UNIVERSITÉ LAVAL

Faculté de Foresterie et de Géomatique
Département des Sciences du Bois et de la Forêt

Groupe de Coordination sur les Bois Raméaux

Déclaration portant sur le problème des émissions carbonées en fonction de l'effet de serre

Carbon Sequestration and Trading Implications for Canadian Agriculture

« La structure des sols et le bilan du carbone: une analyse sommaire en fonction de l'effet de serre »

par
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INTRODUCTION

Nous prenons prétexte de l'occasion qui nous est offerte pour illustrer le fossé creusé au cours du siècle qui s'achève entre l'homme et son milieu par la logique industrielle, la base même de notre civilisation. Le dilemme est de taille puisqu'il oppose l'homme à la vie. Le fait d'assimilé le CO_2 *à la pollution industrielle est sans doute le paradoxe le plus insolite et le plus profond de notre culture industrielle. L'attitude des agriculteurs canadiens de l'ouest montre bien ce dilemme existentiel qui est d'opposer la vie à la productivité.*

Nous profitons de cet exercice pour souligner, une fois de plus, que le problème des «excès» de carbone dans l'atmosphère sont liés à l'utilisation d'énergies fossiles puisque le carbone est responsable de la fixation de l'énergie, en particulier, sous la forme des cycles aromatiques du charbon et du pétrole. La principale lacune du document en annexe est d'ignorer le fait que le CO_2 *est d'origine biologique, tant fossile qu'actuel. Le carbone est le seul élément capable de générer des molécules diversifiées à l'infini et capables de s'associer entre-elles pour former le tissus de la vie sur terre: glucides, protéines et lignines.*

Vous noterez sans doute que les lignines sont, de toutes les molécules qui font l'objet de recherche, de loin les moins connues. Pourtant ce n'est qu'à l'apparition de la lignine dite gaïacyl que la vie stable est apparue sur terre il y a quelque centaines de millions d'années. Depuis, sous toutes les latitudes, la forêt est à la conquête des terres sauf si la dégradation des sols est parfaite comme dans les grands déserts

Le fait que nous poursuivions sans cesse la logique instaurée par les hommes dans les temps les plus reculés et cela sans égard aux besoins de connaissances fondamentales en agriculture et en foresterie, montre bien notre acculturation et un certain «dédain» pour la connaissance au profit de la tradition et du commerce. Nous sommes à franchir des limites qui peuvent l'être, en opposant la vie à l'économie. l'industrie et le commerce. Nous pensons que l'approche du ***"carbone"*** *depuis le Protocole de Kyoto est de cet ordre et que les discussions tiennent beaucoup du surréalisme apporté par les grands peintres du début du siècle. Nous en sommes arrivés à considérer le carbone comme un élément «pervers» à cause de nos excès alors qu'il est l'«âme» de toutes vies sur terre et de toutes sources d'énergies aisément accessibles*

Il va de soi que la seule utilité de l'agriculture pour l'homme est de le nourrir d'où son peu d'attrait, car elle est une source de souffrance, et d'esclavage et de travail incessant. Il y a moins de 20 ans que nous nous intéressons à ces molécules qui sont le fondement de la vie soit les lignines et leur association aux glucides dans une matrice polyphénolique.

Paradoxalement c'est dans le but de se débarrasser de ces molécules presque non dégradables, que les connaissances avancent à pas de tortue exigent de forts investissements: mais toujours pour des fins négatives. Néanmoins les côtés positifs de la recherche commencent à poindre.

Nous profitons de l'occasion pour qu'une fois de plus, le sol ne soit pas un «puis» de carbone mais bien le milieu vivant par excellence où le carbone joue le rôle principal en tant que matrice moléculaire de la vie et agent de stockage de l'énergie. Nous enjoignons nos collègues et concitoyens à réfléchir à la question. C'est sous la forme du complexe lignines-glucides que le carbone est fixé dans le sol et y persiste à long terme. Toute la mobilité du carbone est liée à la vie du sol ainsi que tous les aspects de «durabilité» de l'agriculture. Le terme de PÉDOGÉNÈSE contient tous ces aspects vivants, ce à quoi nous devons travailler à accroître les connaissances fondamentales et leurs applications pratiques.

