

THE protector



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SOIL CONSERVATION COUNCIL OF CANADA
CONSEIL DE CONSERVATION DES SOLS CANADA



National Soil Conservation Week marks 20th anniversary

While much progress has been made over the past two decades, National Soil Conservation Week in April is an important reminder for all Canadians that continued conservation efforts are needed to protect the valuable soil resource, says the executive director of the nation's leading soil conservation organization.

The 20th anniversary of National Soil Conservation Week being observed April 17 to 23, 2005 emphasizes the need to protect and enhance the soil resource not only as the foundation of a sustainable agriculture industry, but also in a broader environmental role as a natural tool for reducing harmful greenhouse gasses, says Doug McKell with the Soil Conservation Council of Canada (SCCC).

"From the soil comes life, and the sustainability of our planet relies much on the health of this fragile veneer," says McKell. "Past civilizations in many parts of the world that did not recognize the importance of their soils have long since vanished. Modern civilizations are taking positive steps to protect their soil resources to ensure we do not suffer the same fate."

McKell describes Canadian producers as world leaders as they've applied soil conservation efforts over much of the country's more than 67 million hectares (165 million acres) of food-production land base.

"Canadians are fortunate to have producer-directed organizations such as Soil Conservation Council of Canada (SCCC) as well as many provincial organizations, that have taken on the challenge of protectors and guardians of the soil to prevent its degradation and preserve this resource for our future generations," he says.

"Through SCCC and the efforts of its provincial member organizations, producers are realizing the benefits of using direct seeding and other beneficial management practices to improve water infiltration, increase seedbed moisture, enhance organic matter and reduce the risk of soil erosion from wind and water."

Along with maintaining and improving the productivity and quality of soil to support Canada's agriculture industry, today's soil conservation practices also contribute significantly in the reduction and removal of overall greenhouse gas emissions.

The soil, under zero till cropping systems and annual forages, for example, becomes a natural bank or "sink" for carbon dioxide which is captured by plants from the atmosphere and converted to soil carbon.

"The agriculture industry in Canada is responsible for 10 percent of Canada's greenhouse gas emissions, but through soil conservation practices there is potential to provide 20 percent of the solution to mitigating these emissions," says McKell.

"National Soil Conservation Week is an opportunity to recognize the importance of the soil resource and the individual farmers, ranchers and organizations across the country committed to keeping the soil healthy and productivity for future generations."



Madame Odette Ménard, an agricultural engineer and long time supporter of soil conservation efforts in Quebec and Eastern Canada receives a certificate after being inducted as the first Quebec member and first female member of the Canadian Conservation Hall of Fame at the Soil Conservation Council of Canada (SCCC) annual meeting. From left are Doug McKell, SCCC executive director; Jocelyn Michon (incoming QC board member); Odette Menard; Daniel Guay (retiring QC board member); and Eugene Legge, SCCC president.

B.C. programs emphasize conservation and environment

Producers across B.C. had a chance this winter to learn more about soil conservation practices and reducing greenhouse gas emissions at agricultural shows and seminars held in various regions.

In southwestern B.C. this winter, more than 125 people stopped at the Abbotsford Soil Conservation Association (ASCA) booth, which was part of the Pacific Agriculture Show, to learn more about Greenhouse Gas Mitigation Program (GHGMP) activities in B.C.

Along with several interesting conversations regarding Canada's new One Tonne Challenge, the GHGMP display



B.C. Taking Charge Team member Bruce Fatkin, with Rose Schroeder an ASCA board member.

served as a lead in point to show how agriculture is already doing its part in decreasing greenhouse gas emissions. Agroforestry and the use of trees to capture carbon dioxide from the atmosphere was a key message.

In the Peace River region, turf and forage seed seminars in Fort St. John, B.C. and Fairview, Alberta also provided opportunities to promote soil conservation. The direct seeding forages section of the program was a highlight for the 120 farmers and agribusinesses that participated.

