



COMMONWEALTH OF AUSTRALIA

Official Committee Hansard

**HOUSE OF
REPRESENTATIVES**

STANDING COMMITTEE ON PRIMARY INDUSTRIES AND
RESOURCES

Reference: Assisting Australian farmers to adapt to climate change

WEDNESDAY, 19 AUGUST 2009

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HOUSE OF REPRESENTATIVES
STANDING COMMITTEE ON PRIMARY INDUSTRIES AND RESOURCES

Wednesday, 19 August 2009

Members: Mr Adams (*Chair*), Mr Schultz (*Deputy Chair*), Mr Bidgood, Mr Champion, Mr Forrest, Mr Haase, Ms Livermore, Mr Perrett, Mr Sidebottom and Mr Windsor

Members in attendance: Mr Adams, Mr Bidgood, Mr Forrest, Ms Livermore, Mr Perrett, Mr Schultz and Mr Sidebottom

Terms of reference for the inquiry:

To inquire into and report on:

- Current and prospective adaptations to the impacts of climate change on agriculture and the potential impacts on downstream processing.
- The role of government in:
 - augmenting the shift towards farming practices which promote resilience in the farm sector in the face of climate change;
 - promoting research, extension and training which assists the farm sector to better adapt to climate change.
- The role of rural research and development in assisting farmers to adapt to the impacts of climate change.

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WILLIAMS, Mrs Sonia, Executive Officer, Southern New England Landcare Ltd 1

Committee met at 5.15 pm**ANDREWS, Mr Shane Phillip, Project Officer, Southern New England Landcare Ltd****THOMPSON, Mr David, Project Manager, Northern Inland Forestry Investment Group****WILLIAMS, Mrs Sonia, Executive Officer, Southern New England Landcare Ltd**

CHAIR (Mr Adams)—Welcome. I declare open this public hearing of the House of Representatives Standing Committee Primary Industries and Resources for its inquiry into Australian farmers and climate change. Although the committee does not require you to give evidence under oath, I should advise you that the hearing is a formal proceeding of the parliament and so warrants the same respect as proceedings of the House. Giving false or misleading evidence is a serious matter and may be regarded as a contempt of parliament. The committee has received your submission, submission No. 39, your supplementary submissions and also the work that you have undertaken in your pamphlets and booklets, which is excellent work. Thank you for that. Do you wish to make a brief statement in relation to your submission or some introductory remarks? I am sure the committee has got some questions for you after that.

Ms Williams—Thank you very much, Mr Chairman. Southern New England Landcare has done a submission to parliament. What I would like to do is a three-part presentation. It will be very short—five to 10 minutes—with David Thompson leading, followed by Shane Andrews, and then concluded by me.

A PowerPoint presentation was then given—

Mr Thompson—I am the Project Manager for the Northern Inland Forestry Investment Group, one of 19 private forestry development committees set up some time ago to nurture the development of private forestry in regional Australia. I have been working collaboratively with Southern New England Landcare on one particular project, which is the Engineered Woodlands Project. I would just like to give a brief, big-picture overview of our work and then hand over to Shane to talk about some of the more technical issues.

I guess the key message is that as far as agriculture and climate change go, the Carbon Pollution Reduction Scheme, as it currently stands, is potentially one of the largest policy impacts faced by agriculture. It could well have a more immediate and significant impact than climate change itself. Regional economies have a very high dependence on agriculture, and our view is that there is the potential for climate change policy to be either a net positive or a net negative for rural areas and for agricultural businesses depending on how it is set up. Farm forestry can certainly help in terms of mitigating carbon emissions and greenhouse gas emissions from farms, but we think that more options are needed.

Just to give you an example of the dependence of regional economies on agriculture, this chart here is for our region, the Northern Statistical Division. The critical figures are those down at the bottom, highlighted in the yellow colour, which show agriculture's share of the regional economy. You can see that it is around the 30 per cent mark. That was in 2005-06, which was a drought year. Typically, agriculture's share of many regional economies is closer to 40 per cent.

So agricultural businesses dominate regional economies. To put that last slide into perspective, you might remember when BHP shut down in Newcastle. That was only seven per cent of the regional economy. That gives you some sort of comparison.

One of the things that we did was to take a farm and have a carbon footprint calculated. It was a 831-hectare farm, running about 5,000 sheep and 120 head of cattle. That farm is producing around 1,100 tonnes of carbon dioxide equivalence per annum, largely from livestock emissions, and we looked at the situation where, under the CPRS that property had to purchase permits to cover its emissions. The farm had a gross margin of around about \$160,000—gross margin being simply its income less variable costs so that does not even include financing costs, farm-family costs, or any capital or overhead costs. At \$10 per tonne, which is the opening price as I understand it, under the CPRS they would be up for about \$11,000 a year. The Centre for International Economics did a couple of other studies which indicated that permit costs could be up to \$100 per tonne by 2030 and up to \$250 per tonne by 2050. That shows that if that farm was required to cover all those permit costs it would be in serious financial difficulty. I should say that all these figures are reproduced in the papers that you have.

We have been doing a lot of work on tree planting on farms, but the cost is quite high. For that particular case-study farm that I showed you in the last slide, we looked at dense plantations of trees versus engineered woodlands which are widely spaced tree planting options and looked at what area of the farm would have to be planted to trees to offset those carbon emissions. You can see for a dense plantation it is around about 22 per cent of the farm; for a sparser agroforestry engineered woodlands arrangement it is around 74 per cent of the farm to offset emissions. You can see the establishment costs on the right hand side are quite high.

The other issue which we think is going to be important is soil carbon. For our region, which has about 5.7 million hectares of agricultural land, I looked at some estimates of soil carbon sequestration and expressed those as a percentage of Australia's annual emissions. You can see that there is quite a bit of debate, as I am sure you aware, about soil carbon and its longevity, how to measure it and so forth. Some of the government scientists are talking about perhaps a potential of one tonne per hectare per annum. Some of the advocates of various cropping systems and farming systems are talking about somewhere between 10 tonnes and 20 tonnes of carbon dioxide equivalents per hectare per year. You can see just from our northern statistical division that, even with a fairly low estimate of one tonne, you could be offsetting around one per cent of Australia's annual emissions and if you can get higher levels of soil carbon sequestration it could be as high as 11 per cent. That is only from an area which comprises 11 per cent of Australia's agricultural land, which is the northern statistical division.

