



# SOBIN

Southwestern Ontario Bioproducts  
Innovation Network

## *Bio-Innovator*

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### Southwestern Ontario's BioEconomy Gets Significant Boost

SOBIN is thrilled with the recent federal announcement of \$15 million in funding towards the establishment of the Bioindustrial Innovation Centre at the University of Western Ontario's Sarnia-Lambton Research Park. The new centre, situated in the heart of Canada's largest chemical cluster, will become the country's preeminent location for the development and commercialization of large-scale industrial biotechnology such as biofuels, bioenergy and bio-chemicals.

"The Bioindustrial Innovation Centre will play a major role in translating Southwestern Ontario's strengths in agriculture, chemical, and automotive production into new sustainable bioproducts and renewable energy," says SOBIN President Jim Nash. "Ultimately, this will result in the establishment of new biobased enterprises within our region – something very important to the mission of SOBIN and to the sustainability of our economy."

This \$15 million in funding announced by the Honourable Jim Prentice, Minister of Industry, follows a \$10 million investment to the Centre last year from Ontario's Ministry of Research and Innovation. In total, the Bioindustrial Innovation Centre is a \$50 million initiative with the remaining support coming from a coalition of companies and associations representing Canada's chemical, energy, automotive, agriculture and forestry sectors.

"From the very beginning, the concept of creating the Bioindustrial Innovation Centre has been about building successful partnerships with like minded companies and organizations - all having the same vision of making this region a leader in bioindustrial development and sustainability," says Don Hewson, Managing Director, Research Park Sarnia-Lambton Campus. "Our partnership with SOBIN over the past few years has gone a long way in helping to realize this vision and we look forward to further developing this partnership through the opportunities that this new Centre will be able to facilitate."

## Southwestern Ontario's BioEconomy Gets Significant Boost

Steve Bolt, SOBIN Director and Co-Chair of the Ontario Chemistry Value Chain Initiative adds, "This funding is an important piece in establishing Ontario and Canada as a global leader in innovative, environmentally sustainable, chemical products, technologies and processes. It's truly exciting to see the vision of the Bioindustrial Innovation Centre becoming a reality."

Joel Adams, Director of the Research Park, says this announcement speaks to the importance and success of partnerships. "To have the federal government step up to the plate with such a substantial investment speaks to their belief in our region's ability to deliver cleaner fuels and green materials to the public. This investment will help us deliver on the promise."



Renovations to an existing 60,000-square-foot building are already under way, and groundbreaking for a new 75,000-square-foot facility will be held this spring. This announcement of funding for the Bioindustrial Innovation Centre was part of a \$163-million announcement of 11 new Centres of Excellence for Commercialization and Research announced by the Honourable Jim Prentice, Minister of Industry. The University of Western Ontario Research & Development Park ("The Research Park") is home to over 55 organizations and a growing workforce of over 2,000 people across two Campus locations in Sarnia-Lambton and London.

## Researchers Aim to Entice Auto Industry to Use Soybean Oil



Soybean oil could soon become a staple in the auto industry thanks to University of Guelph researchers who are investigating ways to boost the plant's oil yields to give manufacturers a cheaper and greener alternative to petroleum-based chemicals and fuels.

Led by plant agriculture professor Istvan Rajcan, the research team is particularly focused on incorporating soybean oil into Ontario's auto industry, where it could be used as biodiesel fuel for vehicles and machinery as well as in the manufacturing of car parts.

Although previous research has investigated the health benefits of soybeans, this project is the first to examine increasing soy-oil yield for industrial use, said Rajcan. "Theoretically, almost any petroleum-based product can be made using soybean oil instead."



The project is part of the BioCar Initiative, a multi-university project designed to improve the development and delivery capacity of biomaterials for the automotive industry. Guelph's role includes creating new industrial crops that can be turned into composite materials used to make interior car parts.

With the rising cost of petroleum, the auto industry is looking for a cheaper alternative such as soy oil, said Rajcan.

Funded by the Ontario Soybean Growers and the Agricultural Adaptation Council, the project aims to increase oil content by 15 to 20 per cent over standard soybean varieties. This will make it cheaper to produce, which will encourage manufacturers to switch, he said.



Soybeans could potentially be a better long-term industrial choice than petroleum because of their sustainability, said Prof. Gary Ablett, who is in the Department of Plant Agriculture at the Ridgetown campus and is also working on the project. "Unlike petroleum, soy oils are renewable. And products based on soybean oil are environmentally friendly. Many of them are biodegradable, and biodiesel fuel produces 30-per-cent less harmful emissions."

To develop high-oil beans, the researchers are combining adapted varieties with high oil levels to produce progeny with higher oil levels.

The final varieties will then be evaluated to ensure they are highly productive and are well adapted to Ontario's climate and disease pressures.

