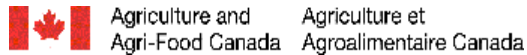




PEI ADAPT Council Agri-Newsletter



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ACAAF and BOPI Programs to Benefit Biofuels and Organic Sectors in P.E.I.

The Honourable Gerry Ritz, Minister of Agriculture and Agri-Food and Minister for the Canadian Wheat Board, visited Prince Edward Island on September 28, to formally announce almost \$460,000 in federal funding for three projects aimed at boosting alternative fuel production and organic agriculture in Prince Edward Island.

"Biofuels and organic agriculture represent two exciting growth areas for Canadian farmers," said Minister Ritz. "These innovative projects are also good for the environment and Canada's Government is proud to partner with groups and individuals in P.E.I. who are committed to making the industry greener and more profitable."

The funding includes \$189,450 under the Biofuels Opportunities for Producers Initiative (BOPI) for a pilot project by the Island Grain and Protein Council to evaluate the use of locally processed canola oil as a bio-fuel for farm machinery. The Atlantic Canada Opportunities Agency is providing \$145,000 towards the purchase of equipment to press canola to produce oil and meal, creating demand for locally grown canola for renewable fuel and livestock and poultry feed.

The P.E.I. Department of Agriculture has also recognized the potential opportunity for expansion in the biofuels sector, and has committed \$130,000 to the canola biofuel project.

"Identifying new uses for existing products and new ways to produce those products is part of our strategy to diversify the agriculture industry and create new opportunities for

producers," said Prince Edward Island Minister of Environment, Energy and Forestry, George Webster. "We will continue to work with all sectors of the industry to make it more profitable and sustainable."

Agriculture and Agri-Food Canada is also investing \$124,900 in the region's organic sector under the Advancing Canadian Agriculture and Agri-Food (ACAAF) Program, including \$90,000 to support the growth of an organic grain sector in the Maritimes and \$34,900 to provide the dairy industry in P.E.I. with specialized education and training to manage the unique health requirements of cattle raised for organic milk production.

"These projects demonstrate that there is no single way to tackle environmental challenges, that we can make a difference from a variety of directions that can also create economic opportunities," said Elmer MacDonald, Chair of the PEI ADAPT Council, which delivers the ACAAF and BOPI programs in the province.

MacDonald urges all those who wish to know more about these projects and other opportunities that are available as a result of the ADAPT Council and the ACAAF and BOPI programs to call The PEI ADAPT Council 902-368-2005.

Atlantic Canada Outstanding Young Farmers Regional Competition

Atlantic Canada Outstanding Young Farmers (OYF) is seeking nominations for the OYF Regional Competition. The deadline for this years nominations is November 30, 2007. The OYF program begins each year with the nomination of farmers at the local level. Anyone can nominate a young farmer/farm couple for the regional recognition award and title of Atlantic Outstanding Young Farmer - even the farmers themselves as long as they meet the following program eligibility requirements:

- Must be between the ages of 18 and 39
- Be farm operators
- Derive a minimum of two-thirds of their income from farming

The first step is if you know of someone who meets the above eligibility requirements, you or someone from your organization can contact Jessica Francis, Atlantic Canada OYF Nominee's Chair with their name and contact information. Jessica, will then contact the nominees and explain the process, and if they are interested, they will be required to submit application forms.

Judges will select the five top candidates based on the following criteria:

- progress in agriculture career
- extent of soil, water and energy conservation practices
- crop and/or livestock production history
- financial and management practices
- contribution to the well-being of the community, province and nation

The top five candidates will be asked to participate in an interview and presentation process at this year's regional event taking place on Friday and Saturday, March 14th & 15th, 2008 in the Annapolis Valley, N.S. Further judging will take place at this time and a regional winner will be selected. The winner will then go on to compete in the National competition which is designed to recognize young farmers that exemplify excellence in their profession.

If you know an outstanding young farmer, nominate them! It is time to recognize their outstanding contribution to the agriculture industry.

Jessica Francis
Atlantic Canada OYF Nominee's Chair
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Trees Can Double the Yield of Some Field Crops, New Guelph University Study Shows
September 15, 2007; Cameron Smith; camsmith@kingston.net.

