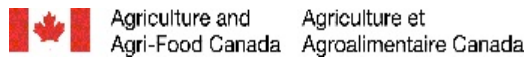




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## *PEI ADAPT Council Agri-Newsletter*

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### **Unique Summer Job Experience/Opportunity**

For the first time, farms from the Maritimes are taking part in an apprenticeship program offered through Stewards of Irreplaceable Land (SOIL)— a national program based in British Columbia that links farmers willing to offer apprenticeship training with those looking to learn sustainable farming practices.

Beth McMahon has known about the program for some time, and decided it was time to make the program truly national by involving the Atlantic region. The executive director of the Atlantic Canada Organic Regional Network (ACORN) said there has been talk for some time about establishing apprenticeship opportunities and "it only made sense to become part of the SOIL program since it is already well established."

While the number of farms is declining nationally, McMahon said the organic sector continues to enjoy steady growth. She said people from the Atlantic area have taken part in the SOIL program in the past, but they had no choice but to go to other parts of the country.

"Now in addition to offering people from this area a chance to apprentice close to home, we also hope we will be able to attract people from other parts of the country."

The Atlantic effort is being co-ordinated by ACORN and funded in part by the P.E.I. ADAPT Council, Agri-Futures Nova Scotia and Agriculture and Agri-Food Canada. McMahon said there has been considerable interest in the program, adding "I'm not really surprised because there was a good deal of positive feedback even before the program was officially announced."

"This is the type of work where you'll learn something new everyday, use your brain and build muscle, plus eat great food," she said.

The apprentices receive room and board and usually a small stipend. Participants must be at least 18 and must sign on for an eight week stay. However, she said the program does offer a great deal of flexibility. If there are a couple of participating farms in close proximity, often the apprentice will split the posing. As well, she said some farms will accept couples or friends.

"No experience is necessary and you don't necessarily have to come from a farm background," she said.

McMahon said over 20 maritime farms are taking part. While the majority of the farms are certified organic, she said producers who farm in a sustainable manner are welcome to take part. She added the participating farms offer a wealth of diversity– "there are farms with livestock, CSA's, market gardens– some are near cities, others on the ocean

Anyone looking for additional information should visit the SOIL website at [www.soilapprenticeships.org/martimesfarms.html](http://www.soilapprenticeships.org/martimesfarms.html)

### **Cultivating a Skilled Sustainable Agricultural Workforce on PEI**

The PEI Agriculture Sector Council is offering an opportunity to agricultural employers in assisting them in finding qualified employees.

For more information and to talk to one of the ASC Agricultural Employment Officers, contact Tamara McKeough, Administrative Assistant

Farm Centre, Suite 201, 420 University Avenue Charlottetown PE C1A 1Z5

Phone: (902) 892-1091; Fax: (902) 892-1891

E-mail: [tymckeough@peiagsc.ca](mailto:tymckeough@peiagsc.ca); Web site: [www.peiagsc.ca](http://www.peiagsc.ca)

### **The Open Plant Breeding Foundation Seeks Volunteers**

The Open Plant Breeding Foundation is a resource hub for organic growers who have an interest in plant breeding. Within Canada it is looking for volunteers to participate (basically receive seeds to plant out and help create varieties that are more disease/pest resistant). OPBF ultimately plans to provide commercially-viable crop varieties to the general public in order to produce pesticide-free crops and reduce the global dependence on crop protection chemicals.

[www.opbf.org](http://www.opbf.org)

## **Farm Groups Welcome 'Made in Canada' Plan**

A proposed change in federal rules to clarify what a "made in Canada" label means on agricultural products is a step in the right direction, say two major farm groups on P.E.I. Under the proposed change, announced by Prime Minister Stephen Harper, the designation — either "made in Canada" or "product of Canada" — would only apply to food grown or produced in Canada. Currently, anything can bear that label as long as 51 per cent of the cost of creating it is spent in Canada. The government plans to consult with key stakeholders over the proposed rule change.

CBC <http://www.cbc.ca/canada/prince-edward-island/story/2008/05/22/canada-label.html>

## **International Agricultural Assessment: We Need a Paradigm Shift**

By Ben Block

A commission of international agriculture experts recently unveiled a series of reports on calling for an end to "business-as-usual" farming practices to avoid widespread environmental degradation and increasing food scarcity.

The group of more than 400 experts, known as the International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD), concluded through its global and regional studies that governments and industries need to discontinue environmentally damaging farming methods. Farmers should have greater access to agricultural technology and science, especially in the developing world, to ensure productivity increases without further environmental degradation, the reports say.

The commission's conclusions come during one of the most severe food crises since the productivity boom of the Green Revolution.