Mr Andrews—In our submission we talked about a project that was an innovation by the Southern New England Landcare and the Northern Inland Forestry Investment Group, the engineered woodlands project. I just want to fill out a little bit more information about that project with particular reference to its ability to act as a carbon sink on farm. This photograph fairly well encapsulates what an engineered woodland is. It is basically widely spaced belts of trees integrated with the agricultural operation on a farm. That picture is from a farm at Kentucky near Armidale. That is the definition—they are wide spaced tree plantings engineered to integrate traditional agriculture with income-producing trees and our project established a number of demonstration sites of that land use. After a year this is one of them. That is an early planting in about 2007.

I would like to inform the committee of the tree-planting options of engineered woodlands and their capacity to sequester carbon without displacing agriculture. That is the key message I would like to get through today. When we think of a forest sink in the carbon pollution reduction arena we typically think of a dense tree plantation with a 100 per cent tree canopy. Obviously, if you go with that sort of a model there is dense canopy cover when the trees are mature and there is not much potential for agriculture production underneath such a layer. With an engineered woodland forest sink there is only partial canopy cover. There is a lot more sunlight and a lot less competition from the trees. As you can see if you have designed it carefully, you will get some good microclimate improvements and nutrient cycling improvements from having the trees in the system.

Another thing I would like to alert you to is the pattern of carbon sequestration in forest sinks. You may have seen some of this sort of information. We have had some carbon modellers give their valuable time to us to estimate some of the carbon sequestration on our sites. This is from a site near Armidale. We gave the modellers the site and the species we would like to plant, and this is the sort of pattern of annual carbon sequestration you might see at a tree-planting in Armidale. The main thing I wanted to demonstrate with that sort of pattern is that most of the carbon sequestration in tree-planting occurs very early in the life of the stand. Up to about 20 or 30 years, most of the carbon sequestration has occurred and then it tapers off as the stand matures to a point where there is no more carbon sequestered.

Just to represent that a different way, this is the amount of carbon that accumulates in a tree-planting over time. Early on you can see fairly rapid growth when the trees are young and vigorous. As they reach maturity, it tapers off. Some people think that once you establish a tree-planting you go on sequestering carbon forever. That is not the case, as you can see. Eventually they stop sequestering carbon. The rate of sequestration slows quite quickly. You might suggest that we should harvest the trees at that maximum growth rate and replant so that we always continuously have the tree sequestering carbon at a high rate. Under the current rules, though, if you harvest the planting you can only claim the carbon credit once up to the stage of harvest. From then on it becomes a carbon liability. So you must keep replanting the trees to make sure that you got whatever carbon permits you have generated covered with carbon on the ground.

What I think we need is more opportunities for biosequestration. In this graph we have got a tree-planting that is harvested at optimal growth rate and then the material turned into biochar. You have got some representations about biochar and I believe you have visited some plants. With biochar about half of the material is converted to a stable form of carbon. If you were to do that you will see there that the carbon accumulation of the tree-planting in the system continues basically for a very long time. So you do not get the stagnation of the carbon sequestration, it keeps going for as long as the soil can accept the biochar.

As you can imagine, if you combined an engineered woodlands tree sink with this sort of harvest and sequestration via biochar, you can get a number of wins. The agricultural productivity is maintained or enhanced: because the tree plantings are wide-spaced they are helping the agriculture rather than displacing it. We do not lose any farms or agricultural land to the carbon sink; the trees and agriculture coexist. There is no tapering off of carbon sequestration, so the plantings and the biochar addition to the soil keeps accumulating carbon. The soils may well be improved with biochar. Renewable energy is one of the by-products of

biochar production, as you know. Very importantly, if agriculture is impacted by climate change we will be looking for other industries in our region, and of course this is a great opportunity.

What we think is needed is further work on pyrolysis, which is happening, I believe. We need some policy change to accept biochar as a carbon sink, definitely. What Southern New England Landcare is all about, we need local networks and organisations supported and resourced so that farmers can adapt. I think Sonia might have a few comments about local networks and organisations and their relationship with farmers. Thank you.

Mrs Williams—What you have seen today is a technical presentation from organisations that we partner with. That is one of the key roles of local networks. Many policies that come about develop programs in isolation from the local community and then get people from outside to come and try and deliver that. It takes a long time to establish the trust and the network of people to deliver things quickly. So what you have seen here is that Southern New England Landcare, which has existed for about 17 years, has a strong track record with its community and a strong track record for delivering outcomes. I will point you to this document which was handed around as part of the package, with details of what we are, how we set up, what we do and, importantly, what we have achieved.

When there are ideas or policy changes which need some sort of action, organisations can come to us or we can go to them and we can deliver, in partnership, a package. It brings the best of community networks, technical suppliers, academics, researchers, providers and policy people into one spot. We are owned, respected and trusted by the community. If a program person comes from outside it takes them a long time to establish any of that, so your program is already on the back foot.

We also believes that for a system to be widely adopted it must have commercial benefits as well as environmental benefits. We believe that the government has a role to play in funding and supporting groups to illustrate that these systems work locally. Without local evidence there will be no adoption and no adaptation. We believe that to assist farmers adapt to climate change you should utilise and support existing local networks. They are trusted bodies that are already there and the community should be involved at all stages of the process. That is what we are seeing here through Southern New England Landcare.

We have a farmers steering committee—the process of which is in our submission—so we are actually not foisting some sort of program on them. They are involved in the program and help design it in a way such that it will be readily accepted by the community. The extension materials are a series of fact sheets. Our farmers had a role in designing those so that they would be useful for other farmers. As I said, we have to ensure that there are commercial as well as environmental benefits, because there is not an endless supply of capital. Farmers will readily adopt something that helps them in their hip pocket.

CHAIR—Thank you. Do you think that groups like yours could deliver extension services to the community?

Mrs Williams—Absolutely. We not only do projects but are very strongly focused on extension. If we are only delivering our project in a certain area and not promoting it to the

wider community then we are not getting multiplier effects on our dollar. Extension is the core of what we do.

CHAIR—Value adding.

Mrs Williams—Absolutely.

