



Global Warming and Agriculture

Carbon Credits

If Canada is going to meet its commitment to reduce Greenhouse Gas (GHG) emissions under the Kyoto Protocol, the Agriculture sector will have to play a significant role. Potentially this could also give farmers a whole new way to make money... selling emission reduction credits, (ERUs) or carbon credits to industry. There also may be a market for removing and storing greenhouse gases in soils. While this market for emission removal credits (RMUs) has the potential to put extra dollars into producers' pockets there are a few pitfalls that could trap the unwary. Farmers should be very cautious of anyone showing up on their doorstep with an offer to good to be true.

Here is how carbon credits might work. Industries, like agriculture, are easily able reduce GHGs emissions. Farmers can reduce greenhouse gases either by reducing emissions from fossil fuels, fertilizers, and livestock or by removing greenhouse gases from the atmosphere by using their agricultural lands as a biological carbon sink. Many have already made great strides in this direction. Since nearly half of both small and coarse grain producers converted to direct seeding and no till technology in the 1990s agricultural soils have switched from being a source of carbon emissions to being carbon sinks. John Bennett, a farmer near Biggar, Saskatchewan, estimates

that direct seeding enables his farm alone to store enough carbon in his soils to offset burning more than half a million litres of fuel a year.

Industries that burn coal to generate electricity are not as fortunate. They will have to overcome significant financial and technical hurdles before they can significantly reduce their emissions. One solution now being considered is to implement a carbon emissions trading market to give emitting industries the time they need to develop permanent emission reduction systems. In this scenario companies who are net carbon emitters could "offset" their carbon emissions by buying ERUs or leasing RMUs from farmers.

"While virtually all farms have GHG emissions most have some options to reduce their levels," Bennett says. "Let's say a the farmer cuts his fuel consumption and reduces his emissions by 10%. Later the farmer implements a fertilizer management practice that reduces N₂O emissions by 10%. The farm has now reached a 20% reduction. If the emission target were 6% the farmer would have a surplus of 14% to sell in an emission reduction market."

"Any activity that farmers take to reduce greenhouse gases should be done to make their farms more efficient or productive from an economic standpoint," says John Hastie, President of Val Drew Environmental Services. "Any rev-

enue that comes from greenhouse gas credits should be considered a bonus and not as something that is going to ensure your survival as a farmer."

While emission reduction certainly offers some opportunities for farmers to generate credits, the biggest potential for grain farms may be by storing (sequestering) carbon in the soil.

"The Prairie Soil Carbon Balance Project data suggests that direct seeding will on average sequester .7 tonnes of carbon per acre per year," Bennett says. "Since 39% of Saskatchewan farmland is now direct seeded that is a pretty significant number, about 20 million tonnes of carbon a year. The next question becomes what is the value of this stuff?"

At the time of writing there are no official carbon trading rules in place but there is an active GHG market. Two Canadian websites where GHGs are traded are www.pert.org and www.gert.org. When Alberta Agriculture published Greenhouse Gases- Things You Need To Know in June 2001, they estimated that a "2000 acre grain farm, that switched to direct seeding from conventional tillage would create emission credits worth about \$3000 US per year. Reducing GHG emissions by 10% from a 500 sow farrow to finish operation (barn only) would equal roughly \$130 US a year. Achieving

a 14 % reduction in GHG emissions from a 50 head cow herd in central Alberta by adjusting feeding strategies would result in approximately \$22 US a year for the entire operation. These figures do not take into account the net costs/savings of implementing these practices, only money from the sale of the GHG emissions credits.”

Even though carbon prices have risen though since Canada ratified the Kyoto Accord in December 2001, Hastie doesn't feel that prices will continue to rise indefinitely.

“When the federal government ratified the Kyoto Accord it signalled a ceiling price of \$15/tonne for carbon,” Hastie says. “If the cost of reduction is greater than \$15/tonne then our tax dollars will pay for it, so obviously they don't expect the price to go above \$15/tonne. From all analysis that I've seen that seems to be a reasonable assumption.”

If carbon credits reach \$15/tonne and the average no till/direct seeded farm sequesters .7 tonnes of carbon/acre/year, then a 2000 acre farm would have \$21,000(C) dollars of carbon credits to sell every year.

Sales or Leases

If carbon credits are going to be traded one question that has to be answered is which is the best way to trade them. “In Emissions Trading and the Transfer of Risk: Concerns for Farmers,” a position paper endorsed by a cross section

of soil conservation associations in Canada and the United States, John Bennett and Dave Mitchell argue that farmers should think twice before signing up to sell carbon credits. Their concern is that signing a permanent sales agreement could bring short-term revenue and come with long-term obligations.

Bennett cautions farmers not to sign carbon sales contracts that commit them to maintain a soil carbon sinks indefinitely. He feels farmers should be especially wary if an agreement includes signing a conservation easement, that obligates the current and subsequent land owners to maintain the sink in perpetuity.

“Creating an agricultural soil sink is one thing, maintaining it is another,” Bennett says. “No matter what your intentions are, you only have so much control over the process. Say you are hit with three years of drought and all of a sudden your sink is going backwards and starts emitting carbon. It's a possibility so hence you have a liability.”

Mitchell and Bennett identify leasing carbon credits as the preferable option. Since there is no permanent transfer of carbon between buyers and sellers, but rather a lease or loan from a farmer (seller) to a buyer, farmers limit their risk and lower their liability.

“A lease could stipulate that you agree to hold the carbon for five years and if it then goes back into the atmosphere, at that time it would not be on your ledger,” Bennett

says. “Emission storage is no different than renting out a parking garage. You could rent it to a customer for five years and, if at the end of the five years you decide to tear it down, all you are out is the lost rental revenue.”

“The bottomline is nobody is buying carbon credits on a permanent basis and locking farmers in indefinitely,” Hastie says. “The deal GEMCO did with Iowa farmers is a good example. They purchased carbon that was stored in a particular year and farmers agreed to maintain it for a minimum six year time period. You could agree to store it longer if you wished. In effect it is a lease, it is all a matter of semantics.”

Sources:

John Bennett, personal communication, 2002

John Hastie, personal communication, 2002

Emissions Trading and the Transfer of Risk: Concerns for Farmers by John Bennett and Dave Mitchell

McConkey, Brian, B. Chang Liang, Glenn Padbury, and Wayne Lindwall, 2000. Carbon Sequestration and Direct Seeding. In proceeding of 2000 Saskatchewan Soil Conservation Association Direct Seeding Workshop, SSCA, Indian Head

Greenhouse Gases- Things You Need To Know, June 2001, Alberta Agriculture

The Prairie Soil Carbon Balance Project, Brian McConkey et al

