

Right and lower left:  
Australian farmer and joint  
founder of the lobby group  
Carbon Coalition Michael  
Kiely walks across a sheep  
paddock at Uamby, his farm  
west of Gulgong, about  
240km northwest of Sydney  
on May 26. PHOTOS: REUTERS



[ ENVIRONMENT ]

## Australia's 'carbon farmers' in quiet revolution

ON the rolling hills of Winona, a fine merino sheep stud, a quiet revolution is taking place which Australian farmers hope will eventually see them selling soil carbon credits in the fight against climate change.

Winona's Colin Seis is one of the country's leading "carbon farmers" and has for the past 10 years been encouraging the extraction of greenhouse gas CO<sub>2</sub> from the atmosphere and increasing the carbon content of his soil to improve pastures.

Seis estimates he has sequestered a total of 73,786 tonnes of CO<sub>2</sub> equivalent, or 7,386 tonnes each year. As he only emits 2,200 tonnes farming, he has a credit of 5,186 tonnes of carbon.

Under Australia's planned carbon emissions trading scheme, if Seis continues sequestering carbon and maintains his credit, he could sell 5,186 tonnes for US\$40,706 to US\$102,086, depending if the price is US\$8 a tonne or US\$20 a tonne.

Australia wants a formal carbon trading scheme running by 2011, with agriculture possibly included in 2015.

*Upping the carbon content of soil not only improves pasture, but can earn money*

BY MICHAEL PERRY  
REUTERS, WINONA, AUSTRALIA

tillage, which does not plough the soil, increasing stock rotation to allow land to rest, sometimes for years, and avoiding bare earth with year-round cover with crops, native grasses and weeds.

All these measures increase the biomass in the soil, making it more fertile, and in turn increase the carbon in the soil.

Seis "pasture crops" his 840 hectare farm near Gulgong in eastern Australia, planting cereals amongst native grasses to ensure paddocks are covered all year round to allow plants to constantly absorb carbon and limit erosion.

"We do not kill the grasslands, we sow the crop when the grass is in its winter dormant phase. When we harvest, the grass comes back," said Seis. "What I have done is encourage nature to function as designed — to work with nature not against it."

Seis has also reduced the size of his paddocks and rotates his 4,000 sheep regularly, what is called high-density short-duration grazing or pulse grazing, ensuring paddocks are given long periods of rest from grazing in order to revive.

Despite a long running drought, Seis has enough ground cover to last the dry winter and no need to buy in feed. He can also run four sheep per hectare, double his neighbor's stocking rate.

### SOIL CARBON FIGHTS DROUGHT

Increasing soil carbon allows paddocks to retain more moisture for crops — a vital advantage for Australian farmers who have been battling decades of drought.

A one percent increase in soil carbon means an extra 144,000 liters per hectare water capacity, says Seis, who has increased his soil carbon from 2.5 percent to 4 percent, giving him an average of 300,000 liters of extra water per hectare.

"It's like putting your farm under a different rain zone. Carbon farming means your farm comes into drought later and comes out of drought sooner," said Louisa Kiely, a fellow sheep farmer and founder of the lobby group Carbon Coalition.

Across the valley from Kiely's homestead stand three tombstones marking the graves of the property's original owners, the Lahys from Tipperary, Ireland. Michael Lahy died in 1859.

But those tombstones, surrounded by rotting, dead weeds, are the only remnants of the old farming ways on Uamby. The Kielys have turned their property into a pure carbon farm.

"We have turned the farm over to native vegetation and grazing and we can get carbon credits for it. There is a whole new economy developing," said Michael Kiely, surveying his farm from the top of a hill.

### CARBON AUDITING

Seis and other Australian farmers are being hindered from selling carbon credits due to a lack of a formal protocol for measuring the increase in carbon in their soils and a formal market. Australia has only a small voluntary carbon market.

Australia's annual greenhouse emissions currently total 553 million tonnes of CO<sub>2</sub>-equivalent, but it would require only a 0.5 percent

increase in soil carbon in two percent of farmland to sequester all the annual CO<sub>2</sub> emissions, said Christine Jones, founder of Australian Soil Carbon Accreditation Scheme.

"Australia's single greatest comparative advantage in the battle to reduce CO<sub>2</sub> emissions is our enormous land mass — over 770 million hectares," said opposition leader Malcolm Turnbull, who's Liberal Party supports a policy of biosequestration. "The opportunities for CO<sub>2</sub> abatement here are gigantic."

Australia's carbon farmers argue that the country's depleted soils can be repaired to once again store more carbon.

Since white settlement in Australia in 1788 more than 70 percent of farmland has been seriously degraded, with a loss of percent 50 to 80 percent of organic carbon from surface soil, says Jones.

Broker Prime Carbon currently lists carbon credit units on Australia's National Environment Registry and aims to convert 1 million hectares into sustainable farming by 2013 and provide wholesale carbon credits for national and international markets.

Prime Carbon has registered 200,000 tonnes of CO<sub>2</sub> in the past 18 months but sold only 10 percent, said founder Bellamy.

Measuring soil carbon gains is difficult as carbon levels vary between different soils and different rainfall areas. Soil carbon can differ from one end of a paddock to the other.

