

AusSMC BACKGROUND BRIEFING: Farmers prepare to count carbon – but is the science up to it?

22 July 2008

TRANSCRIPT

Dr Richard Eckard – University of Melbourne

I thought I'd start off by setting the scene on where agriculture fits into the picture of national emissions. So you can see on the screen there the breakdown of the different sectors in the 2006 inventory and agriculture being 16% of that. Now that's fairly significant in that it's the second largest emissions sector.

But if we break that down further in the next slide we see agriculture contributes the largest amount of methane and nitrous oxide nationally. If you look at the pie chart that 16% it's predominantly made up of enteric methane, so enteric methane being close to 11% of national emissions. It's a significant source from a policy point of view, it's not being ignored. Then nitrous oxide a lot smaller for being only 2.8% of national emissions.

We can break that down even further into the next graph and if you look at the left hand side you'll see that's the methane and the manure emissions. So essentially emissions from livestock. You can see it really centres around the three major ruminant industries; dairy, beef and sheep.

Looking on the right hand side of that more around the soil emissions that Peter Grace will talk about, wanting to note is the scale difference between those two graphs. There's a whole zero difference between the one on the left and the one on the right. So obviously methane being a lot larger. But on the one on the right hand side, the soil emissions, you can see that fertilisers and nitrogen excretion from animals make up the largest contribution and really the next two bars are purely a function of the first two because the next two are just off site losses of nitrogen as a result of nitrogen inputs.

So that gives some context for where it all fits. I thought talk a little bit about the carbon pollution reduction scheme and where agriculture fits. We know now that agriculture will start in 2015 but with a final decision on how that works by 2013. What was significant was that there was no offset market to be developed before 2015 and that was a lot of discussion around that prior to release of the Green Paper. I think it is significant that if agriculture is not in the scheme, the government has made it clear that other policies will be considered because a 16% source cannot be ignored. The point is that other policies could actually provide us less flexibility, not more flexibility.

The impact of this scheme on agriculture, we know already it will increase energy and chemical costs flowing through to the agricultural sector. But when the methane and nitrous oxide are included potentially in 2015 – I think it's important to remember we're not aiming for carbon neutrality. There's been a lot of people scare mongering around saying it's going to be \$120 per cow. That's only if you're actually looking for total carbon neutrality, then you're talking about those types of figures. We're actually only talking about less than a dollar per cow type of figure because we're only at the inception of the scheme, only looking at a small percentage. Another significant one that I suspect Phil will cover is that forest plantings are in the scheme and that means farmers, that Landcare and environmental plantings can potentially count to offset any liabilities they may face.

Just onto methane and some of the work we are doing on methane. We have options around improving animal genetics. We know for example there's up to 20% difference between animals within the same breed in their net feed intake. We're about to embark on a work looking at

whether we can actually quantify the methane difference in that, which means that we can be breeding animals for improved efficiency and reduced methane. We are working quite a lot on the nutrition of animals and feed management, looking at feed supplements. We've shown for example that oils and reduce methane. So any form of oil. For every 1% extra oil applied in the diet of a ruminant we get about a 6% reduction in methane. We've worked on tannins that reduce methane and make the animal more nitrogen efficient and we will be moving to work on yeast and enzymes that can also reduce methane. So there's a lot of work going on there.

Then there's the obvious one around animal management because methane is related strongly to numbers of animals. If there's mechanisms and management strategies to reduce unproductive animal numbers, that would be a logical way and we can talk around that if people want to ask questions on that.

There are a number of longer term options that I have listed here but these are really in the longer term research phase around a vaccine for methane, biological control of the rumen and some work around why wallabies and kangaroos don't produce methane, whereas ruminants do.

Then finally Peter Grace will cover off more on the nitrous oxide but I thought it's worth mentioning. We have looked at the rate, source and timing and placement of nitrogen fertiliser and shown that it does reduce nitrous oxide emissions. And the management of our soils and stubble retention, it can reduce nitrous oxide. Some of the abatement options around fertiliser formulation, we do have control release fertilisers and nitrification inhibitors that have shown to actually reduce the nitrous oxide released from nitrogen fertiliser use in our cropping system.

Finally, a lot of work has been shown in New Zealand around the nitrification inhibitor spray that can be sprayed on grazing pastures to reduce the losses that we see from nitrogen excretion by animals.

Thank you.

E&OE