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Carbon Sequestration and Trading Implications for Canadian Agriculture

Discussion Paper

Coordinated by

The Soil Conservation Council of Canada

A workshop on Carbon Sequestration and Trading Implications for Agriculture was held in Saskatoon December 8-9 1998. This discussion paper was prepared from the presentations and discussions that took place at the workshop. It is now being circulated to soil conservation organizations and other agricultural organizations across Canada.

Agricultural soils will most certainly be important to reduce atmospheric CO_2 by sequesting carbon through best management practices. To make this happen, farmers will play the key role as they adapt their farm management system. The Soil Conservation Council recognizes this role. To make sure that farmers are not passive victims of policies being developed, the Board has developed a strategic plan to interact with farmers across Canada. This paper is part of that plan.

The Soil Conservation Council of Canada invites a response from any individual or organization. The returned responses will be summarized into a white paper. It will be shared with farm leaders, government representatives, industry representatives and non-government organizations.

This white paper will provide an opportunity to share views and make recommendations on the issues relating to the mitigations of greenhouse gases and Canada's commitment made at the Kyoto meetings in relation to the agriculture and food industry with particular emphasis on primary agriculture enterprises.

Board of Directors
Soil Conservation Council of Canada

1. INTRODUCTION

The Kyoto Protocol was the result of a two-and-a-half year negotiating process initiated by the first Conference of the Parties to the United Nations Framework Convention on Climate Change in 1995. The Protocol is meant to further the objective of the Framework Convention, which is to achieve, in accordance with the relevant provisions of the Convention, stabilization of greenhouse gas concentration in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system (Article 2)

In support of this objective, the Commitments in the Convention address anthropogenic (human induced) contribution to atmospheric concentration of greenhouse gases. This means focusing in reducing emissions to the atmosphere from energy production and consumption, industrial processes and other activities. However, increasing the removal of greenhouse gases from the atmosphere by sinks (a sink is a process or activity that removes a greenhouse gas from the atmosphere) can also be an important means of reducing anthropogenic interference with the climate system. It is for this reason that countries accepted a commitment in the Convention to conserve and enhance greenhouse gas sinks and reservoirs (Article 4.l d)

At Kyoto, Canada agreed to reduce its greenhouse gas emissions in the year 2008-2012 to an average of 6 percent below the 1990 level. In 1990, the emissions were about 567Mt CO_2-equivalent, so that the current target is annual emissions of about 533 Mt CO_2-equivalent. In a business-as-usual (BAU) scenario, emissions in 2012 are forecast to be about 669 Mt CO_2-

equivalent. This means that Canada will need to reduce or offset annual emissions by about 136 Mt CO_2-equivalent or 20% relative to the BAU scenario, to achieve the target. While the Kyoto Protocol has identified forests as potential sinks, it did not include agricultural soils as sinks. This is an ongoing concern for Canada. There is increasing optimism that agricultural soils will be included at some future time.

If/when soils are included, it will be important to understand the implications for the agriculture sector. While there are discussions taking place at various levels, there has been very little farmer input. It is imperative that discussions take place among farmers from across Canada. The Soil Conservation Council of Canada held a workshop to begin this consultation/discussion. This paper has been produced using the reflective discussions at the workshop held in Saskatoon on December 8-9, 1998. The Soil Conservation Council of Canada will use information received from soil conservation organizations and other related organizations to develop a white paper which will provide a summary of the concerns and recommendations of farmers from across Canada. Policy makers will be urged to use the paper as a key reference as policies are developed.

2. THE PROCESS

With the establishment of the Climate Change Secretariat and the various discussion tables, the opportunity to discuss specific issues relating to greenhouse gas mitigation was created. As the meetings and negociations continue, the Soil Conservation Council of Canada is concerned there is not enough farmer input into the process. This is particularly true in regard to discussing the issues relating to agricultural soils being targeted as sinks.

This is not to criticize the process. Given the complexities of the Kyoto Protocol. it is imperative that key knowledgeable people be involved in every aspect of the discussion and negotiation process. The role that SCC can play is to identify the issues relating to carbon sequestration directly involving Canadian farmers.

The Carbon Sequestration and Trading Implications for Canadian Agriculture workshop held in Saskatoon, brought together farmers, government and industry representatives, and agriculture organizational leaders. The plenary session provided information on the Kyoto Protocol and the implications for agriculture, the science of carbon sequestration, the potential for agricultural soils in Canada and understanding carbon as a trading commodity. Following the plenary session, the workshop participants were asked to discuss three questions:

1. What incentives will be required to motivate farmers to get involved, and stay involved, in farming practices that sequester carbon?
2. What issues must be addressed to ensure that carbon trading outcomes are positive for farmers?
3. What recommendations are required to provide a carbon trading system that is workable for farmers?

