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Are you ready for the CPRS?

Mike Stephens –
mstephens@msanda.com.au

Australian farmers need to become more informed about the implications of the proposed Carbon Pollution Reduction Scheme (CPRS) because within the next six years the cost of carbon debits could be around \$2,358 per year for a 1,400 hectare mixed livestock and crop farm.



Within a few years after 2015, the cost could be above \$73,448 per year. A rule of thumb could be \$52.46 per hectare, per year.

The Government may allow free permits for 90% of emissions for the first few years but there is no guarantee of this. If the initial free allocation is 90%, then farmers would still need to pay 10% – for example \$4 per cow and \$0.4 per sheep per annum. The free allocation would decline by 1.3% p.a. so by 2030 it would be down to around 65%, but the price could be up around \$50 per tonne.

Whether you believe in climate change or not, and whether or not it is caused by human activity is irrelevant. The current state of the political game is that developed nation governments, including the USA and Australia, are determined to implement restrictions on greenhouse gas emissions, to reduce the risk of adverse climate change caused by mans activities. In Australia, the Rudd Government has developed its Carbon Pollution Reduction Scheme (CPRS) as the main policy measure to reduce emissions.

The scheme will back up Australia's decision to ratify the Kyoto Protocol and national emissions targets aiming for 592 million tonnes per year by 2012. In 2008 we were 1% below the level due mainly to the reduction in clearing of scrublands, but this was a one-off windfall reduction that cannot be repeated. If Australia exceeds its targets, the government has an obligation to buy international credits in order to 'balance' the nation's emission ledger.

Australia has also agreed to the international emission accounting rules. These rules are a mixture of scientific and political considerations, but they are critically important because very little actual measurement of emissions occurs.

They are also important for Australian agriculture because they were developed to suit European agricultural conditions with a stable climate and little change in annual landuse. As a result, there is no opportunity to separate natural (drought or bushfire) changes in soil carbon (for example, from management-induced changes).

Because of the huge risk this creates, Australia opted not to include soil emissions in the national greenhouse inventory. This, in turn, means the government has decided not to recognise soil carbon credits in the CPRS.

Emission permits – the new currency

As a signatory to the Kyoto Protocol, Australia has committed to calculate net emissions in an agreed manner and to limit those emissions. The CPRS will require businesses which emit more than 25,000 tonnes to reduce their emissions or to purchase government-issued emission permits equivalent in number to the tonnes of emissions they produce. These permits are effectively a new currency, and will be able to be traded just like company shares.

Virtually all agricultural businesses in Australia are well under the 25,000 tonne/year emission threshold level. However it is most likely that the Government will include agriculture as a sector because agriculture is responsible for 15% of Australia's total emissions.

The option to have a scheme favouring agriculture would be difficult in Australia. Note that agriculture is responsible for 6% of emissions in the US and the US has not signed Kyoto and is not bound by its rules.

The Government has declared that the initial price will be \$10 per tonne for CO2 equivalents. Think of that price as the price of a share float. In pre-trading, shares are available at float price, then the market (buyers and sellers) decide the price. In a reducing carbon supply market, total emissions are to be reduced and the price of carbon will increase.

Permits will be given and later sold to many of the major emitters, including the stationary energy production and transport industries, and Australian polluters will be able to buy "cheap" credits from third world countries.

The power of lobbying

It would be comfortable to think that the decisions about the scheme are being made upon the best scientific and economic modelling. However, the decisions in Canberra will be made using the pieces of scientific and economic information which various political groupings find best suit their political agendas.

These political agendas will be heavily influenced by strong lobby groups from the power generation, mining and heavy industries. These lobby groups have life spans longer than the short term spans of Government.

Given that decisions will be made which will impact on agriculture, agriculture needs to be active to ensure that the CPRS does not cripple it. The Government is unlikely to ignore agriculture which produces 15% of Australia's annual emissions.

Agriculture will be affected in a number of ways. All up-stream (input) costs will be affected with, fuel, fertilizer, chemicals, freight and power affected most severely. In addition, major meat and dairy processors will face an emission cost, most of which will be passed back to farmers as either higher kill or processing costs, or lower farmgate prices. Finally, after 2015 there is a fairly strong likelihood farmers will have to pay for their on-farm emissions.

Some important cost projections

In the early years of the CPRS, the cost may be manageable; however the costs will soon rise. The Australian Farm Institute and ABARE differ in their estimates, but there is agreement that by 2015, even with all the fuel tax and other concessions the government has announced to ease the initial impact, the average crop farmer will experience input cost

increases of 1.5%, with the cost of fuel, chemicals and fertilizer all being affected. Livestock enterprises, which use less energy can expect initial input cost increases of 1%.

The effect of the carbon price on the cost of inputs will increase quite quickly after 2015 as the price of carbon increases, even though the government has announced an initial price cap of around \$40 for the first few years.

In addition, there will be pressure for farms to pay for on-farm emissions after 2015. A rule of thumb for carbon emissions in tonnes per annum is: beef cattle - 2 tonnes per cow, sheep - 0.2 tonnes per sheep and one hectare of dryland crop - 0.5 tonnes.

If farms are included in the scheme after 2015, farmers may be given some free permits, but will need to buy government emission permits for a progressively greater proportion of their farm emissions, or earn permits by planting trees. On a broad acre livestock farm, around 10% of the area would need to be planted every 30 years to completely offset farm emissions.

