Nature's capital – stick or twist?

> *"There's no guarantee in natural carbon storage."*

Oxford Farming Conference

A new report launched at the 2022 Oxford Farming Conference has concluded that while carbon credits and markets provide an opportunity for farmers, venturing into this new way of trading must be done with caution to ensure maximum positive outcome. *CPM* joined the live stream to find out more.

By Charlotte Cunningham

The carbon conversation has quickly changed from calculating and monitoring it to looking at how much capital farmers could access from the resource.

Navigating and understanding the carbon market is a minefield to say the least, with the complexities a hot topic of discussion at this year's Oxford Farming Conference — which moved online for the second year following increased concerns over new strains of COVID-19.

The conference played host to the launch of a new two-part report Natural Capital: the Battle for Control (commissioned by the WWF and Tesco partnership), which explored in detail ways farmers can reduce their emissions, the potential value of carbon credits and the opportunities of agri-carbon markets — as well as how these are controlled and regulated.

According to the report, the potential market value of UK land-based carbon credits could equate to around £1.7bn annually. However, the report determined that the regulation and standards of these markets are crucial for any positive impact to be realised at a farm-level. What's more, the experts warned growers of the importance of focusing on reducing their own emissions before contemplating trading carbon stores to offset the impact and pollution of other sectors.

The Battle for Control: Part I

With reducing emissions and sequestering carbon going hand-in-hand, part one of the report encompasses scientific research into the interventions which are likely to have the most potential for reducing agriculture's greenhouse gas emissions.

Callum Weir, sustainable agriculture specialist at WWF, kicked off the discussion during one of the fringe sessions. It explored how reducing emissions and sequestering carbon can be linked to create carbon markets for agriculture by asking a single question — how far can farming go to reach net zero?

"Agriculture is a unique sector," he said. "It produces around 10% of UK greenhouse gas emissions (according to the CCC), but land also has the capacity to sequester carbon. Through the reports, we wanted to understand the capacity agriculture has to both reduce emissions and sequester carbon, as well as the risk and rewards this presents to farmers."

The aim of the research was to provide

A new two-part report on carbon reduction and sequestration in agriculture was launched at this year's Oxford Farming Conference, which moved online for the second year running due to increased concerns over COVID-19.

Don't jump too soon and focus on offsetting your own emissions before giving opportunity to others to reduce their own, warns Emily Norton.

advice to farmers about what they can do on farm to reduce emissions, as well as advice for stakeholders and policy makers about how they can support this, explained Rebecca Mason, environmental consultant at Eunomia Research and Consulting, who led the research.

The analysis shortlisted 20 potential interventions — including cover cropping in arable rotations and reduced tillage — and assessed them based on both academic literature and farmer insights to understand their feasibility and key barriers.

These were then characterised according to four key variables: national GHG abatement potential (scored 0-5); cost of abatement (£/tCO_2); farmer views on 'cost-benefit' (scored 0-5); farmer views on 'likelihood of implementation' (scored 0-5).

The results were complex but, specifically for the arable sector, reduced tillage and alternative low carbon fuel machinery were defined as interventions that needed further research (in terms of impact and feasibility), whereas precision fertiliser application was attributed to being an 'easy win' for growers looking to reduce farm emissions, added Rebecca. "The 'easy wins' are something that farmers considered financially viable and easy to do and this is really promising.

"However, there are some key barriers that have to be considered. For example, while farmers might recognise that precision fertiliser applications could be profitable in the long-term, there's that initial investment cost which is an issue."

So what next? The report concluded some key areas for change, explains Rebecca. "Firstly, there has to be support for farmers to reduce emissions which is consistent, robust and impartial. There should also be a consideration given to financial incentives to support interventions that perhaps have no over-arching on-farm benefit but have a huge climate advantage — feed additives being a classic example of this.

"It's also important to develop more complete GHG emissions accounting to understand the key priorities and interventions in order to identify where the highest impact could be.

"An acceleration in targeted research and development is also needed to deliver change where potential impact is the greatest, such as reducing methane and animal feed alternatives."

The Battle for Control: Part II

The second part of the report looked at the other end of the scale — delving further into farm-level opportunities for carbon sequestration in UK agriculture and how carbon markets might apply to agri-carbon, explained Jim Elliot, senior policy adviser at Green Alliance, who carried out the research alongside the University of Manchester and SRUC.

"Land can store carbon underground in soils and above ground in trees and other plants and with 70% land in the UK being farmed, there's clear opportunities toincrease both soil carbon through regenerative practices and above ground carbon with more agroforestry in a farming setting."

In this research, the team didn't include land change options like afforestation, instead, focusing purely on interventions that were realistic in a 'working' agricultural setting.

The team at Manchester University started by looking at different ways of moving and storing carbon and according to Jim, the headline from this is that — particularly when it comes to soil carbon — there's

To get the most from agri-carbon, tenant farmers must also be included in the equation, believes Dustin Benton.

There's still a lot of uncertainty in the science surrounding how much carbon can actually be stored in soil carbon through regenerative farming practices, explains Jim Elliot.

still a lot of uncertainty in the science regarding how much carbon will actually be stored. "The best evidence that we have is on incorporating crop residues into soils. But for the other interventions which get a lot of attention — such as min/no-till, cover crops etc — the evidence on the climate benefits is a bit less certain.