These questions were intended to focus the discussion on the issues relating to carbon sequestration and the development of broad recommendations to resolve the issues. The six discussion groups spent an entire afternoon addressing the three questions. The following day, the group leaders presented a summary of each group's discussion. This discussion paper presents the information compiled from those reports. It provide the basis for further discussion by interested agricultural groups and individuals from across Canada. The discussion paper, once circulated, will provide an opportunity for others so share their views. SCC will receive these for a four-month period. The returned comments will be compiled into a single white paper to be used for planning a follow-up national event called Contact '99 to be held in Winnipeg in November 1999.

3. **Workshop Results**

3.1 **POTENTIAL FOR CARBON SEQUESTRATION**

Canada has about 45.5 million hectares of agricultural land that are cropped, summer fallow, or in developed pasture. There is an additional 15.5 million hectares in natural range land and 7 million hectares in wetlands, woodlands and natural non-grazed areas. Of the 45.5 million hectares, 39.1 million hectares (86 percent are in the four western provinces, 5.8 million hectares (12.9 percent are in Ontario and Québec and 1/2 million in the rest of Canada. It is interesting to note that a large portion of the agricultural land is still conventionally farmed. However changes have occurred. For example no-till and low disturbance seeding practices are already being practised across Canada. No till is used on over 16 percent of Canada's annual cropland. This compared to only 7 percent in 1991. Because Saskatchewan contains nearly 40 percent of the agricultural land in Canada, it is worthwhile to note that 22 percent of the cropland is under no till. This is up from 10 percent in 1991. With respect to other areas in Canada about 10 percent of Alberta's and British Columbia's cropland, 9 percent of Manitoba's, 20 percent of Ontario's, 4 percent of Québec's and 2 percent of the Atlantic provinces' croplands are under no-till practices. If this is compared to 1991, the proportion of no-tilled cropland was 3 percent for Alberta and Manitoba, 4 percent for Ontario and 2 percent for Atlantic Canada. Many other hectares are managed using minimum tillage and/or low disturbance systems. All of these management practices are useful to add carbon to the soil in the sequestring process. What is not clear is if these trends to no till or minimum till will continue over an extended period of time.

Organic matter has always been the basic indicator of soil health in Canada. Farming practices used in Canada have created an estimated 15 to 30 percent loss of organic matter overall since farming bega some 100 to 300 years ago. In some areas the loss has been much higher and is estimated to be in the 60 percent range where there has been severe wind and water erosion. Restoration of degraded soils can involve a reversion to higher soil organic carbon by using a variety of best management practices such as reduced tillage, crop rotations including legumes and grasses, establishment of shelter belts and woodlot and wetland restoration. Canada is fortunate to have a national soil survey record with detailed data recorded over an extended period of time. This enables sol science researchers and land managers to determine the health of the soils and changes that are occurring. This will be extremely useful wneh agricultural lands are considered for sink potential. While the actual amount of CO_2 that might be sequestred is under debate, the fact that agricultural soils are valuable sinks is no debatable. For example some predict that by using best management practice approximately 736 million tons of CO_2 could be sequestred by agricultural land in canada in a 20 year period. This would contribute significantly to assisting in the reduction of CO_2 in the atmosphere. The workshop was not organized to debate numbers however. Participants were brought together to focus on the role that farmers can play in being part of the solution by being involved in the process of greenhouse gas mitigation.

3.2 **ISSUES**

3.2.1 **MANAGING RISK**

Moving from a conventional tillage system to a no-till or low disturbance system requires major changes in management. It involves a total change. This creates a high risk situation. Normally any change within a farm management process, a new practice is introduced, tested, modified and integrated into existing system. Risk is usually low. This is not the case with no till or minimum till. When moving to that type of system the whole system is changed. There is a need for protection from the high risk involved. Risks result when new management skills, usually with little

or no experience, are introduced. When new agronomics of production are introduced, when major purchases of equipment are needed and when sources of information are lacking, the risk factor is high. This can cause a farmer to find himself/herself in difficulty very quickly. Without some form of risk management or risk protection, farmers are not likely to be motivated to change their present farming system even though they realize that soil conservation is important. Economic stabiliy will have a greater influence on how farmers mange their farms. There were a number of suggestions made on how to reduce the risks associated with changing management practices. They include:

1. Crop Insurance Programs - These should be tied to best management practices which enhance soil conservation. They would have to take crop rotations, tillage practices, forage production, and livestock enterprises into consideration.
2. Gross Revenue Insurance Programs - specific adaptation programs relating to soil conservation would be targeted for GRIP.
3. Net Income Stabilization Assistance Programs - NISA accountants could be adjusted. If carbon credits have value, corresponding deposits could be put into a NISA account from the sale/purchase agreement. There may be a need for an infusion of money to the accounts of young farmers to provide a working account. This is particularly important when farmers are starting to farm and become involved in new soil conservation systems.
4. Tax Credits - Tax credits on purchases of conservation machinery would ease de risk on expensive equipment. Other tax credits might apply to land taxes for farm land using conservation practices. Tax credits will be required to offset carbon taxes if they are applied to farm fuel.
5. Cash payments - Payments may be made to producers who sign an agreement to manage farm land in a soil conservation system. These could be dedicated carbon sequestration access with the value of carbon sequestrated used for payment if required.
6. Matching Carbon Investments - Outside dollars would be matched with producers dollars as a result of carbon credits stored or the sale of carbon credits. These could be public and/or private funds. This money could be pooled to provide a form of risk insurance for adaptation to new farming systems. It might also be a source from which to borrow money for capital purchases for changing to soil conservation systems.

3.2.2 **TECHNOLOGY TRANSFER AND EXTENSION**

One of the major hurdles that will have to be overcome is to provide farmers, now using conventional tillage, with the proper information to assist them in making a wholesale change in the management of their farm. This will not be an easy task. The early adopters have already made the change. New farmers and existing farmers who are less innovative will require specific tehnology transfer programs. Even if there are various risk reduction programs in place, farmer will still show reluctance to change it they are not comfortable with no till practices.

A variety of initiatives will have to be undertaken. The Saskatchewan Soil Conservation Association (SSCA) is a model that has been highly successful. It has used on farm demonstrations, producers testimonials, tours and workshops to promote conservation tillage practices. This "show and tell" approach has added credibility. The process of farmers talking to farmers has developed a support group network that has increased the rate of adoption of new land management systems. This "across-the-fence line" extension has been very effective! Another important component of the organization is the use of agrologists who serve both as information providers and technical facilitators. This has resulted in activities such as arranging to have equipment at a farmers field on a specific day to allow that farmer to actually participate in no-till seeding. Follow-up events such as tours and field days have provided more on-site information. This type of "whole package" extension has increased the rate of adoption of new soil conservation practices. Other regions in Canada have also experienced a high level of success using similar models. What is required are resources to enable soil conservation organizations to employ agrologists with special technology transfer skills. Farmers who have several years of experience using no till or minimum tillage have come to realize that they are dealing with more than a practice. They are dealing with a system. This is a significant concept. A practice may be integrated into or

taken out of a system with only a small amount of risk. To implement a whole new system requires a high level of management skills. To meet this need, extension programs have to be developed which integrate all of the practices into a "best management practice" (BMP), which is really the management of the whole farm. Developing a mind set that focuses on BPM require resources which must be committed for a long period of time. Past programs such as Save our Soils, the Green Plan and now the National Soil and Water Program, while they were effective during the short term, they didn't carry on long enough to provide a long term impact on all farms. If soil carbon sequestration is to play a major role in reducing atmospheric CO_2, farmers will have to adopt new farming practices at the rate at least as high as has occurred since 1991. The technology transfer system will have to be enhanced. Informal education opportunities provided by conferences, workshops, tours, demonstrations, articles or farm publications, special presentation by researchers and general media stories will all be important. In addition there is a need to ensure that formal education courses taught in schools of agriculture, colleges and universities, contain material relating to the science of soil conservation. The process of educating farmers is important as this too is a way to reduce risk.

3.2.3 **RECOGNITION OF EARLLY ADOPTION OF SOIL CONSERVATION SYSTEMS**.