CHAIR—Slides were presented in relation to making biochar, which could be from thinning trees that are 30 or 40 years old. That is an energy source as well. Can energy be produced in making biochar?

Mr Thompson—Yes. It produces syngas, which can be used to generate electricity. My understanding from the local expert on pyrolysis is that for that to fly the feed-in tariff for the electricity coming from the pyrolysis plant needs to be around 80 per cent of the current green energy retail price, which I think is 24c, so it needs to be around about 16c.

CHAIR—Is it a part of the renewable energy scheme, the RET?

Mr PERRETT—My understanding is it would be.

Mr Thompson—It probably depends on the source of the feedstock. I am not so sure about forestry residues but you can use municipal waste and that sort of thing.

CHAIR—I do not think forestry waste is.

Mr Thompson—I think forestry waste is excluded, yes.

CHAIR—I do not know why.

Mr Thompson—Neither do I.

Mr SCHULTZ—I want to ask you about the priorities you believe should be addressed in the quest to adapt agriculture to climate change. Where do you believe the priorities should be?

Mr Thompson—The only game in town for agriculture at the moment seems to be growing trees to offset carbon. There are a whole range of other methods, like those to do with vaccines to reduce methane production in livestock, changing cropping practices, changing fertiliser practices and soil carbon, but as I understand it they are not actually included in the CPRS as it is drafted at the moment, although perhaps after Copenhagen those things will be included. As I have shown on my slides, tree planting alone is not going to solve the problem for many farmers and could be quite expensive. I think soil carbon and biochar, which Shane was talking about, are a high priority.

Mr SCHULTZ—What is your involvement with the research agencies, such as the departments of primary industries, universities, and rural research and development corporations?

Mrs Williams—I will hand back to David. We at Southern New England Land Care are the network of local producers, or farmers. We recognise that a lot of the research and scientific base is generally beyond farmers to instigate, so that is where we pull in our partners. Through projects such as these we have a wide-ranging steering committee where we tap into every expert available that we can. Do you have anything to add, David.

Mr Thompson—I think that has covered it. Our forestry investment group program was partly funded by New South Wales DPI and, until recently, partly funded federally through the NHT, via DAFF. That funding has now ceased. But, as Sonia said, on our steering committee we have people from UNE, from DPI, from—on our group—state forests, from the department of land and water, so there is a lot of networking with those research agencies.

Mrs Williams—We have found that having the multistakeholder steering committees—we also have farmers on the steering committees—means that the relationship and communication is built up so that department of agriculture does not go out in isolation and dream up a great scheme that farmers have not got any intention of or ability to deliver on. I do not believe that we are as integrated as we should be. We are outside the funding loop of most of that and most of the programs that are developed are developed first and are then taken to the community. It is not the model we take, which is to bring all the partners together to develop the program.

Mr SCHULTZ—With what is going on internationally, how important is it for us to ensure that in this area Australian agriculture, or farmers—whether in agriculture or horticulture—are not disadvantaged by anything that may be happening, for example, in the USA and/or the EU, in the way of government legislation? Do you have any thoughts or concerns on that?

Mrs Williams—I think we will hand that one to the economist!

Mr Thompson—I think you have almost answered your own question with that one! It is serious concern that other countries are not including agriculture in their emissions trading schemes. The other interesting thing with the Carbon Pollution Reduction Scheme, as I understand it, is that agriculture is the only sector where small businesses may be brought to account for their carbon emissions. In every other sector you have got to be emitting more than 25,000 tonnes per annum. That is a definite concern, particularly as other countries may not be building that cost into their agricultural production.

Mr SCHULTZ—What you are saying is that if we do not take that into consideration as a country we are placing agriculture and horticulture at significant risk of being uncompetitive.

Mr Andrews—The other side of that argument is that some of the capacity of agriculture to sequester carbon is not considered, but they will be responsible for the emissions that can be measured. Unless we can get all of the emissions and all the sequestrations worked out in balance then we should not be included at this stage.

CHAIR—At present the situation on whether agriculture is going to be in or out is still in the air. From what you have said to us and the evidence you have given, do you feel that government should be responsible for helping communities to find adaptations that will help them to get through a low-carbon economy or no carbon in our economy.

Mrs Williams—Working with the landholders within our region we find that they, obviously, need to make a profit to survive—that is a fundamental—and most are looking for a way that makes them sustainable. That is for profit reasons. It might be a feel-good environmental reason, but at the end of the day it is about profit and staying in business for the long term.

It is beyond the capacity of many of our farmers to fathom a way forward with things such as carbon pollution reduction schemes and climate change. We provide a mechanism where they can come to us and we can link them to the economists, researchers or programs. They see us as the one-stop shop. They are us—we are owned by them. They pay membership. We are a locally owned community organisation. They look to us to help them along the path of sustainability and profitability. I suppose it was due to climate change that we lost all our gum trees on the tablelands. We were exposed to winter winds that we had never had in the past. That was a form of climate change. This is a form of climate change in a different way. We have, over 17 years, been working with farmers to mitigate the effect that activities had on climate change on their farms. So we have a strong relationship and an established network and system to bring all parties to the table to develop something that they are comfortable implementing.

Mr SCHULTZ—Whilst that is recognised across Australia, there is a significant concern about your ability to maintain that if there is any threat to your funding source.

Mrs Williams—Absolutely.

Mr SCHULTZ—What is the threat to your funding source?

Mrs Williams—Our main funding came through the National Landcare Program and then the Natural Heritage Trust, and now it comes through Caring for our Country. I have been involved for 17 years. When the National Landcare Program first rolled out, local people identified issues that were important at the local level and bodies like ours brought all partners to the table to develop a way through. So there was ownership, and people could move forward on issues. With the Natural Heritage Trust, we started to move to regional priorities. Instead of the priorities of the local people driving it, it was a more top-down approach. People would say: ‘This is what’s important for our region. What might be needed at this level to start people off is tree planting. That might get them to where they are going.’ They would be told, ‘No, that is not a priority so you can’t start there.’ People were not allowed to start where they were comfortable with and capable of starting.