A 1,400 ha farm with 6,000 DSE (in sheep) and 800 ha of crop could be impacted as follows (0.2 tonne/DSE, 0.5 tonne/ha of crop), assuming farmers are required to pay for all farm emissions after 2015:

	Up until 2015	Beyond 2015 *1		
Carbon Price / Tonne	\$ 10	\$ 20	\$ 30	\$ 40
Livestock (Carbon cost)		\$ 24,000	\$ 36,000	\$ 48,000
Crop (Carbon cost)		\$ 8,000	\$ 12,000	\$ 16,000
* 2 Livestock with input costs included	\$ 372	\$ 744	\$ 1,116	\$ 1,488
* 3 Crop with input cost included	\$ 1,976	\$ 3,960	\$ 5,940	\$ 7,920
Total	\$ 2,358	\$ 36,724	\$ 55,086	\$ 73,448

* 1 Assuming input costs rise in direct proportion carbon price - 1.5% for crop and 1% for livestock

* 2 Assuming that fuel is \$8/ha, fertilizer is \$24/ha and vet chemical is \$15/ha, pasture chemicals are \$15 /ha, totalling \$62/ha, \$6.20/DSE *6000 dse at 1%, 2% 3% 4% as Carbon rises at \$10, \$20 \$30 \$40 /ton

* 3 Based on fuel @ \$15/ha, fertilizer @ \$70/ha and spray @ \$80/ha, totalling \$165/ha @ 1.5%, 3% 4.5% 6% as carbon rises at \$10, \$20, \$30, \$40 ? tonne

All of the estimates above are conservative. Anyone who is thinking about agriculture's survival needs to start thinking about where the income needed to pay these extra costs will come from.

Individual farmers need to start concentrating on two things:

1. How can I adapt as climate changes?
2. Will I earn or buy carbon credits?

A third course of action, to lobby for a more favourable scheme, is also available. However, waiting in hope that it will happen without considering the above options is a very dangerous position.

Nitrate Poisoning of stock

Andrew Speirs – aspeirs@msanda.com.au

Nitrate poisoning occurs when the plants that stock are grazing on accumulate nitrate rather than convert it into plant protein. Nitrate accumulation can be a result of:

- * A combination of weather conditions such as overcast days (short daylight length) and frosts.
- * The application of N fertilizer (urea), and either grazing soon after application or within 14 days.
- * The application of hormone-type sprays such as MCPA.
- * The natural accumulation of nitrate within the plant. Some pasture/crop and weed types accumulate nitrate more readily than others, including wheat, oats, cape weed and annual ryegrasses.
- * High N levels in the soil, which tend to occur just after the break of the season.
- * When nitrate poisoning occurs, often several of the above factors are combined to cause the accumulation of nitrate to reach high enough levels to cause stock death.

Control Techniques

If there are paddocks that you are concerned about, tissue test each paddock for available nitrate - sample preparation is important; please discuss this with MS&A. Critical nitrate levels in the plant are >1.5-2% NO₃ on a dry matter basis.

Another option is to put a couple of sheep/cattle into the area and monitor them rather than fully stocking the paddock.

The third possible approach to managing paddocks which are at risk, is to wait until there has been several good days of plant growth (sunny without frost) which will allow the plant to convert the available nitrate into plant protein.

Fear of Phalaris

Jim Shovelton – jshovelton@msanda.com.au

The fear of poisoning livestock is enough reason for many farmers to refuse to sow phalaris. But new research on one of the causes of poisoning should give growers more confidence to use this productive perennial grass. Phalaris poisoning takes three forms - Phalaris staggers, PE sudden death and cardiac sudden death.

Cardiac sudden death causes animals to collapse and die when moved. PE sudden death is the most common cause of phalaris poisoning and can result in the death of large numbers of animals 12 to 24 hours after being moved to a toxic phalaris pasture. The disease is characterised by rapid, severe brain damage.

Phalaris staggers is associated with low cobalt and is most common in South Australia. Breeding programs in the past have reduced the levels of toxins responsible for this form of poisoning. Application of cobalt to pastures or cobalt bullets are other forms of protection.

Recent work by CSIRO has identified the cause of PE sudden death poisoning. This information has enabled grazing management guidelines to be developed to minimize the potential risk of deaths.

The cause of PE sudden death is an accumulation of ammonia in the blood stream. This occurs because a compound in the phalaris inhibits the enzymes in the liver that are responsible for nitrogen metabolism.

While plant breeding will provide a long-term solution, management options are required in the short to medium term.

It is not known how the level of toxin varies during the year, but pastures which are high in nitrogen, such as those after the break, are likely to be more risky. Plants under stress are also more likely to be toxic.

PE deaths are uncommon on set-stocked pastures which suggests animals have some ability to adjust to the toxin. As a result, care is needed when rotating stock onto paddocks with phalaris regrowth, particularly when stock have not come from a phalaris paddock or the plants are stressed. Hungry stock or stock that have been on a low-nitrogen pasture prior to entry to a phalaris paddock may also be at risk.

Where these situations occur, stock should be introduced slowly to the pastures or fed a higher nitrogen, non-phalaris pasture prior to being put into a phalaris paddock.

Timewalk to 2020

Want to know what the future holds?

MS&A has developed a FarmReady approved course to give producers a glimpse of what farming will be like in the near future.

FarmReady is part of an Australian Government initiative to improve productivity and help farmers manage climate change.

Each Timewalk to 2020 course will be run over three sessions, and aims to take a practical approach that will help farmers prepare for changing conditions.

The first session will take participants to an area which has similar climatic conditions to those predicted for their own area so they can talk to local farmers about how they manage their enterprises.

The second session will help participants to explore the practical implications for management practices on their own farms, by developing models based on their current farm systems and future climate projections.

The final session will explore in detail issues such as pasture species selection, fertilizer needs, stocking rates, time of lambing and calving, and the management strategies that will help producers to adapt.

So far, courses are planned in spring for South Gippsland, the Western Districts, and Flinders Island.

For further information contact Jim Shovelton on: **jshovelton@msanda.com.au** or **0407 953 445**