There is a growing concern that farmers now practising best management practices will not be recognized for their efforts if actual soil carbon crediting begins in 2008. There are many farmers who have used no till over 20 years. In many discussions the suggestion to go back to summer fallow has surfaced. While this is not likely to happen, it points out the need to recognize those who have adopted soil conservation practices on their farm. There is no doubt they have already improved the organic matter in their soil. To penalize them would be terribly unjust. They would in fact be penalized. They would not be recognized for already reducing CO2, secondly they would not gain many carbon credits if accounting is based on increased carbon in their soils and they would be recognized for the actual out of pocket expenses already incurred when they modified and built machinery to improve their conservation practices. The carbon in their soils would already be higher. Recognition for early adoption may take the form of carbon credits. Using 1990 soil carbon information and measuring the change in 2008 when carbon credits are issued the amount of change could be credited. While this seems like plausible solution, more research will be required to determine the ability to both identify carbon contend in 1990 and verify change that occurs in the subsequent years. If baseline data is used to identify carbon levels, the data must be obtained form conventional fields. This would not penalize those farmers who already practising no till or minimum tillage. They could be rewarded for the increased carbon in their soils.

3.2.4 **MEASURING, MONITORING AND RESEARCH**

Carbon in agricultural sols has always been an important indicator of soil quality. Now with the interest in carbon as having specific value, perhaps in the market place, there is an increase in the demand to be able to measure changes in soil carbon levels. Another related issue is the need to to be able to verify changes in carbon as a direct result of removing CO_2 from the atmosphere. If this can be done, then agricultural soils can be identified as a sink. Another issue, again related, is the need for a cost-effective way to measure, monitor and verify carbon change over time. This will be essential when the cost associated with measuring soil carbon is paid. These costs will be a part of "carbon economics" which will be carefully considered if trading becomes a reality. The issue of verification of carbon change in soils is important on two fronts. Internationally the Kyoto Protocol has not included agricultural soils as sinks. To have this happen the international negotiators for Canada will have to convince other nations that we in fact do have the capability to measure soil carbon changes. Internally, measurement and verification are important too. There is already ongoing discussion relating to carbon trading models and some tentativ agreements have reportedly been signed. Farmers who are interested in entering into carbon credit trading must have solid information from which to negociate. The CENTURY model is presently the most often used. Given a set of scientifically verified assumptions about landscape, soils and climate, it can provide acceptable estimates of carbon change relating to specific farm management practices. However,

Canada is a large country with a great variation of soil types and climate conditions. Continuing research will be required to develop and refine measuring and verification techniques. The Prairie Soil Carbon Project (PSCB) will provide important data for the Prairie region. Similar work will be required in all other regions of Canada.

One suggestion that was presented was the allocation of carbon credits to provide funds for applied research. This would work much like a commodity check off. Carbon credits, to fund research programs could be allocated. Then a form of tax credit to recognize the allocation could be issued.

3.2.5 **CARBON - A CREDIT COMMODITY**

The Kyoto Protocol includes a variety of flexibility mechanisms that permit trading in carbon emissions permits. Carbon sequestrated by one party could be used to offset emissions in another sector of the economy thus assisting in meeting national commitments under the Kyoto Protocol. Carbon permits or credits can also be sold or traded internationally thus fulfilling national commitments in that way. In order to have a viable market for carbon credits there must be a commodity which is clearly defined and easily measured. Only then will the laws of economics prevail.

The Saskatoon workshop participants found it difficult to present any real recommendations relating to carbon credit trading. There are still too many unknowns. Assuming that carbon changes can be measured in a cost-effective way, t he inability to determine the amount that will be sequestrated, the price to be paid for carbon and the method of payment make it difficult to predict the actual value of carbon to an individual farmer. Discussion at the workshop raised more qu estions rather than providing answers. There were however several key point identified.

1. The amount of carbon squestrated on any one farm will be relatively low in terms of creating a significant trading unit. On the other hand, if the 45.5 million hectares of agricultural land in Canada are considered, the amount of carbon sequestrated is huge and the trade potential is very high. What is required is a system of carbon trading that will allow farmers to contribute their carbon credits into a pool that will provide significant volume to trade.
2. Economics will apply. Producers will attempt to sell high while purchasers will attempt to buy low. There will be a need to have some order in the market place. The potential to pit farmer against farmer must be eliminated.
3. The issue of carbon banking was not resolved. Would farmers be paid on the amount of carbon stored in the soil or on the potential to store carbon? This introduces the concepts of "final price", "hedging" and "banking".
4 Finally the most fundamental question raised related to ownership. Who really owns the carbon in the soil? The landowner or land operator or someone else? There was general agreement that the value of carbon is unknown. To be significant to an individual farmer, it will have to provide an economic benefit to the whole farm plan. It may be high enough to motivate farmers to change farming practices. There was agreement that a producer controlled group or agency must be put in place to ensure that carbon trading systems are a benefit to the farmer.