With the move to Caring for our Country, it went from regional priorities to national priorities and a very targeted business plan. So, unless your community is in one of the areas for which a high-priority target has been identified, the chances for funding are minimal. Even with creativity they are minimal. What we found on the tablelands was that loss of vegetation is not considered a priority issue under the Caring for our Country business plan. Anybody who has been onto the Northern Tablelands, with the huge dieback problems, will know that that is just not the case. So we struggle. We spend a significant part of our time trying to find resources so that we can go about doing a job. That is not a complaint; it is a fact. It would be far more productive to have some steady source of funding support for organisations with track records to get in there and link those processes in. Then we would not have to spend half our year just trying to keep the door open.

CHAIR—Thank you very much.

Mr PERRETT—Shane, I wanted to take you back to some of the science. I say this as a nonscientist. You said it would have no impact on farmland. Am I misunderstanding? Is it the strip or the hectare that has 20 per cent coverage?

Mr Andrews—The reason the 20 per cent figure is in there is that, under Kyoto rules, a forest sink must attain 20 per cent canopy cover to be considered a forest sink. That is why we have gone with 20 per cent. But it must attain that at maturity. The strips, when they are planted, take up probably less than 10 per cent of the paddock—maybe even only five or six per cent. As the trees mature, the crowns come out. So we plan the plantings to be at least 20 per cent canopy cover for the site.

Mr PERRETT—The percentage of the field that is lost, that cannot be ploughed, is 10-ish per cent or, if it is under canopy—there is less growth under the canopy, obviously—

Mr Andrews—What I actually said was that with careful design we can get systems that work, where the trees complement the agriculture next to them and compensate for their direct competitive effects.

Mr PERRETT—If I take you to the graph on page 5 of your presentation, that small percentage at the end is just a tree falling over and a new tree growing up—

Mr Andrews—No, it is—

Mr PERRETT—Or does it taper to nothing eventually?

Mr Andrews—It tapers to nothing eventually. That is about 100 years—

CHAIR—Ninety-seven years.

Mr PERRETT—So, even with the big tree falling over and a new one coming—

Mr Andrews—If the big tree falls over it then decomposes and it is releasing its carbon dioxide.

Mr PERRETT—In terms of that photosynthesis, that is not a fixing carbon?

Mr Andrews—Photosynthesis is the route that carbon is fixed. That is correct.

Mr PERRETT—So why does it not—

Mr Andrews—Why does it not go to zero?

Mr PERRETT—Yes.

Mr Andrews—As the forest matures and the trees reach their full potential of the site, they cannot keep adding carbon to the site.

Mr PERRETT—Even if they lose their leaves?

Mr Andrews—They reach a state of equilibrium. So the amount of carbon drawn in by photosynthesis is matched by the amount of carbon released via respiration.

CHAIR—So it is at full capacity.

Mr Andrews—Every site has a site limit.

Mr PERRETT—And because our trees are not deciduous? Is that one of the main reasons?

Mr Andrews—No, it does not matter.

Mr PERRETT—Are the forests in Europe the same—even when they lose their leaves?

Mr Andrews—They are exactly the same. Once they reach that site limit—that is, the maximum amount of biomass that can be supported on the site given the rainfall and the soil type—there is no more net carbon sequestration; it just cycles. So it is in equilibrium. As you say, on any individual site, a big tree might fall down, that carbon slowly releases and the new trees grow—which are sequestering in themselves at a rapid rate—but the rate that they are growing is balanced by the amount that the big tree is decomposing.

Mr PERRETT—Thank you for explaining that.

Mr FORREST—I am from the flatlands of north-west Victoria. This is good information, so thank you. We would call engineered woodlands down our way as alley farming, which is pretty much rectangular and more suited to grain production—wheat, barley, legumes and so on. The nature of your country is more like contouring. So that could constrain the farming operation to just grazing. Would it?

Mr Andrews—Engineered woodlands do not necessarily have to have the belts on the contour. They do not even necessarily have to have belts; they can be copses of trees and so on. We have even got some sites that are in a spiral. The spiral works quite efficiently with cropping because it is one big pass with a machine right into the middle of the paddock. Certainly we have got straight-row layouts in our demonstration sites, too. They are more typical of an alley farm. We just coined the words ‘engineered woodland’ because it is a social thing. They are basically agroforests. But if you were to try to sell an agroforest project to a farmer, as soon as you use the word ‘forest’ they immediately think of a plantation or a block. That is why we had to coin a different term for what we are about. Farmers have jumped on board with this and we have quite a lot of people interested.

Mr FORREST—So alley farming is not just a Victorian variant of it?

Mr Andrews—Alley farming is an agroforest type. With alley farming, typically your rows in cropping country would be a lot wider. You can still have trees as a forest sink in that system; it

just means that the tree belts would have to be 10 metres wide or wider to meet Kyoto rules. That would mean that the belts themselves are the sink rather than the whole paddock. Alley farming is another form of engineered woodlands, as far as I am concerned.

Mr FORREST—You have partly answered the question I have in answer to Mr Schultz regarding the rebadging of Caring for our Country. One of the problems I am being exposed to is the issue of the coordinators. Someone still has to be the energy to organising, and there seems to be a trend to withdraw that. What is your position on coordinators?

Mrs Williams—Coordinators are the key to keeping a local network happening. They are the key to bringing in the partners. They are the key to actually identifying what it is in the local area that is important. I worked as a coordinator 17 years ago. I am now the executive officer of Southern New England Landcare. We have three to four part-time coordinators. They get to know their community. The community can talk to them. If the funding is not there for the coordinator, it becomes impossible. It is somebody's job to line all these things up—to bring the people to the table; to take the minutes; to organise this and that and to do the follow-up. That is what a true Landcare coordinator does. There is a bit of a misunderstanding about the difference between local coordinators and regional coordinators. Recently, it was announced that the Landcare coordinators would be reinstated. I forget the number—I should know off by heart.

Mr Andrews—Fifty-six.

Mrs Williams—Fifty-six regional Landcare coordinators. They are placed in New South Wales with CMAs—catchment management authorities. They are not owned by the community; they are not recognised by the community. They are government employees, not local coordinators to help the community with their things. While it is very important that those people are there, because they do play a role, the coordinators within the communities and within the networks of groups who are the ones who interface with the communities and pull these local panels together to get these innovative projects happening and the action on the ground that you will see. Without Landcare coordinators, none of that would happen.