It sounds too good to be true. But experiments at have resulted in double the crop yield in drought years

A farming practice that results in better soil, more earthworms, much higher capture of carbon dioxide, less nitrogen runoff, more birds and insects, and double the crop yield in drought years - it sounds too good to be true.

Yet this is exactly what experiments at Guelph University are suggesting

The most astonishing conclusion is that if farmers adopted the practice throughout the 455,000 square kilometres of marginal or degraded land currently being farmed, Canada could come within a hair's breadth of meeting its Kyoto commitment with an 18.6 per cent reduction in the nation's CO2 emissions.

The practice is called intercropping - planting crops between rows of trees. At Guelph, the rows of trees are 12.5 metres to 15 metres apart, and this year the crop is soybeans.

The experiments have been going on for several years, using different crops and the results have been compared to identical crops grown in open fields.

Andrew Gordon, professor of forest ecology and agroforestry, has been supervising the experiments, assisted by Naresh Thevathasan, manager of agroforestry research and development at the Ontario Agricultural College in Guelph.

Thevathasan explains that the trees take up about 10 per cent of the intercropped area. Yet in drought years, the yield has been double that in the open area, because the trees helped retain moisture in the ground. In normal and wet years, the yield in the actual growing areas has been identical, but because of the space taken by trees, the yield for the total area, trees included, has been about 10 per cent lower.

Accompanied by two graduate students, Thevathasan gave me a tour. The soybean plants were ripening to a buttery yellow and a row of poplars stretched as far as I could see over a gentle rise. The trunks were a good 40 centimetres across at hip height and the trees were roughly 13 metres high.

Fast-growing poplars can reach this size in 12 years, Thevathasan says. A couple of years ago, some were sold for \$100 to \$150 a tree.

In this experiment, he adds, there are 111 trees per hectare. They can be used to make plywood, low-quality lumber, chipboard, pulpwood, even pellets for heating.

They also produce a lot of leaves each year, which are shed where the crops are planted, making the soil richer in organic matter.

Earthworms in the leaf litter number 125 to a square metre, compared with two worms per square metre in the open field. Ten different kinds of birds foraged in the intercropped area, Thevathasan says, compared to four in the open area.

In addition, there were a lot more parasitic insects in the intercropped area, which might be good news for pest management.

Nitrogen added to the soil through decomposing leaves reduced significantly the amount of fertilizer required for crops.

And, says Thevathasan, leaching of nitrates from the soil, which causes nutrient overloading in waterways, was reduced by 50 per cent in intercropped areas, because tree roots take up nitrogen.

It was Rachelle Clinch, one of the graduate students, who put her finger firmly on the issue raised by the experiments.

"We haven't changed our thinking about agriculture since North America was colonized," she said. "It's always been focused on clearing land to grow crops, with no place for trees.

"If only we would learn to use trees to help farming, instead of seeing them as a hindrance, we'd see many, many benefits."

The Craze for a Maze

(Guelph, ON - October 12, 2007) Anyone can grow corn in straight rows. But to design a corn field in the shape of the Great Pyramids of Egypt or in a message such as "Farmers Fuel the Future" takes extra talent.

Corn Mazes are some of the fastest growing tourist attractions in Ontario. In fact 42 farms with mazes have joined forces in a new "Maze Craze" passport program which is funded in part by Agriculture and Agri-Food Canada through the Agricultural Adaptation Council's (AAC) CanAdvance program.

Offered through the Ontario Farm Fresh Marketing Association (OFFMA), "Maze Craze" encourages visitors to navigate a series of mazes located across the province. Upon completion of each maze, a 'passport' is stamped. People receiving four or more stamps can then submit their passport in person, by mail, or on-line through www.mazecraze.ca for a chance to win a series of prizes. The Maze Craze program runs through to October 21st. More details, including lists of all of the participating farms can be found at www.mazecraze.ca.

In conjunction with this project, OFFMA will be creating marketing materials for distribution at provincial fairs and shows, developing an outreach campaign, and offering the participating farms help with signage and advertising, and even market layout and displays.

