vegetation methods. You can use the decision tree together with the latest information on the Clean Energy Regulator's website about available ACCU Scheme methods. Some questions are fact-based and require little reflection. Others require considerable thought and reflection about your motivation to engage with the scheme and comply with its requirements.

1. This decision tree does not address emissions reduction methods, so it might not be relevant if they are your main interests.
2. For each box on your chosen pathway on the decision tree, consider the following questions.
    - Do you understand the question?
    - Do you have the information you need to answer the question, and if not, do you know where you would find it?
    - What considerations come to mind when deciding 'yes' or 'no' at each junction?
    - Right now, what would your likely decision be?
3. You will likely answer 'yes' to some and 'no' to others. There is no correct answer. The purpose of the activity is to get you thinking about carbon farming planning.

4.8 Other resources

Carbon EDGE training (MLA)

Carbon EDGE is a 2-day MLA training program for the red meat industry, providing participants with an understanding of the opportunities for emissions reduction and carbon storage activities in a livestock grazing business. Participants use their own information to develop an action plan for their business as they learn about the practices and technologies that could reduce their carbon footprint and improve sustainability and productivity.

On-Farm Carbon Advice (New South Wales Department of Primary Industries and Regional Development)

The New South Wales Department of Primary Industries and Regional Development's On-Farm Carbon Advice project provides advice on carbon farming practices in extensive beef, sheep, dairy, and mixed farming systems. It covers topics including understanding climate change, agricultural emissions, emissions reduction and carbon storage strategies, and pros and cons of carbon farming.

Farm Business Resilience Plan – planning template (Business Queensland)

Business Queensland's Farm Business Resilience Plan provides templates and advice for writing a plan, including identifying opportunities to support and improve your business' productivity and profitability.

Calculating net emissions and reduction strategies for a broadacre farming (Grains Research and Development Corporation)

This article Carbon Neutral Grain Farming by 2050 – an example in calculating net emissions for a broadacre farm and strategies to reduce net emissions on the Grains Research and Development Corporation website looks at calculating emissions for a broadacre farm and ways those emissions might be reduced.

Environmental Economic Accounting Dashboard

The Environmental Economic Accounting Dashboard administered by DCCEEW lets users explore, visualise and customise content from various government databases. The content is presented as account tables, charts, customisable stories and underlying spatial data maps. Users can answer questions like 'How is our land cover changing over time in a particular state or territory?' and 'What is the economic value of mangroves for a particular stretch of coastline?'.

Co-Benefits Standards - Western Australian Carbon Farming and Land Restoration Program (Western Australia Department of Primary Industries and Regional Development)

The Co-Benefits Standard 2022-2023 (PDF 1 MB) provides guidance and resources for the Western Australian Carbon Farming and Land Restoration Program. It addresses monitoring and reporting for 5 co-benefits: biodiversity and conservation, agricultural productivity, soil health, salinity mitigation and Aboriginal economic and cultural wellbeing. The program's Co-Benefits Information Portal allows applicants to assess co-benefits for any particular area or location.

Indigenous Carbon Project Guide (Indigenous Carbon Industry Network)

The Indigenous Carbon Industry Network's 2022 Indigenous Carbon Project Guide (PDF 8.5 MB) aims to ensure that First Nations groups are well-informed to position themselves to maximise the benefits from carbon projects for their country and community. It covers 13 topics, including what is the carbon market; free, prior and informed consent; project feasibility; project governance; First Nations rights and interests; understanding co-benefits; and keeping your story strong. The guide can be downloaded as a whole or for relevant areas of interest.

Land Restoration Fund Co-benefits Standard (Queensland Government)

The Land Restoration Fund Co-benefits Standard (PDF 2.1 MB) is focused on growing the carbon farming industry by supporting carbon projects that deliver priority co-benefits for Queensland. This document is the framework that specifies how co-benefits generated from a carbon project are to be measured, reported, and verified for the purposes of the Land Restoration Fund.