The reports are the largest international collaboration to date to advocate more sustainable farming practices such as crop diversification, use of organic fertilizers, and the adoption of labeling and certification schemes. More controversially, the commission suggests policy options that include "ending subsidies that encourage unsustainable practices." The reports also stress the ineffectiveness of genetically modified crops in aiding food productivity in some developing regions.

Global society must undertake a "paradigm shift" in agriculture, the authors said at a press briefing. And without more sustainable practices, the problems will only worsen.

Because many farmers lack knowledge about sustainable practices, governments should increase their financial support for research and programs that encourage less-damaging techniques, the reports say.

"We have to think more about linking researchers and stakeholders in new and innovative ways.... We have to make sure our agriculture production systems have ecological benefits," said Mary Hendrickson, director of University of Missouri's agriculture extension networking project and another co-author.

The reports are the result of a three-year, \$12 million effort by the World Bank and the United Nations Food and Agriculture Organization. Launched in 2002 at the World Summit on

Sustainable Development in Johannesburg, South Africa, the IAASTD, led by former Intergovernmental Panel on Climate Change chair Robert Watson, coordinated the more than 400 experts from the world's universities, think tanks, governments, and industries.

*Ben Block is a staff writer at the Worldwatch Institute who covers everything environmental for Eye on Earth. He can be reached at [bblock@worldwatch.org](mailto:bblock@worldwatch.org)*

### **Professor Calls for new National Food Policy that gives Priority to Local Production**

by Thomas Axworthy; TheStar.com; Apr 27, 2008

Industrial agriculture, the current structure of the North American food system, is based on low prices to farmers, high usage of chemicals and copious amounts of oil. These factors must be altered if Canada is to have plentiful, safe and nutritious food in the future.

With oil now costing \$120 (U.S.) a barrel, we are entering an era of peak oil prices. Gas is at record levels and many forecast it will reach \$1.40 by the summer. This surge in the cost of fossil fuels will have profound impacts in a host of areas, not least in the way we organize our food supply.

Strawberries in December will soon become a luxury few can afford. It takes 35 gallons of oil, or the equivalent of a barrel, to raise a steer to go to market. Twenty per cent of American petroleum is consumed in the producing and moving of food.

Michael Pollan, an award-winning journalist for The New York Times, writes that America's "food chain is powered by fossil fuel."

Ingeborg Boyens' book, *Another Season's Promise*, makes a similar point about Canadian farming: "The amount of energy required to produce a calorie of food is constantly increasing. At issue is not just the food required to do all the mechanical work on the farm: energy is also needed to manufacture fertilizer and chemicals at the front end of the process and to transport and refrigerate food in the final stages of its delivery to the consumer."

Peak oil is already turning Canadians away from giant SUVs and towards compact cars. We need a similar turn away from factory farms and towards local food producers.

Wendell Berry is a farmer and writer who has authored more than 40 books imploring North America to re-establish a balance between ecology and agriculture.

He begins with the sober reflection that the "qualities that make humans the most astonishing of all the families of creatures – our intelligence, our ambition, and our power – have made us also by far the destructive of all creatures ... " Agriculture's mission is to "maintain its people in health, and this applies equally to the people who eat and to the people who produce the food."

Canada's current system of agriculture is far from healthy. But not so long ago farming was at least in harmony with nature. Farms used to waste nothing. My grandfather and uncle farmed grain in Saskatchewan but their farm, like their neighbours', was mixed with lots of animals to graze, provide manure and ultimately food. The sun provided energy to the crops, the animals fed on the grass (what we now call free range) and their waste, in turn, provided nutrients to plow back into the soil.

We have not had a national policy to help the family farm since Eugene Whelan was minister of agriculture in the 1970s. Ever since, we have had a policy of industrial farming, consolidation, agribusiness and globalization. But this policy rests on the fatal flaw of cheap energy. That era is over. We must return to a policy of local food through the family farm.

The recent 2006 Statistics Canada Census on Agriculture paints an unhappy picture of the stress

that affects farm families. Canadians pay 12 per cent of their national income on food, only half the percentage their parents paid in the 1950s. As food prices have gone up, farmers have not benefited. The census reveals that inflation has gone up 8.6 per cent for farming inputs (machinery, chemicals, etc.) compared to only 1.7 per cent for products sold. In 2006, 37 per cent of the farmers in the census had receipts under \$25,000. Not surprisingly, 71 per cent of these farmers did not make enough to cover expenses.

With farmers squeezed by low prices and high costs, half of the farm families had one or both partners working off the farm to make ends meet, though farming is more than a full-time job. As a result, farmers are leaving their profession in droves: in 1991 there were 390,000 Canadians in farming but by 2006 there were only 327,000. In 1991, there were 78,000 young farmers taking over from their parents, in 2006 only 30,000. If the trend continues, who will be left to grow the food?