Ed Hadland and Dave Forgie, two growers respected throughout the Peace Region, spoke of the challenges of converting perennial grass seed stands into annual crops using direct seeding techniques rather than plowing. Extension specialist Calvin Yoder enhanced the discussion by presenting results of direct seeding research trials done in partnership with Gary Ropchan of Central Peace Soil Conservation Society. Since forage and forage seed rotations make up more than half the cultivated acres in the Peace Region, farmers are interested in management practices that help producers effectively and economically move in and out of rotations.

These conservation messages, co-ordinated by the B.C. Taking Charge Teams, were made possible by the federally funded Greenhouse Gas Mitigation Program for Canadian Agriculture, which is administered by Soil Conservation Council of Canada.

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Leave the land better

Alberta farmers committed to leaving the land in better condition than when they started farming, are following the land management lessons learned over a century of farming.

As the province marks its centennial in 2005, more and more producers are strong supporters of soil conservation measures aimed at maintaining and protecting valuable soil resources.

It's a different story today than when farmers were breaking land at the turn of the century. They prospered despite drought, frost, hail, disease and pests, because of the high soil nutrient levels built up over the millennia. However, heavy tillage, straw removal and summerfallow cropping systems contributed to massive soil erosion during the Dirty '30s.

More than 50 years ago, farmers and researchers responded by developing strip cropping and tillage tools, such as the low disturbance Noble Blade. Another leap forward in soil conservation began in the late 1970s with zero till or direct seeding. Beneficial management practices, such as direct seeding, have allowed farmers to protect soil and improve soil quality, as well as store soil carbon as part of an effort to reduce greenhouse gas emissions.

As Alberta enters the next 100 years, agriculture will continue to evolve and remain a key part of the provincial



Direct seeding wheat in Alberta.

economy. While the progress in creating a sustainable system has been tremendous, the process of rebuilding soils requires a long-term approach. However, farmers living by the motto 'leave your land better than when you started' have the tools and understanding to move forward.

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Quebec program stages impressive 670 demonstration plots

During the summers of 2003 and 2004, the Greenhouse Gas Mitigation Program (GHGMP) partners in Québec, together with agricultural producers, set up 670 farm demonstration plots. Close to half of those sites helped promote various soil conservation practices. The other half addressed different approaches to good inorganic fertilizer and farm manure management. Four days devoted to issuing the results of the compilation of data gathered from these lots were organised.

Data gathered through these farm plots were compiled in a database, allowing producers to compare their profitability with other farms for a given season. Compiling results covering the 1997-2003 period demonstrated the economic viability of no-till. Indeed, the gross financial spread was \$379/ha for no-till plots, while it was only \$357/ha for conventional tillage fields.

At the same time, thirteen field demonstration days were organized in 2004. They allowed 2,620 agricultural producers to see first hand the success of conservation practices such as no-till, ridge till, minimum till, and the use of zone-till.

In Québec, the GHGMP management committee is a good example of collaboration between various organizations, since it includes the Conseil pour le développement de l'agriculture du Québec, the Ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec, the Agro-Environmental Advisory Clubs, Agriculture and Agri-Food Canada, the Union des producteurs agricoles, Soil Conservation Council of Canada, and Université Laval.

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Demonstration plot tour in Québec.

New Brunswick farmers embrace reduced tillage

With more than 500 acres under no-till and a dramatic shift toward more acreage of reduced tillage, New Brunswick farmers are connecting with the soil conservation message, which has been actively promoted through a national campaign over the past two years.

The Greenhouse Gas Mitigation Program for Agriculture (GHGMP), administered by Soil Conservation Council of Canada, has allowed the New Brunswick Soil and Crop Improvement Association (NBSCIA) and its Taking Charge Team to set up on-farm demonstrations, conferences and other awareness activities to show how improved management practices improve productivity, protect the soil and benefit the environment.

The New Brunswick Taking Charge Team has developed 14 demonstration sites around the province to introduce

conservation practices to provincial producers. The on-farm demonstrations compare conventional tillage to reduced tillage and/or no-till in a variety of crops. Data collected from the projects also show the economic benefits.