Mr Andrews—The continuity of coordinators is critical for various innovations. I used to work for Greening Australia and we used to run various farm forestry projects. Typically, they would last for a year or two. The plantings would be done, the people got excited about the, the coordinator would leave and within five years they would have been forgotten about. With this engineered woodlands project, we have a longer term commitment through the Forestry Investment Group where we are monitoring the sites, having back up field days and getting media articles about there to keep the land use in front of the farmers of the region. Without that sort of coordinating role and its continuity, any new innovation can be dropped—the ball can be dropped.

Mr SIDEBOTTOM—Good to see you again. Thanks for much. I thoroughly enjoyed our visit. Thanks for hosting us. I learnt a lot. I want to refer back to the engineered woodlands project. I am interested to see what proportion of growth there is in properties that are participating in the engineered woodlands concept/project has occurred. In relation to that, can you give me a comparison of the net benefit or liability—which you spoke about in terms of carbon—in terms of what that land use can bring to a property? Is it generally a net benefit or a

net liability? Forget the carbon side of it—that is hopefully something else that we can look at, as it is an important land use.

Mr Andrews—I will answer the second part of your question first. When this project was first mooted, the focus was on the net benefits in terms of microclimate change and all the natural resource management benefits of having more trees in the agricultural system. Carbon came along and became more topical as the project eventuated. Yes, engineered woodlands are addressing natural resource management issues on the farm as its first priority. That answers that. Secondly, it is still extremely early days in terms of getting landholders to adopt different land uses. There are analogies with other land use innovations, such as minimum tillage and so on, which has been around for 20-odd years, where still a quite high percentage of people in some districts do not adopt, even though there are lots of benefits.

With engineered woodlands, the original people, who are in the photo that I showed at the start, did their first contour planting in 1994 and they have been doing paddocks sequentially every three or four years. Until the engineered woodlands project came along, there were no other adopters of that land use. Now we have 16 different properties in our region that have adopted that. Several of the people who have been in the project are interested in doing further engineered woodlands. We have probably six or eight expressions of interest from other farmers. To answer your question, the adoption rate is very slow. This is one of the regions why—

Mr SIDEBOTTOM—But it is still going, so—

Mr Andrews—It is still going, yes.

Mr SIDEBOTTOM—It is just not at new properties.

Mrs Williams—It is increasing exponentially. The number of inquires that we get through the office about engineered woodlands are increasing.

CHAIR—Having something out there for people to see and look at, as we always do, adds to that.

Mrs Williams—You can kick it.

Mr Thompson—And being able to put hard numbers on the agriculture benefits is a good thing.

CHAIR—Yes, I think that that is important.

Mr Thompson—For that particular farm that Shane showed, the one with the contours, we estimated that 70 per cent of the benefit for that farm was going from stock shelter. On that particular farm, there was a 50 per cent reduction in sheep losses and a 10 per cent increase in lambing rates, with 11 per cent of the farm under trees. That translated to around about \$20,000 per year of increased income.

CHAIR—Productivity.

Mr PERRETT—It must be fun mustering, though.

Mr Andrews—Apparently not. That particular farm has done a lot of reforestation in various configurations for 30 years. They have lifted their tree cover quite dramatically. They are still running the same amount of stock that they always had.

CHAIR—It is getting people to think out of the box, really. Thank you very much for your submission and the other supporting documentation. We need to get the documents presented by Southern New England Landcare Ltd be accepted as an exhibit to the inquiry and included in the committees records.

Mr SIDEBOTTOM—I so move.

[5.56 pm]

CLARK, Mr Bryan Tarrant, Industry Development Manager, Grain Growers Association

CHAIR—I welcome Mr Bryan Clark. Although the committee does not require you to give evidence under oath, I should advise that this hearing is a formal proceeding of the parliament and warrants the same respect as proceedings of the House. Giving false or misleading evidence is a serious matter and may be regarded as a contempt of the parliament. The committee has received the submission of the Grain Growers Association, submission 46. Are there any corrections or amendments that you would like to make to that?

Mr Clark—No corrections. It needs to stand. I provided Bill, though, with a document from a workshop that we held, and I do not know if he circulated that to you or not. You might find that interesting.

CHAIR—I invite you to make an opening statement.

Mr Clark—Just by way of an opening statement, I want to note a couple of things that have changed since we made the submission. Firstly, the Grain Growers Association has recently merged with the Kondinin Group, so we now have national coverage. We have recently purchased a company in Canberra called Agrecon, who provide agricultural reconnaissance technologies. They provide a lot of spatial information services. We are hoping that through that we can offer a lot of services to the grains industry.

There are two other things to note. Firstly, the Grain Growers Association was the recipient recently of a FarmReady Industry Grant from the government for the grains industry climate initiative. Secondly, I sit on the Department of Climate Change technology options development group for the CPRS.

CHAIR—Thank you for that. You have about 17,000 members, I think.

Mr FORREST—Tell me about the arrangement with Kondinin that you have just referred to. How does that work?

Mr Clark—It was a merger. We are both member based organisations. We have been support funding the Kondinin Group for a number of years. That arrangement was coming to the end of its term and we were looking for some other way to do it. We offered them a merger proposal. Their members voted on it two weeks ago. So that merger is now taking place. The Kondinin Group closes under that arrangement, but Kondinin Information Services will continue to exist. Through it, we will offer a range of services to those members on the same basis as before. But what it allows us to do is start to build up the capacity in this information area.

Mr FORREST—So there will be one governing board, presumably elected by—

Mr Clark—We will still to operate as normal. Kondinin Information Services will be a standalone business, with an independent board running its functions. But everything comes back to our organisation, as the financial group, eventually.

Mr FORREST—Will that include extension work?

Mr Clark—To the extent that they are able to offer it, now, through the *Farming Ahead* magazine, training courses and what have you. By way of information to the committee, Kondinin is a registered farm-ready farm training provider as well.

Mr FORREST—And you have representation now, Australia wide—in every state?

Mr Clark—Yes.

Mr FORREST—That was a bit off the topic, but thanks for filling that in.

CHAIR—The reason for doing that was to get a broader—

Mr Clark—Well, it was to maintain, in the first instance, but also to give us a national focus. We are very keen on building that process up.

