

AusSMC BACKGROUND BRIEFING:

Farmers prepare to count carbon – but is the science up to it?

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TRANSCRIPT

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I'll just follow on from Richard and discuss one particular aspect and then I'll break out into what is really included in the full greenhouse gas account. I'll just go to the first slide. I won't use it completely at the moment. But why is this hype about soil carbon around the world? There are two ways that we can reduce atmospheric levels of CO₂ directly and that is putting it under ground, which is geo sequestration and through a natural process whereby carbon is sequestered in soil. When you grow a tree, grow a plant, carbon is deposited in that and it is above ground, but when it decomposes, when the leaves fall or when the roots die that carbon actually becomes part of the soil matrix. So that is basically what soil carbon sequestration is about.

In a lot of the temperate countries of the world where there are high rainfall and also the ability to produce large crops, people are able to return large amounts of carbon to the surface of the soil, which means eventually that that carbon goes into the soil. So the ability for countries around the world to sequester the carbon is high depending on the climate. We look at Australia's climate and we have hot, dry summers in the south and in the north, whilst we have a large amount of rainfall, it is a very hot climate. Both conditions, the heat, are not conducive to storing carbon in soil because the carbon decomposes rapidly.

The ability to store carbon is also based on the management of the cropping system or the agricultural system. If we look at tillage practices, if we reduce tillage, that means we don't come in and cultivate as often as people have in the past, we have the ability to store carbon. Soils do not like being cultivated. If you cultivate a soil, basically it produces and breaks down the soil structure, mainly because the carbon is disturbed and the carbon ends up back in the atmosphere as carbon dioxide.

The other way to sequester the carbon in soils is through grazing management. Now there hasn't been a lot of information developed in this area because it really means looking at cell grazing or rotational but this is where in Australia we may have the possibility to sequester a reasonable amount of carbon over a large area. If you look at the map you'll see the colours represent different soil types and each of these soil types have a differing ability to sequester the carbon based on their clay content. Special interest should be taken of the green area, that's the cracking clays. Clays have an ability or a high ability to sequester the carbon if the conditions are right. If you have high biomass it does not decompose quickly. If you go down into the Victorian area, around the Wimmera where it says 'red duplex', that is a high clay area. There is some potential to sequester the carbon in those areas but the characteristics of the soil have a big role in terms of carbon sequestration.

Lastly if we go to the next slide, I just want to examine here a complete farm inventory. This is what will happen in the end when it comes to greenhouse gas accounting in Australia. You cannot just look at one aspect, as Richard has already pointed out. This is quite a complex exercise and various countries, including Australia, are trying to develop quite complex modelling frameworks. If you see here, this is a relatively small farm of 400 hectares in total on the Darling Downs of Queensland. Now the Green Paper is saying that most farms will not produce more than 100 tonnes per annum and in this case here we've got 400 tonnes per annum. I hope I got that right there. I think from the Green Paper it says 1 kiloton per annum. Someone may want to correct me if that's not correct. Basically if we just look here at what the inventory is about we

really do not have a handle on a lot of these. We are measuring some of them. It varies across the landscape. I would say of all, the methane component from animals is quite well documented and we can look at trees and sinks and we can quantify that. But most of the others still need a lot more work in terms of analysis and estimation and this is the big stumbling point in the Green Paper and that's also what Ross Garnaut has pointed out quite clearly.

The estimation side of agriculture will play a major role in where we go in the future. This is why some of the voluntary systems like I've been involved in in the United States such as the Chicago Climate Exchange where simplified inventory systems are being used where people are not required to document fully but they are given some guidelines and rules, this may be a way to follow up in the future before we move into a full trading exercise.

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