The underlying message is that the improved practices also help reduce greenhouse gas emissions, such as carbon dioxide, methane and nitrous oxide.

The GHGMP program also made it possible for NBSCIA to bring in speakers such as Odette Menard, of Sainte-Hyacinthe, Quebec - recently appointed to the national Conservation Hall of Fame - to speak at the annual conference in February. This conference focused on tillage practices and soil health.

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Prince Edward Island recognizes soil conservation leaders

Two Prince Edward Island farm families have been recognized for their efforts in practicing and promoting soil conservation.

Willard Waugh and Sons Ltd. of Bedeque, and Guy, Rena and Bloyce Thompson of Frenchfort were recent recipients of the Soil Conservationist of the Year Award. The Waughs won in the cash crop category, while the Thompsons were winners in the livestock category. The awards were presented by Alan Rennie, president of PEI Soil and Crop Improvement Association, during the "Taking Charge... New Initiatives - New Directions" conference in Charlottetown.

The Waugh family began farming more than 75 years ago in Lower Bedeque with Willard's sons Gordon, Ronald and Alan; grandson Andrew now continues the Waugh family farm tradition in North Bedeque.

The farm produces nearly 500 acres of potatoes, along with cereals, forages and a small amount of rye grass seed under a three-year crop rotation.

The Waughs have completed the Enhanced Environmental Farm Plan on all deeded and some rented land. Conservation practices include terracing, grassed waterways and strip cropping, using hay mulch on potato fields, and minimum and reduced tillage.

The family has also worked with local environmental organizations planting trees in riparian areas. They are working with the PEI Taking Charge Team, in association with the Soil Conservation Council of Canada, on a three-year demonstration project focused on nutrient management planning.

The Thompsons, who operate the 70-milk cow Eastside Holstein dairy farm, have completed an Environmental Farm Plan. A special feature of their operation is an artificial wetland. Liquids from the manure storage, wash water from the milkhouse and rainwater from the barn roof are all treated in this designed wetland. They have co-operated with Agriculture and Agri-Food Canada, the PEI Department of

Agriculture and Ducks Unlimited Canada in ongoing research at their site.

Team Leader - Tyler Wright, wright.tj@PEI.sympatico.ca
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Livestock category award from left, MLA Fred McCardle, Guy Thompson, and Alan Rennie, PEISICIA president.



Cash crop category award from left, MLA Fred McCardle, Gordon Waugh, Willard Waugh and Alan Rennie, PEISICIA president.

Saskatchewan family honored for dedication to soil conservation

Germain and Myrna Dauk of Naicam, Saskatchewan have been recognized for their outstanding contributions and achievements in soil conservation.

They were presented with the 2005 Royal Bank Soil Conservation Farm Family of the Year Award at the 15th annual meeting of the Saskatchewan Soil Conservation Association (SSCA) in Saskatoon.

The Dauks addressed the risk of soil erosion problems on their farm by eliminating conventional summerfallow and adopting direct seeding methods.

Germain, a long time advocate of conservation farming practices, has been a presenter at both the SSCA and Alberta Conservation Association annual conferences.

The Dauks have also worked closely with their regional soil conservation agrologist to promote soil conservation through kitchen-table meetings, local crop tours, presentations at winter producer meetings, and by staging SSCA's direct seeding demonstration plots.

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Glenn Harvey, from Royal Bank of Canada presents Saskatchewan award to Richard Dauk, who accepted on behalf of his parents.

Shelterbelts – a tool for climate change

Tree and shrub shelterbelts not only help protect farmsteads and livestock from severe weather, they also play an important role in reducing greenhouse gasses.

Acting as filters, trees remove dust and greenhouse gases, such as carbon dioxide, from the atmosphere, and in turn, release oxygen. By lowering carbon dioxide levels, trees may help reduce the effects of global climate change.

Prairie Farm Rehabilitation Administration's (PFRA) Agroforestry Division research shows the above-ground portion of a mature poplar tree in a shelterbelt stores an average of 974 kilograms (kg) of carbon dioxide equivalent. Green ash trees average 231 kg, white spruce averages 523 kg, and caragana averages 143 kg. These figures do not include the carbon stored in the roots, which may equal 20 to 30 percent of the carbon stored above ground.