CHAIR—I just wanted to touch on biofuel products and how the organisation sees that as an alternative to food production. Using biofuels is also one of the things that people are talking about as being an offset in farm production. Have you thought much about that?

Mr Clark—Biofuels is a tricky area. In Australia there is not that much of it. It is not like the United States or Europe. We think it is a strong opportunity, particularly for oilseed crops and a range of others. Clearly, from our perspective, something which adds to the consumption of grain is a good thing. When you speak to some livestock producers, particularly the stockfeed manufacturers, they will give you a different point of view. It is about the commercial relationship.

I think biofuels should be part of the mix—we have advocated that in the past—of how the government deals with a stronger renewable fuels policy moving forward. Ultimately, grains are probably a transitory process for biofuels and it will move to second and third generation biofuels over time. But it allows us to move into that area of fuels. Clearly, companies like Manildra and others are moving into that space in a big way.

CHAIR—Your submission talks about partnerships with government and industry developing responses to climate change. What sort of partnerships do you mean?

Mr Clark—We need to recognise that agriculture provides a strong range of export opportunities for our country. It is important to the economy. We need to make sure that we have that as we have a shift in climate—changes in rainfall, temperature and geographic ranges of crops and all those sorts of things. We would like to think that it is possible to have a productive relationship with the government moving forward. That is not to say that we have not had one in the past, but we need to move that forward and ensure that we have a hand-in-glove operation between government and industry and that there is not a scattergun approach.

By way of observation—we mentioned this a little bit in the submission—you are seeing some policy tension coming on. We have things like the rundown of rail infrastructure in regional Australia, which would tend to mean that there will be a higher reliance on trucks. The national water initiative is encouraging growers who have irrigated to improve their water use efficiency, but that tends to be a code for pipes and pumps, which have a higher footprint in an emissions sense. So you get these policy tensions going on. It is not very clear that the government has a strong holistic view of these things. I think we can do it better and there are some opportunities.

CHAIR—How do you see those opportunities working in structures? How do you have input into that?

Mr Clark—We want to continue the dialogue that we have had in the past. As I said, I sit on the Department of Climate Change option group, and we work a little bit with DAFF. I think that DAFF have been, to some extent, sidelined in this debate. I have to say, as an observation, that the debate around CPRS has been overwhelming, as opposed to the discussion on how we deal with adaptation. The two ought to be add-ons to each other, and complementary. They tend not to be. I also have a fear, in terms of research, that we are seeing a great deal of diversion of funding and effort into theoretical options on how to deal with agriculture and carbon pollution rather than how to deal with agriculture in a win-win situation—both adaptation and emissions.

CHAIR—How many of your members use no till or less till?

Mr Clark—It depends on where they are. In Western Australia there is high percentage—perhaps above 90 per cent—using minimum tillage. Once you get to New South Wales it is probably around 30 per cent. So it is different. I guess you need not be hung up on the technology, either. The technology is appropriate for appropriate uses, and it is not a be-all and end-all for everybody. It is not just a blanket: ‘Go and get a disk seeder and you’ll be right.’ It is very dependent on what you are trying to grow, what your soil types are, what your rotation is like. There are many facets to it. Clearly, also, it depends on the capacity of the grower to change. There is a capacity in capital which goes with that.

But, I think, broadly speaking, precision agriculture is one of the really strong opportunities we have. As was mentioned here: how do we manage the landscape so that we get the most productive things in the right spot and, where there are less productive areas, perhaps consider some sort of change?

CHAIR—Land management processes?

Mr Clark—Yes, at farm scale, at regional scale and at catchment scale.

CHAIR—And that needs extension, advice, training and knowledge.

Mr Clark—Absolutely. In terms of extension—this is an area of concern—historically the state agencies, the departments of agriculture and others, have had that role. They have wound that back in most cases. Some states do not really have departments of agriculture with extension capacity at all. There was a reliance on the commercial industry picking that up. We have just seen Landmark and Incitec reduce their agronomy staffing on these things. Where is this capacity going to come from? If your reliance is on the commercial sector, they are clearly

interested in how much product they are going to sell, so they have a commercial driver. And you have, as was highlighted by the previous speakers, what is effectively a government system that now sits inside Landcare and the catchment management authorities rather than the departments of agriculture.

CHAIR—Have you thought about having enough qualified people on the ground?

Mr Clark—Clearly it is an issue and I do not know where the solution is going to come from. If industry is expected to pay for it, it will have to be something that has some sort of commercial driver to it. If there is a recognition that there is a social good associated with this, then that should be part of the government's responsibility in their partnership.

Mr SCHULTZ—What are your concerns with the proposed CPRS?

Mr Clark—You do not have enough time to listen to them!

Mr SCHULTZ—Just briefly—I know it is a very complex question to ask. More importantly, how do you believe the CPRS is going to impact on grain growers?

Mr Clark—We have made many submissions to the various inquiries into this. We are quite concerned about the CPRS generally that it is not really appropriate for agriculture. I think that is easily solved, having said that. As you started to discuss with the previous witnesses, internationally Australia is being left out a little bit or starting to go down the track which is not where the rest of the world is. This coverage issue of agriculture is ultimately a bit of a furphy. Agricultural businesses are covered partially now because of fuel and steel and the upstream application of the CPRS if it were adopted in its current form. Then there are technical issues about how you deal with measurement and monitoring, but, principally, farmers are small businesses ultimately and I think there are only 47 who reach the 25,000-tonne threshold.

So we have this decision point around agriculture being included or not in the CPRS in 2013. That is not really productive, in our view. Agriculture needs to play a part and should play a part. Ultimately, when you boil it down it is about waste. If we have emissions going out, there is nitrous oxide that did not going to plants and methane which has not gone productively into beef or wool production or whatever it was. How do we get a system—and I think the adaptation is linked to this—that maintains productivity, improves farm efficiency and improves terms of trade rather a system which looks like a tax? We have all this difficulty and I think it is ultimately solvable by agriculture being excluded from being a covered sector but making a contribution by way of offsets, which is what we have advocated and the US have adopted. To their credit, I suppose, they started that without having anything. They have built that on a voluntary basis rather than having this impetus.