Cathy Bartolic, Executive Director of OFFMA says the project will bring new consumers to farm markets. "It gives farmers the opportunity to showcase their farming operations first-hand, to teach the public about agriculture's contributions to the province, as well as hopefully sell additional products and build a stronger customer base."

One participant is Mark Saunders, owner of Saunders Farms near Ottawa in Eastern Ontario. Boasting the largest collection of corn, hedge and puzzle mazes (11 in total) in North America, Mark is excited about the "Maze Craze" program.

"It's a real opportunity for all farm markets and maze operators to work together to co-promote our existence, as well as enhance our marketing and customer service skills."

Annually, the five-acre corn maze at Strom's Farm just west of Guelph, is a fundraiser for a selected charity, the beneficiary this year being World Vision. In 2006, Strom's partnered with Operation Christmas Child (OCC). Guests gathered clues in the maze to fill an imaginary shoe box for a child in need. They were also able to pick up a shoe box to take home and fill. Strom's also donated 10 per cent of corn maze proceeds to the OCC. At the end of the season that a

donation of almost \$3,000 had been made, says a pleased Amy Strom.

Bette Jean Crews, AAC Chair, notes: "Agri-tourism is a highly consumer-focused type of agriculture. The AAC Board of Directors was pleased to support a project which may offer additional options for diversification and adding stability to farm incomes."

The Agricultural Adaptation Council is a non-profit, grass roots coalition of 71 agricultural, agribusiness and rural organizations dedicated to providing financial resources to help Ontario's agriculture and agri-food industry remain profitable, grow and maintain its economic strength.

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The Vertical Farm Project

<http://www.verticalfarm.com/>

By the year 2050, nearly 80% of the earth's population will reside in urban centers. Applying the most conservative estimates to current demographic trends, the human population will increase by about 3 billion people during the interim. An estimated 109 hectares of new land (about 20% more land than is represented by the country of Brazil) will be needed to grow enough food to feed them, if traditional farming practices continue as they are practiced today. At present, throughout the world, over 80% of the land that is suitable for raising crops is in use (sources: FAO and NASA). Historically, some 15% of that has been laid waste by poor management practices. What can be done to avoid this impending disaster?

A Potential Solution: farm vertically

The concept of indoor farming is not new, since hothouse production of tomatoes, a wide variety of herbs, and other produce has been in vogue for some time. What is new is the urgent need to scale up this technology to accommodate another 3 billion people. An entirely new approach to indoor farming must be invented, employing cutting edge technologies. The Vertical Farm must be efficient (cheap to construct and safe to operate). Vertical farms, many stories high, will be situated in the heart of the world's urban centers. If successfully implemented, they offer the promise of urban renewal, sustainable production of a safe and varied food supply (year-round crop production), and the eventual repair of ecosystems that have been sacrificed for horizontal farming.

It took humans 10,000 years to learn how to grow most of the crops we now take for granted. Along the way, we despoiled most of the land we worked, often turning verdant, natural ecozones into semi-arid deserts. Within that same time frame, we evolved into an urban species, in which 60% of the human population now lives vertically in cities. This means that, for the majority, we humans are protected against the elements, yet we subject our food-bearing plants to the rigors of the "great outdoors" and can do no more than hope for a good weather year. However, more often than not now, due to a rapidly changing climate regime, that is not what

follows. Massive floods, protracted droughts, class 4-5 hurricanes, and severe monsoons take their toll each year, destroying millions of tons of valuable crops. Don't our harvestable plants deserve the same level of "comfort" and protection that we now enjoy? The time is at hand for us to learn how to safely grow our food inside environmentally controlled multistory buildings within urban centers. If we do not, then in just another 50 years, the next 3 billion people will surely go hungry, and the world will become a much more unpleasant place in which to live.

Advantages of Vertical Farming

Year-round crop production; 1 indoor acre is equivalent to 4-6 outdoor acres or more, depending upon the crop (e.g., strawberries: 1 indoor acre = 30 outdoor acres)

No weather-related crop failures due to droughts, floods, pests

All VF food is grown organically: no herbicides, pesticides, or fertilizers

VF virtually eliminates agricultural runoff by recycling black water

VF returns farmland to nature, restoring ecosystem functions and services

VF greatly reduces the incidence of many infectious diseases that are acquired at the agricultural interface

VF converts black and gray water into potable water by collecting the water of evapotranspiration

VF adds energy back to the grid via methane generation from composting non-edible parts of plants and animals

VF dramatically reduces fossil fuel use (no tractors, plows, shipping.)