"They do, however, have quite significant co-benefits for other environmental/agriculture issues — in areas like biodiversity, water quality and soil health — so it's important that this keeps being done and we have to keep working on both policy and marketing instruments to get them more widely used. But the climate benefits specifically are less clear as this moment."

As well as regenerative practices, researchers also looked at more engineered carbon removal options which might have an impact on farming, he explains. "This included enhanced rock weathering — where powdered rock is put onto the fields where it reacts with the CO_2 in the air — as well as other methods including Biochar, which involves ploughing charcoal into the soil.

"In terms of when they're likely to make a useful contribution to carbon, there's still a lot of work needed to enable this sustainably and safely."

According to Jim, the issue with uncertainty is that it's important there are strong, robust standards when it comes to agri-carbon. "Particularly when we're talking about soil carbon interventions, they work differently in different situations and farmers may see different results within the same field — let alone on different farms and different areas of the country. ▸

According to the report, the potential market value of UK land-based carbon credits could equate to around £1.7bn annually.

▸ "So it's crucial to have a robust standard for measuring the actual carbon that's being stored. It's very difficult to predict this and so it must be accurately measured and verified."

Jim added that this presents some challenges from a market perspective as it can introduce costs, and it's also very easy for carbon to be re-released after it's been sequestered — which would obviously have a very negative impact on the climate.

"You only have to look at ash dieback to see just how fragile the balance is — all that carbon that's been stored in ash trees for decades that will now effectively be released. There's no guarantee in natural carbon storage."

With these factors in mind, turning the focus to being able to 'sell' carbon credits based upon sequestered stores, how big is the opportunity for growers? "This depends a lot on how much you can sell it for and how much demand there is," explained Jim.

An evidence review looked at the different farm and land-use change options and, when all the potential sequestration options were added together, there was the potential to glean significant income — in comparison with current CAP funding. "At £50/t CO_2e, UK soil carbon sequestration could be valued up to the range of £1.7-2bn per year," he said. "But, this relies on being able to sell carbon for £50/t CO_2e — which is quite a lot higher than the current voluntary market price — and also a demand. And at present there are other ways potential buyers can do carbon offsetting. So agri-carbon has to be marketed well to prove it's worth investing in.

"It's also worth mentioning that over half of this potential is in land-use change options rather than on-farm options and, as we've already noted, some of these on-farm interventions can be difficult."

So with the potential value of the market evident, how might this be reflected and workable in practical terms?

"The way that carbon is bought and sold matters a lot," warned Jim.

Dustin Benton, policy director at Green Alliance and one of the lead authors of the report, talked through the potential market scenarios. These included:

a) Free-for-all – Decisions driven by private corporations seeking cheap carbon off sets with limited governance.
b) Strategic planning – Government decides land-use rules and payments to deliver multiple public policy goals. 'Owned' by landowners, but Government deciding value etc.
c) Planning via incentives – Government 'fills the gap' around private markets to deliver multiple public policy goals.
d) Nationalise or privatise? – Government and large corporations meet land-related goals by purchasing land and taking direct ownership of natural capital – this is where carbon markets fail.

Market governance

"We've imagined four scenarios about how carbon markets might be governed," explained Dustin. "The situation we're in today is closest to a free-for-all and with land prices starting to rise, it could suggest the last scenario could already be happening.

"We don't know yet which is the best scenario, but by illustrating the realities of them it reinforces exactly why it matters who makes decisions and that there's a clear need for governance."

To move forward, there are two key recommendations from Duncan. "The first is that we desperately need a rural land-use framework, and this should be more than advice, but less than command. It should show where the Government thinks natural capital is and what value it has to meet our food, climate, and nature goals, but nobody should be forced to use their natural capital for national gains.

"The second thing is that all of our scenarios see tenant farmers missing out. But if we want to make the most of natural capital, we have to draw on the skills of all farmers — including tenants."

A reoccurring question surrounding carbon trading is that surely this throws a lifeline to the worst polluters at the expense of farmers already doing the arduous work?

It appears the outlook is not yet black and white, but OFC director and head of rural research at Savills, Emily Norton, stressed again the importance of farmers first and foremost focusing on what's going on in their own fields. "The potential market value of £1.7bn per year for carbon credits suggested within these reports is roughly half the value of all public support payments for agriculture.

Experts warn that offsetting carbon can do more harm than good if companies do that instead of reducing their own emissions.

"But it's clear from the recommendations that we can't jump at this new opportunity without the right safety nets to prevent an overly dominant focus on the most emissions-reducing land-use practices, such as afforestation and peatland restoration, at the exclusion of food production and biodiversity gain.

"The reminder to those land-owners keen to trade in these new markets is loud and clear: don't jump too soon and focus on offsetting your own emissions before giving opportunity to others to reduce their own."

Jim added: "The food sector has a unique role to play and, for farmers, the research shows that there's an opportunity for them. But be aware of the different ways carbon can be bought and sold, and make sure that any agreements you enter into work for you now, and for the farm business in the future.

"Agri-carbon sequestration is complex and at the moment uncertain, so it's crucial that there's strong governance of carbon-offset claims. Offsetting can do more harm than good if companies do that instead of reducing their own emissions. Offsets should only be used where businesses genuinely can't reduce them further, otherwise it becomes much more difficult to truly reach net zero and stop the climate crisis." ■

As the conversation around carbon trading gains more traction, *CPM* will be exploring the wider picture in detail over the coming months. Watch this space for more information…

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