Our approach to this is that it should be good, it should be win-win and we should be getting something out of it. Do not hold us back from starting; let us start now; let us do it with a learning-by-doing approach using offsets in a no-regrets framework that does not mean you have to do all of the country all at once with all things in a big approach. We can learn incrementally by doing. We will get some things wrong. Give us the place that we can work with in that. That is where we are trying to get to.

Mr PERRETT—I am not sure if you were here for Mr Thompson's presentation earlier.

Mr Clark—I heard most of it.

Mr PERRETT—He made the suggestion that the CPRS is likely to have more of an impact than actual climate change.

Mr Clark—The greatest issue we have at the moment is uncertainty. As an agricultural business the treatment of agriculture—or the lack of consideration of agriculture—in this is what is concerning us more than anything else. Ultimately, agriculture will cope, one way or the other. We will manage. What we cannot deal with at the moment is not knowing which way we are supposed to be jumping. Ultimately, I think, climate change is a greater threat than the CPRS. The CPRS, though, will undermine the terms of trade—if it comes about this way—for those five years, while we are working out what to do and before agriculture either deals with permits or deals with offsets, or some other thing, whatever that is. We also have terms of trade issues with it. But climate change itself—

Mr PERRETT—Sorry, I will just ask a supplementary question to that: as to that graph, in terms of the margins—you probably did not see that before.

Mr Clark—Yes, I saw that.

Mr PERRETT—Could you give us an idea of your members' gut feeling about how it might affect them?

Mr Clark—There is about a five per cent impact for the grains industry, and for the livestock sector much more. But if agriculture is a covered sector, the livestock sector, because it is emissions intensive, gets support—that is mooted at the moment—whereas the grains industry does not. You shift around where that sits. It is important. There is some good work that Mick Keogh from the Farm Institute has done on that, and I think the Centre for International Economics and some others have done some as well. But I will come back to climate change itself. We are starting to deal with this with the Technical Options Development Group. Productivity is increasing broadly in Australia by about 1.8 per cent per year at the moment for agriculture.

Mr PERRETT—But it must be finite eventually.

Mr Clark—Well, possibly, but it is going ahead. It has flattened off a little bit over time, which could just be the levels of investment. But I think the numbers are that we need about a three per cent productivity growth annually to keep pace with climate change over time. We are lagging behind in our productivity growth. So we have to increase the R&D effect by about 50 per cent from where it is now. When you have a bit of a look at where the government is spending money, there is about \$2 billion being committed to clean coal and carbon capture and storage in an industrial sense. About \$50 million has gone into agriculture. Where is the equity in this? We can be part of the solution, and we want to be part of the solution, but we seem to be being held back for some reason.

Ms LIVERMORE—My question is about the Chicago Climate Exchange. You talk about that quite favourably in your submission. Can you talk about how that got started, particularly in the context of the American situation where you seem to think that there was less pressure coming from the regulatory side of things to drive the creation of that? And are you aware of any evidence that the availability of that mechanism is actually driving substantial change in farming practices in the United States?

CHAIR—Also, do you have any knowledge of how they measure?

Mr Clark—I have investigated this via their website, and we have hosted two visits by Dave Miller, who is the science leader for the Iowa Farm Bureau. They have a company which aggregates credits on behalf of growers into the climate exchange. The climate exchange itself is a member based exchange, which we are attracted to, where the members have come together and agreed certain things. So the buy-side members are companies like Motorola and Ford, and a whole heap of others.

To answer your original question: the motivation was altruism. They saw that large companies like that were being driven out of Europe and other places because they were multinational companies. They were having a look at how they spread their risks and what they could do to deal with that. The growers were having a look at things that they could do. The two meshed together. But it took them about five years to get this right. They have started; they have stopped doing things. They had German coalmine methane as a contract and other things, but, because that eventually got covered in Europe, the contracts shifted. They had a ridge-till contract, as opposed to a minimum-till contract, but the assessors could not tell the difference between that and tillage, so they got rid of that as a contract. I think this is what we have spoken about, about the learning-by-doing approach: altruism drove that. They have had about a six per cent increase in carbon sequestration and emissions reduction. The companies on the buy-side, by way of their membership, make a voluntary commitment to lower their emissions, and therefore they will enter into this process of purchasing credits for doing it, so that creates the market for doing it.

So there is a binding nature to it. One of the fallacies around this being a voluntary market is that the only voluntary component to it was the decision to enter. Once you have then it is a fully contractual obligation market. You contract to deliver something or to buy something and you are held by what is in effect Corporations Law to abide by that commitment. Their contracts for agriculture for the farmers range from rangeland management through to methane flaring; I do not think they have any forestry ones. There are minimum tillage production systems and a range of things. But they also have 150 years worth of science that we do not have. And they have no contracts below 14 inches of rainfall, which is problematic if you are just trying to directly translate what they are doing. To us, though, the thing about it is that it is a good functioning model. It is the only functioning market in the world for agricultural credits. They have been able to undertake a certain amount of things and they have learned from things and they are not doing other things. To us, it is a precedent. It is not that it is the be-all and end-all, it is that we do not have to reinvent the wheel. We can link with what they have done, we can have a look at it, take the bit which are good and make them work and learn from it. They are evolving as they are. They recognise that they do not have a whole farm accounting process just yet. They know they will have to get to that. But you also got the Canadian offset system that I think operates in Ontario and some others. Also joint initiatives and clean development mechanisms all work on the same framework, it is just that they are working in a marketplace.

Ms LIVERMORE—So after explaining the structure the way you have, is that voluntary system incompatible with our CPRS cap and trade system? You say the companies that are involved now are looking for agricultural offsets in this sort of voluntary system, but once we set up a CPRS where you have got companies with carbon liability they will be looking for offsets recognised under the CPRS, won't they? Can you have your voluntary system operating side-by-side?