We need a national food policy that relies on the family farm to produce local supplies. School boards should purchase food for their lunch programs from local farmers, just as St. Lawrence College in Kingston is doing. Queen's University should follow this example. Agriculture Canada should encourage farmers' markets. Where possible, individual consumers should buy direct from the farmer. Regulations should be eased to accommodate the 100-mile diet.

Most of all we need an alliance between the city and the farm. Earth Day was celebrated last week with marches and park cleanups. A month earlier, Earth Hour saw hundreds of thousands of Torontonians turning off the lights. These are welcome symbols but we need daily action. One way is to follow Wendell Berry's advice and "eat responsibly." When we purchase food we should ask: "Where does it come from? How was it made? What chemicals were used? Methods of slaughter?"

Denmark is experimenting with a barcode that can tell consumers about the history of the produce as well as the price. We need the same here.

Industrial agriculture has brought us mad-cow disease, soil erosion, pollution by toxic chemicals, depletion of aquifers, animal abuse, and long-distance transportation of food stuffs. This model must be transformed into sustainable agriculture.

The local food movement is a start. Every day could be Earth Day if we started to eat responsibly.

*Thomas S. Axworthy is chair for the Study of Democracy at Queen's University*

### **Making the Most of Farm Waste**

At least 10 livestock farms across Canada are turning animal wastes into energy gains. Jody Barclay, Manager, Biochemical Conversion in the Industrial Innovation Group at CANMET Energy Technology Centre – Ottawa (CETC-Ottawa), explains that while the concept of producing biogas for heat and electricity from farm waste is hardly new, it is becoming increasingly attractive, given rising fossil fuel prices and more-stringent nutrient management requirements. The Ontario Power Authority (OPA) has added another incentive for biogas producers: standard-offer contracts that enable them to sell generated power to the grid at a premium (\$0.11 per kilowatt hour [kWh] plus \$0.035 during peak times).

For more information see: <http://www.nrcan.gc.ca/se/etb/cetc/>

## Whole Canola as an Energy Source

John Rowsell<sup>1</sup>, John Kobler<sup>1</sup>, Hugh Earl<sup>2</sup>, Irene Coyle<sup>3</sup>, Ben Hawkins<sup>4</sup>

<sup>1</sup>New Liskeard Agricultural Research Station, University of Guelph, <sup>2</sup>Plant Agriculture, University of Guelph,

<sup>3</sup>Natural Resources Canada, CANMET Energy Technology Centre, Ottawa, <sup>4</sup>Ontario Ministry of Agriculture, Food and Rural Affairs, Brighton.

The combined effects of heat and drought had a negative impact on the quality of Ontario's canola crop in 2005. Samples contained higher quantities of heat damaged seeds than the crushers were willing to accept. The infrastructure was not in place to take most of Ontario's canola production from 2005 (about 50,000Mt) to produce biodiesel or other industrial products. Even if that infrastructure was in place, the fate of the meal left over after oil extraction would have to be determined.

We wondered if canola seeds could be used directly as an energy source. Using the whole seed would sidestep the need for infrastructure to produce biodiesel that we did not have, and finding a use for the meal that the marketplace may not want.

We discovered that the energy content of whole canola seed ranged between 27.6 and 29.2 MJ/kg (megajoules per kilogram) on a dry weight basis. By way of comparison, a value 18 MJ/kg is often stated as the energy content of dry wood; 16 and 18 MJ/kg for dry corn and wheat respectively; 37 and 41 MJ/ℓ for #2 light fuel oil and #6 heavy fuel oil (Bunker C) respectively; 37 MJ/m<sup>3</sup> for natural gas and 3.6MJ/kWh (kilowatt hour) for electricity.

Green and brown seed content are factors which can downgrade canola. Green seed results from immature seeds being harvested. Brown seeds are seeds that were aborted by the plant under stress. This was the problem with Ontario's 2005 canola crop. These downgrading factors did not influence the energy content of the canola samples we evaluated.

Moisture is also a consideration of energy output. There were no surprises in that the calorific output of combustion decreased linearly with the increase in moisture at close to a 1:1 ratio. This means that users of whole canola as an energy source need only to reduce the expected energy output according to the moisture: 10% moisture means 10% less energy as compared to bone-dry seed.

The oil contained in the seed is a significant contributor to the total energy content. We found that the energy content of the seed increased between 0.13-0.22MJ/kg for each percentage increase in oil content. Although this relationship is statistically significant, it is not practically important because differences in oil content that are normally encountered, and the resulting variation in the energy content, are not large. Seed size also did not affect the energy content of whole canola seed.