Research also shows that fast-growing trees, such as poplar, accumulate carbon at a faster rate, while slower-growing species, such as spruce, accumulate carbon at a slower rate. However, slower-growing trees live longer and therefore work as carbon sinks for longer periods.

A major benefit of shelterbelts is reduced home heating bills. By protecting buildings from winter winds, shelterbelts can reduce heating bills by as much as 25 percent. Also, wood can be used as a renewable fuel source for heating homes and buildings, replacing non-renewable fuels like oil and coal.

For more information about shelterbelts and climate change, check the website at www.agr.gc.ca/pfra/shelterbelt.htm or call (306) 695-2284.

Soil conservation message reaching NL producers

The Greenhouse Gas Mitigation Program for Canadian Agriculture (GHGMP) in Newfoundland and Labrador (NL) has increased awareness and interest among producers in adopting sustainable farming practices that help reduce greenhouse gas emissions.

GHGMP demonstrations include nutrient management planning, alternative nutrient sources, reduced tillage and use of green manures on organic and commercial vegetable and blueberry farms, on both mineral and peat land.

The demonstrations over the past two years have shown improved crop production through beneficial farming practices aimed at reducing greenhouse gas production.

The federally funded GHGMP, is delivered in the region by a Taking Charge Team consisting of field co-ordinator, five producers and six advisors from both the federal and provincial departments of agriculture.

GHGMP awareness activities include presentations to producers meetings, group tours of demonstration sites,

participation in Atlantic Canada workshops and displays at agricultural exhibitions, trade shows and other industry gatherings.

Field co-ordinator - Anne Marie Whalen, (709) 747-1378, horticulture@nf.aibn.com



Demonstration plots in Newfoundland and Labrador.

No-till alternative available to Nova Scotia producers

No-till cropping systems will help Nova Scotia producers improve soil quality characteristics and benefit the environment by reducing harmful greenhouse gases such as carbon dioxide.

No-till seeding helps to increase soil carbon by conserving the carbon already present, or by sequestering carbon dioxide from the atmosphere. Benefits include improved soil structure, reduced soil compaction and erosion losses, as well as enhanced soil moisture and biodiversity.



Tye no-till seed drill.



benefits include reduced labour and fuel consumption, time savings, equal or better yields, and greater profits.

The Soil and Crop Improvement Association of Nova Scotia (SCIANS) has established several demonstration sites to promote the adoption of no-till practices. On some of the sites, the Tye seeder was used for seeding corn, grain and forage crops.

A no-till production system involves seeding a crop directly into the ground, leaving the soil undisturbed and retaining plant residues. Typically a no-till drill, such as the Tye No-Till Seeder is used. This technique can be used under various weather conditions, soil types and crop covers. Additional

More information on these projects can be found on a new SCIANS web site at: <http://www.scians.org>

Field Co-ordinator - Rob Michitsch, (902)896-7092, michitrc@gov.ns.ca

Agriculture responds to the Kyoto challenge

The federal government recently issued the “One Tonne Challenge” to Canadians to reduce greenhouse gas emissions as part of its commitment to the Kyoto Accord, but farmers in Ontario have been using greenhouse gas reduction practices for more than two decades.

For the past 25 years, Ontario farmers have made significant strides in preserving soils through conservation measures that include leaving crop residues on the soil surface, minimizing tillage, and installing soil erosion control structures. The improvements to soil and water quality have been significant.

Those same practices now are being recognized for their contribution toward meeting Canada’s Kyoto commitment to reduce greenhouse gas emissions by 20 percent. Farmers can reduce greenhouse gas production, but also have the opportunity to remove harmful gases from atmosphere and store it in the soil.

Soil conservation measures reduce carbon dioxide emissions by reducing fuel consumption and preventing the loss of soil organic matter. Increasing organic matter in soil effectively removes carbon dioxide from the atmosphere.