VF converts abandoned urban properties into food production centers

VF creates sustainable environments for urban centers

VF creates new employment opportunities

We cannot go to the moon, Mars, or beyond without first learning to farm indoors on earth

VF may prove to be useful for integrating into refugee camps

VF offers the promise of measurable economic improvement for tropical and subtropical LDCs. If this should prove to be the case, then VF may be a catalyst in helping to reduce or even reverse the population growth of LDCs as they adopt urban agriculture as a strategy for sustainable food production.

VF could reduce the incidence of armed conflict over natural resources, such as water and land for agriculture

New Aluminum Alloy Generates Hydrogen On-demand

Jerry Woodall, an engineer from Purdue University, has developed a method that uses an aluminum alloy to extract hydrogen from water on contact. This process eliminates the need to transport or store hydrogen gas, 2 things that have been major obstacles to achieving the much anticipated hydrogen economy.

Hydrogen is generated spontaneously when water is added to pellets of the alloy, which is a mixture of aluminum and gallium. Aluminum has been used for a long time in chemical production of hydrogen, but the addition of gallium makes this alloy far more effective as a catalyst. As aluminum oxidizes, a skin forms on its surface preventing further contact between the aluminum and the water. The gallium prevents this skin formation, allowing the reaction to

continue until the aluminum has been used up. The aluminum has a strong attraction to the oxygen in the water, and when water is added to the pellets the oxygen is stripped out of the water molecules, leaving free hydrogen gas as a byproduct.

This technology is being looked at to allow the conversion of cars and trucks to hydrogen, but the prospects aren't quite as good as a first glance might suggest.

- Because the alloy is used up during the reaction, new pellets need to be added periodically and the waste materials need to be recycled.
- Internal combustion engines are only about 25% efficient so existing engines would require more frequent fueling than with hydrogen fuel cell electric vehicles.
- Additional energy and effort is required to replace the pellets and process the alloy after use

However, using the pure hydrogen generated from this process, a fuel cell system would run at closer to 75% efficiency, reducing the previously mentioned problems by 2/3. Fuel cells have long been touted as being the ultimate in power generation for mobile uses, but the complexity, inefficiencies and cost make them remain impractical for general transportation uses when compared to the simplicity of battery electric vehicles for urban use. The technology does become far more favorable when used with fuel cells instead of internal combustion however. For general urban transportation, I favor solar/wind/geothermal powered battery electric vehicles, but there are several other applications for which on-demand hydrogen fuel cell systems would be ideally suited:

- Rural vehicles that wouldn't have easy access to a charging station
- Emergency response vehicles that require operation at all times
- Larger devices such as lawn mowers, tillers, chainsaws, backup generators, cooking devices, etc
- Emergency power generation in case of a natural disaster

These applications would benefit from the ease of fueling (just add water!) and clean operation that on-demand hydrogen would provide. Because they would not be part of normal urban usage, the hindrances of the system would be minimized and would remain cost-effective.

Source: Purdue University

Hydrogen-fuel-cell-aircraft-being-developed (see:<http://www.greengeek.ca/2006/08/28/>)

What Are We Eating” Towards a Canadian Food Policy / qu'est-ce Qu'on Mange? Pour Une Politique Alimentaire Canadienne

An issue on Canadian Food Policy, entitled *What Are We Eating” Towards a Canadian Food Policy / Qu'est-ce qu'on mange? Pour une politique alimentaire canadienne*, has just been published by the Association for Canadian Studies through the McGill Institute for the Study of Canada.

The collection of articles in this publication is based on a selection of papers presented at the Feb. 2006 conference *What Are We Eating” Towards a Canadian Food Policy / Qu'est-ce qu'on mange? Pour une politique alimentaire canadienne*.

If you would like to receive a free copy of the magazine, please contact:

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