Whole canola was ashed in a muffle furnace at 500 C and the ash analyzed for 11 heavy metals, nutrient content, electrical conductivity (salts) and pH. The ash would be suitable for raising soil pH (ash pH 9.9) and contains enough potassium and phosphorus to be considered as a source of these nutrients. Levels of metals were well within guidelines for use on agricultural land.

Five tonnes of canola were shipped to the CANMET Energy Technology Centre, Natural Resources Canada, for evaluation in a 1MW (megawatt) industrial grate furnace. The seed was #2 canola (not off grade) and evaluated to contain 28.43MJ/kg (dry weight). An auger was used to feed the canola into the furnace. The temperature in the furnace averaged over 950 C, which was achieved quickly and had little variation. Without any emission control devices, the stack emissions were within MOE guidelines with the exception of particulate matter, which were marginally over the guideline. Technology to remove particulates from the stack emissions is readily available.

This project allows a cost comparison between various energy sources to be made. The following table helps to put some of these values into perspective:

Energy source	Example Price	\$/MJ	Canola <sup>1</sup> price (delivered) per tonne to have equivalent cost per megajoule (MJ)
#2 Heating Oil <sup>2</sup>	\$0.8732/ℓ	\$0.0236	\$600
Corn <sup>1</sup>	\$300/tonne	\$0.0206	\$525
Electricity <sup>3</sup>	\$0.119/kWh	\$0.0331	\$841
Natural Gas <sup>4</sup>	\$0.39/m <sup>3</sup>	\$0.0105	\$268

<sup>1</sup> 10% moisture- Corn 14.5MJ/kg, Canola 25.5MJ/kg

<sup>2</sup> price delivered, less GST

<sup>3</sup> price per kWh above 750kWh base, includes delivery, regulatory and debt retirement charges, less GST

<sup>4</sup> price includes transportation, storage and delivery, less GST

When the price of canola falls below the price in the 4<sup>th</sup> column of this table, it is a less expensive source of energy relative to the example prices given. It is unlikely that #2 canola at current prices would be used as an energy source to compete with #2 heating oil or natural gas; however, off grade canola is deeply discounted and may be an attractive source of energy. The moving grate furnace technology used in the CANMET facility is readily available and is adaptable to a variety of feedstocks.

We conclude that off grade whole canola seed is energy dense and easily utilized as an economically viable energy source.

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### **Clarification on Proposed Ethanol Plant Comments**

Our previous newsletter included a summation of various presentations made at ADAPT's AGM/Conference, 'Sustaining the Rural Economy.' The report included commentary on Kevin Shiell's presentation which stated, "That energy cost to make ethanol is a limiting factor. His own research revealed that using potatoes for fuel was not promising. He suggested that more research is needed on improving grain varieties before ethanol production could be viable on a scale that would be feasible, given PEI's limited land base. Shiell has done work for the proposed sugar beet ethanol plant on PEI and does not feel that the economics behind it are very promising."

Ron Coles, Atlantec Bio-Energy Corporation and Mr. Sheills contacted ADAPT to express their disappointment with the reporting. Mr. Coles asked that Kevin Shiells' clarification be printed in this newsletter. Mr. Shiells offered the following. (*Apologies to any misunderstanding the previous report may have created.*)

"During my presentation I refrained from making any comments about the sugar beet project except for the one question in question period, as I did not want to get involved in what I consider "a purely political issue not based on facts!" In my response I said I am only involved in the technical side of the project and really could not comment on the economics - I would never have made a comment with respect to the companies economic feasibility because I am not privy to this information directly. Also I did not make a direct reference to PEI's land base (you actually have twice the acreage of NB in production - so if you switched from potatoes to other crops you have a large land base comparatively on which to produce biofuel crops!) I just noted that in the "Atlantic Region" ethanol plants will have to be scaled according to feedstock availability and they will have to be designed carefully to insure that the energy requirements are met.

The sugar beet project in question is a project that is very well designed from a technical perspective - has its own energy supply from its waste - biogas that also produced nitrogen, potassium and some trace nutrients to be returned to the land (in an era when it is getting more expensive). It would have possibly involved the production of a nutraceutical from the beets for another revenue stream.

This is one of the best ethanol plant designs I have ever seen - most innovative and it would have provided a contracted crop (beets for ethanol and hay/corn silage for biogas) with good returns to PEI tobacco farmers involved in the project initially then others after. I find it very disappointing that a government can make a sweeping uninformed statement about a specific project that would have done nothing but good things for PEI farmers (plus the company only wanted incentives/mandate that all projects in the other provinces of Canada have get!!!! nothing different than the norm! - they were prepared to invest 100 million of their own money!) We live in sad times that major decisions can be made based on very few facts, and this project could have changed the status quo for agriculture."