3.2.6 **PUBLIC AWARENESS**

If/when agricultural land becomes recognized as being a sink under the terms of the Kyoto Protocol, there could be a great deal of pressure placed on farmers to adopt new farming systems which would enhance carbon sequestration. The estimation is that agricultural soils could account for up to 736 Mt/years. This is significant not only because of the amount but also because it is a way of reducing CO_2 by using technology already in place such as no till, forage and pasture management, wetland preservation and restoration. But how will society react to this? There is an urgent need to inform the public thst agricultural lands provide a ready solution to begin the

mitigation of CO_2 in the atmosphere. While the whole process is complex, the issues are straight forward.

1. Will agricultural soils be included in the Kyoto Protocol as sinks? There are growing optimism that this will occur.
2. Can carbon in soils be measured, verified and monitored? There is now sufficient evidence that Canadian scientists can do this, however, more research is required.
3. Will farmers adopt new farming systems to increase de rate of CO_2 sequestration? They will if risks are reduced and economics are favourable. If they are not, the farmers will not change at a very rapid rate. They will continue to operate using a system that is suited to their own situation based on their experience. Carbon sequestration will not be an issue for them.
4. Can those who are responsible for implementing the commitment madeby Canada at Kyoto to reduce greenhouse gases ignore the potential of agricultural soils to act as sinks? It is doubtful if they will, given the potential for early action that soils provide.
5. What kind of credit trading system will be put in place? Will there be a voluntary carbon credit system or regulatory trading system? Present governments seem reluctant to put a regulatory system in place. Under such system farmers would be required to use certain farming systems which would greatly enhance carbon sequestration. It is doubtful if any regulatory system will be implemented. There are however many who believe some form of energy tax will be introduced. There are advocates of this but the workshop participants expressed concerned that if they are introduced, there will be a need to have some form of offset tax credits for farmers.

The general public will have a major influence in the development of policies relating to greenhouse gas emissions mitigation strategies. Workshop participants felt very strongly that the general public must be made aware of the issues facing agriculture. The reduction of greenhouse gases will benefit all of society.

4. ADDTITIONAL CONCERNS

The workshop groups expressed additional concerns that relate to the carbon sequestration discussion. What follows is a summary of these concerns and some of the suggestions from the group that identified them.

1. Wildlife habitat Conservation practices such as no till, permanent cover, forage in rotations, shelter belts, to name a few of the most common, all provide enhanced habitat for wildlife. When farm land is properly managed to enhance soil carbon, it also enhances wildlife habitat. This too should be recognized.
2. Changes in Land Management and Ownership as carbon is restored to soils and if carbon "banking" becomes a reality, what are the legal implications for changes in land ownership or changes in land management practices such as converting forage back into cropland during a rotation?
3 The implication of Methane (NH_4) and Nitrous Oxide (N_2O) while CO_2 may be reduced, will this credit be required to offset other greenhouse gas emissions such as NH_4 and N_2O? There is a need to have more "whole system" research to determine the total effects of changes in farm management systems.
4. Carbon Sequestration For Improved Soil Quality. A number of workshop participants expressed their belief that soil conservation would still be the major purpose for improved farm land management systems. Most farmers do care about their land. The question was raised >What if these farmers don't participate in a soil carbon credit system? It was clear that the workshop participants felt strongly that any system had to be voluntary.
5. Best Management Practices. The workshop participants pointed out that "best management practices" are variable from region to region or perhaps from farm to farm. It would not be acceptable to base a system of carbon crediting on a single BMP definition. What is required in research to determine the amount of carbon sequestration under the particular BMP used by any farmer?

6. Filling and Maintaining the Carbon Bank. The workshop participants realized that as agricultural soils fill with carbon a limit to capacity will be reached. This means that payments on carbon increase will cease when the soil is "full". While it is unclear how long this process will take place the question arose: "Will the soil then be a source if altered and CO_2 is given off and would there be a penalty?"
7. Legal Implications. The legal implications for farm operators are not clear. If there are liabilities associated with carbon sequestration, farmers are likely to be wary of getting involved.

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