New conservation farming practices being tested include strip tillage as a means to increase the number of acres of no-till corn. In strip tillage, a narrow band of soil 15-30 centimeters wide is tilled to a depth of 10-15 cm in the fall or before spring planting. The crop is planted in the band without further tillage.

Strip tillage may also help reduce nitrous oxide emissions by reducing the amount of nitrogen used. Instead of a standard pre-plant nitrogen application, fertilizer is applied as an in-crop sidedress, making it possible to better match the crop’s nutrient requirements.

The Innovative Farmers Association of Ontario and the Ontario Soil and Crop Improvement Association continue to support its members in their soil conservation efforts. As partners in the Greenhouse Gas Mitigation Program for Canadian Agriculture they are working with the Ontario Ministry of Agriculture and Food and the University of Guelph to demonstrate practices that will reduce greenhouse gas emissions.

Contact - Adam Hayes (519) 674-1621, adam.hayes@omaf.gov.on.ca



Strip tillage equipment being demonstrated.



Second GHG conference planned for 2006

Building on the success of the 2003 event, the Taking Charge Teams in Eastern Canada are planning a second Greenhouse Gas Mitigation Conference to be held in Moncton, New Brunswick, March 16 and 17, 2006.

“The main objective of the second conference is to highlight some of the most promising results of the demonstration and research projects carried out under the Greenhouse Gas Mitigation Program,” says Jérôme Damboise, conference co-ordinator.

Although the target audience is agricultural producers from all commodities, the conference will also be of interest to researchers, extension personnel, and agricultural students. Topics include soil and nutrient management, manure management and treatment, livestock feeding strategies and other livestock production practices as well as agroforestry and alternative energy. “The conference organizing committee,

which consist of Taking Charge Team leaders and co-ordinators, will also surprise the audience with a well-known keynote speaker,” says Damboise.

Jerome Damboise, (506) 475-4040, jdambois@umce.ca



Delegates at 2003 GHG conference.

Information Resources

For more information on a wide range of soil conservation and greenhouse gas mitigation programs across Canada, visit the following Web sites:

Soil Conservation Council of Canada

<http://www.soilcc.ca/>

Newfoundland Labrador Federation of Agriculture

<http://www.nlfa.ca/ghgmp.htm>

Soil and Crop Improvement Association in Nova Scotia

<http://www.scians.org/>

Eastern Canada Soil and Water Conservation Centre

<http://www.ccse-swcc.nb.ca>

Quebec: Agri-Réseau

<http://www.agrireseau.qc.ca/agroenvironnement/navigation.asp?opérateur=sitevoc&sitevoc=14708>

Ontario Soil and Crop Improvement Association

<http://www.ontariosoilcrop.org>

Canadian Cattlemen's Association

<http://www.jpccs.on.ca/biodiversity/ghg/index.html>

Saskatchewan Soil Conservation Association

<http://www.scca.ca>

Alberta Reduced Tillage Linkages

<http://www.reducedtillage.ca>

Focus issue of Agri-News

[http://www1.agric.gov.ab.ca/\\$department/newslett.nsf/homemain/agnw?opendocument](http://www1.agric.gov.ab.ca/$department/newslett.nsf/homemain/agnw?opendocument)

Abbotsford Soil Conservation Association

<http://www.abbotsfordsoilconservation.com>

Peace Region Forage Association

<http://www.peaceforage.bc.ca/about.htm>

Manitoba Zero Tillage Research Association

<http://www.mbzerotill.com>

New co-ordinator

Michelle Erb is the new program co-ordinator for the Greenhouse Gas Mitigation Program in Manitoba. She is also farm manager for the Manitoba Zero Tillage Research Association. Contact her at (204) 729-8838 or (204) 725-3939, or email: mztra@mts.net

Feedback

The SCCC communications committee would like to get your thoughts on this first web – based version of The Protector newsletter. With your views on the content and frequency of future newsletters please contact Jean Louis Daigle at the Eastern Canada Soil and Water Conservation Centre. by email at jdaigle@umce.ca or by phone at (506) 475-4040.



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