"It is dynamic and always cycling and fluxing and cannot be measured like house bricks," said Michael Kiely.

Another sticking point is how to ensure the carbon credit stays in the ground, as farming emits carbon. Agriculture accounts for 16 percent of Australia's emissions. Farmers argue that if they remain in credit then they are storing carbon.



Vapor rises from a coal-fired power station near Lithgow, about 120km west of Sydney on May 25. PHOTOS: REUTERS



A demonstrator holds ribbons in the colors of the Iranian flag, also used as the symbol of President Mahmoud Ahmadinejad's party, as thousands attend a state-organized rally in central Tehran, on Tuesday. Ahmadinejad won re-election on Friday in a vote that sparked large protests. PHOTO: AP

## Twitter's finest hour

*The site functions as a nexus of information for protesters and foreign news media alike*

BY ANDY GOLDBERG  
DPA, SAN FRANCISCO

Social networking site Twitter delayed planned maintenance to its system Tuesday in a move that it said was designed to minimize downtime for its users in Iran.

Twitter co-founder Brad Stone announced the move after the trendy social networking and micro-blogging site became a key conduit of information for Iranians protesting the contested election results.

The announcement wasn't just a publicity stunt from a site that was previously best known for updates from celebrities and the often irrelevant postings of hordes of fans.

In the days since the protests began, Iranians have turned by the thousands to Twitter as the government seeks to clamp down its control on other forms of communication. Reports from Iran, many of them on Twitter, say the government has shut down cell phone communications and is blocking landlines and text messaging.

Access to many Web sites also appears to be comprised, but networking sites like Twitter and Facebook remained accessible as users connected via proxy servers that hide their destination. It's not only Twitter that's helping the protestors. One group is even using Google Maps to show the location of rallies and where the government is placing tanks and snipers.

Making the impact even more profound was the fact that much of the mainstream Western media failed to properly cover the start of the protests when they started on Saturday. CNN for example chose to air a repeat of the *Larry King Show* instead of covering the start of the crackdown.

By Monday, Twitter was registering over 30 tweets a minute bearing the term "#iran election" — a tag that allows all postings on that subject to be easily found. It was easily the most popular subject on the site.

While talk of a "Twitter Revolution" in Iran may be exaggerated, even the *New York Times* agreed that the site was acting as a "virtual media office" for the supporters of opposition candidate Mir Hossein Mousavi, who use the site to coordinate protests and disseminate news.

Among the messages posted Tuesday on the site were "CONFIRMED!!! Army moving into Tehran against protesters!" "tehran is alive with sound of freedom" and "all cell networks down in Tehran."

One of the most prolific posters goes by the name Persiankiwi. "Attacked in streets by mob on motorbikes with batons — firing guns into air — street fires all over town — roads closed," wrote the anonymous contributor.

With information like that, even the US State Department asked Twitter to rearrange its maintenance downtime so that it would fall in the middle of the night in Iran.

Technology analysts were also impressed. "I think this is Twitter's finest hour," said Ezra Gottheil, an analyst at Technology Business Research. "If anyone in Iran has access to the Web, they can tell their story. This has made our world smaller and more personal in a time of great chaos and when a government is trying to stop communication."

The rise of Twitter in Iran also reflects a fundamental shift in the nature of news, according to Caroline Dangson, an analyst with the technology research firm IDC.

"The situation in Iran is illustrating this phenomenon where government and media outlets are no longer the gatekeepers to news," she told *ComputerWorld* magazine. "The man on the street is now the reporter in the field covering the situation in Iran thanks to the penetration of connected devices and availability of social messaging applications."



Supporters of Iranian reformist opposition leader Mir Hossein Mousavi demonstrate in Tehran, on Tuesday. With many forms of communication restricted or blocked, government opponents have followed a Twittered call to protest. PHOTO: AP



Australia's planned Emissions Trading Scheme (ETS) will have a fixed US\$8 a tonne price in the first year, followed by an open market with an expected price of US\$20 a tonne. But it is unclear what type of credit farmers would be allocated in a future ETS.

"Soil is the largest carbon sink we have control of. It's a major answer [to climate change] yet it's been overlooked," said Seis. "It's so obvious because plants are the only thing taking CO<sub>2</sub> out of the atmosphere."

The Chicago Climate Exchange in the US has been trading soil carbon since 2005 but it is not an official offset under the Kyoto Protocol. The UN food and agriculture organization and conservation farmers are pushing for the rules to be changed at the Copenhagen climate conference in December.

The Chicago Climate Exchange traded contracts worth 16.4 million tonnes of CO<sub>2</sub> equivalent in the year to end April 2009, with prices ranging from US\$1.55 to US\$2.05 per tonne.

### A BREAK FROM TRADITION

Fifth generation farmer Seis said there are about 2,000 "carbon farmers" now in Australia.

Farmers are turning their backs on centuries-old practices brought from England, where paddocks were continually cropped and ploughed and drenched with fertilizer and weed killer, and are adopting eco-friendly farming to repair damaged soils.

Carbon farmers are adopting zero or minimum