Mr Clark—Absolutely. That would be one of the amendments that we would recommend be made to the CPRS. The difficulty is you can do that now, have a voluntary marketplace in Australia, but no-one will buy anything because of the risk that they are going to face that they will have a liability somewhere else anyway. There has been some movement around this and we saw the New South Wales scheme and what have you, so there have been partial attempts at these things. But all of that will go by the wayside with that. The Chicago market, with the development of the Waxman bill if that is passed, it will evolve so that they are dealing with that. But the Waxman bill specifically speaks about agricultural offsets, so they are in the prime position for doing it. What you need in the CPRS legislation is linkage. That occurs through two things. The legislation as it stands at the moment allows for non-Kyoto units and domestic removal units. I think that is the point of fungibility. So long as the legislation recognises a domestic offset and remembering that it recognises at the moment an unlimited importation of international offsets from CDM mechanisms, all we are really asking for is give us a domestic alternative to that, that there is a process for it which is understood by people and you have to go through a certification process and you just build it up. Where you have got some certainty and good enough science that the marketplace will be prepared to deal with it then you are in. So we just need to make sure what we have got is a domestic alternative to the international credits, that you have got a system for doing that and you have got a fungibility between the two, that a credit here is also a credit there.

Mr FORREST—I have three questions in one because the chair is a bit ruthless. The previous witnesses gave an excellent submission but they made a statement in there about the slow take-up of direct drilling. That has not been our experience in the grain sector. Could you brief the committee on that? The next is to ask Mr Sidebottom's favourite question about is the glass half-full or half-empty. There is a perception that agriculture is the problem with all the flatulent sheep and cattle. I would like to put to you the proposition to talk about agriculture as part of the solution and an important key in the solution.

Mr Clark—Yes.

Mr FORREST—Yes, are we part of the problem or the solution? The third thing is about extension. Extension worries me a lot because, as you said earlier, state governments are pulling out of that. Is there a role for an organisation like yours—and the government's partnership is to assist with extension? It needs to be independent, not tied to amounts of fertiliser, pesticide or weedicide. It needs to be completely independent. So there are three aspects, and I wonder if you would like to respond.

Mr Clark—Minimum tillage—or direct drilling, as you put it—has a range of different take-ups in different areas. I think your area in the Mallee probably has a reasonably high take-up of it too.

Mr FORREST—It is excellent.

Mr Clark—But I think some of that in Western Australia is due, in fact, to climate change. The farmers there are trying to cope with lower rainfalls; therefore, they do not want to till the land in the same way they did, to conserve the moisture and what have you. But it also has its limitations, and this is one of the things we have been really cautious about. If we start to lock people into that as a system, one of the real issues with it is how you deal with things like rye grass, herbicide resistance and what have you, because those systems start to rely very heavily on chemical agriculture. So we need to make sure that whatever we come up with is a flexible system that is appropriate and that the farmers can do that.

The important point that we like to make is: let growers innovate out of this. Let us not be bunkered down waiting for CSIRO or some scientists somewhere to come up with solutions for us. Farmers are tremendously good, as you will appreciate, at innovating and coping with things and developing change. What they need is sufficient information so that they can make the right decisions at the right time, and if they cannot shift to a particular piece of technology or what have you because of some level of market failure in there then let us support them in those things. This is where we see the way the government needs to invest in these things.

I think this was the plea from the last speakers, too: let us do this at a community level. Farmers are good at it. They have support networks. They have farming systems groups. They have varied engagement with their R&D corporations. We have some CRCs around the side, like the Future Farm Industries CRC and what have you. There is good information all around the place. It is making sure it is packaged up and delivered in an appropriate form and in a timely manner when growers are responsive to it. That is when you are going to get traction.

As to the solution bit, we are dead keen on being the solution. To coin a phrase from our American friends, we want to be 10 per cent of the problem and 20 per cent of the solution. How can we do that? We think that there is a lot of opportunity. But, frankly, some of this derives from the international rules. It is the way the rules are written and were derived that is mostly the problem. They do not recognise natural events. They do not recognise that ruminants function in a particular biological way and that is just what they do. They do not recognise that legume plants operate in a particular way. That was certainly constructed out of Europe, where there is high rainfall, intensive agriculture and intensive livestock, and it does not recognise systems like Australia, so we do need to see quite a lot of change go on in the international rules before doing that.

I guess, as a slight criticism of the government, signing the Kyoto agreement for domestic reasons was a particular purpose but there were ramifications of that around agriculture which were probably not really thought through as well. The fortunate thing was that they did not sign article 3.4, and they should not sign any incarnation of article 3.4 in the current negotiations either. We have some good science going on at the moment, but this is a long way from finished, particularly around soil, where you would not want to see an international obligation turn up without us having a full understanding of how we are going to deal with that first.

CHAIR—Are you getting input into the Copenhagen discussions?

Mr Clark—A little bit. It is sort of difficult, but through the Technical Options Development Group and some direct discussions with the negotiating group at the Department of Climate Change we have raised a few things. We think their concept of excluding major natural events needs to be extended to natural events, not just major ones, because their thinking is drought, bushfire and stuff like that, whereas I think that needs extending. Nowhere else in the world is anyone contemplating the calculation of emissions from livestock, for example. That relates then to an argument about food security. The argument in Australia for why you would count them is because they are not natural in the landscape—we had no natural ruminants. That, though, to us, sets up an argument that says wherever they are natural does not have to count them and wherever they are not natural is somewhere else. The Americans had a million head of bison which they do not have now. They have replaced them with a million head of dairy. They are saying that that is equivalent; they are not going to go anywhere near it. You cannot imagine that the Indian Sikh community is going to be very attracted to an argument that says, ‘Let’s get rid of the cows.’ Let us have a little think about what is actually going on and where this leads.

Mr FORREST—And extension?

Mr Clark—Well, extension was captured before. It is the packaging up of stuff. In our organisation we are busily building—and I indicated that at the start. We have bought the Bread Research Institute, the BRI, and now there is the Kondinin Group merger. We have purchased Agricon. We are positioning ourselves to be an information hub for the grains industry and we would love dearly to partner with the government on further provision.

CHAIR—Thank you very much, Bryan, for an excellent submission to us and thank you for answering our questions.

Mr Clark—Thank you for inviting me.

CHAIR—It is a pleasure. We will send you a copy of *Hansard*, as with the previous group, when that is prepared. Is it the wish of the committee that the document presented by the Grain Growers Association be accepted as an exhibit to the inquiry and included in the committee’s records?

Mr FORREST—I so move.

Ms LIVERMORE—Seconded.

CHAIR—There being no objection, it is so ordered.

Resolved (on motion by **Mr Sidebottom**):

That this committee authorises publication, including publication on the parliamentary database, of the transcript of the evidence given before it at public hearing this day.

Committee adjourned at 6.26 pm