The research team is also investigating ways to manipulate the traits of the plant to produce oil that's suitable for certain products, said Rajcan.

"Through plant breeding, we can change the trait of a plant for a particular use. An example would be reducing the saturated fat in the oil so that it's more suitable for making the foam in car seats."



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## FOAM Goes GREEN - Now Made With Renewable Resources



Ontario's mattress, furniture and toy sectors turned a brighter green with the announcement from the Ontario BioAuto Council of a \$500,000 grant to Valle Foam Industries Inc. to aid in the commercialization of their new **BioPlush™** product line.

**Valle Foam Industries** – located in Brampton, Ontario – manufactures slab stock polyurethane foams for the furniture, bedding, packaging, carpet and children's toy industries. Valle Foam has committed to replacing up to 25% of traditional, petroleum-based polyols – one of two main ingredients used to make foam – with polyols derived from **natural plant-based oils such as soybean**.

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“Valle Foam has always considered the environment in its business decisions and our new biobased foam is an extension of that dedication. The financial contribution from the Ontario BioAuto Council will help to catapult us into a leadership role with new greener options for our customers”, stated Dale McNeill, VP Operations for Valle Foam.

Bio-based polyols have witnessed significant growth in the last two years, due in large part to the increasing price of crude oil – the traditional source for petroleum-based polyols. Consumers are anxious to reduce the world's dependence on fossil fuels and ultimately lessen greenhouse gases. New bio-based alternatives have entered the marketplace in a big way and offer equal or better functionality.

“The Council is excited over its contribution to Valle Foam as the shift in production at Valle Foam signals a growing market demand for bio-based materials. And a growing market means new opportunities for Ontario companies and the province's natural resource sectors”, said Craig Crawford, CEO of the Ontario BioAuto Council.

The Ontario BioAuto Council is a not-for-profit organization working to link Ontario's agriculture and forestry sectors to chemical/plastics processors and advanced manufacturers to produce materials and chemicals from biological feedstocks. Its commercialization fund targets nearmarket-ready innovations that will lead to the production of basic bio-plastic and bio-composite materials, for use in the manufacture of automotive parts, furniture, construction materials and other consumer and industrial products.

The contribution to Valle Foam is the second from the Ontario BioAuto Council. The first was made in December 2007 to GreenCore Composites to assist in the commercialization of their natural-fibre composite technology.

## NEW WORLD CLASS RESEARCH INSTITUTE COMES TO WINDSOR

A \$5-million Ontario government investment announced by John Wilkinson, Minister of Research and Innovation will help establish the brand new Institute for Diagnostic Imaging Research at the University of Windsor — and help make Windsor a focal point for research and innovation development across Ontario and around the world.

The institute will work collaboratively with leading private-sector partners to develop new acoustical imaging technologies for use in the automotive, health care and public safety sectors. Industry estimates peg the global market for such applications at \$21 billion.

“This investment is part of the McGuinty government’s strategy to boost Ontario’s competitive advantage by fostering the research talent and innovative ideas that create jobs and prosperity,” said Minister of Research and Innovation John Wilkinson.

The announcement comes on the heels of a December 13 Fall Economic Statement — a \$3-billion plan to strengthen Ontario’s economy with targeted business tax cuts, infrastructure investments, and a new job skills training strategy. The Fall Economic Statement set out a series of priority investments for Windsor, including a commitment to continuing to move forward on the new Windsor-Detroit border crossing.

“The institute is a testament to the incredible capacity we have in Windsor to create jobs and prosperity by capitalizing on our exceptionally talented researchers,” said Economic Development and Trade Minister and MPP for Windsor West Sandra Pupatello.

“One of the best ways to keep our economy strong is to continue to make strategic investments in areas that will make Ontario more competitive in the future,” said Minister of Finance and MPP for Windsor-Tecumseh Dwight Duncan. “This investment is good news for Windsor and good news for Ontario.”

“We’re pleased that the Ontario government is supporting this important initiative,” said Chrysler LCC Executive Vice President of Manufacturing, Frank Ewasyshyn. “Innovations in industrial imaging will help Ontario manufacturers like Chrysler improve quality control and remain competitive in the global economy. It will also help ensure Ontario continues to benefit from building the best cars and trucks in the world.”

“The beauty of Dr. Maev’s work is his ability to apply what he has learned in the lab to the very practical problems facing our society today,” said University of Windsor President Dr. Ross Paul. “This work has the potential for a number of industrial applications and speaks to the need for innovative economic diversification, right here in Windsor and beyond.”

“I’m proud to be a part of a government that is committed to investing in future job growth and prosperity by investing in our region’s strengths in research and innovation,” said MPP for Essex, Bruce Crozier.

**Ontario  
Government  
Investment Boosts  
Innovation And  
Job Creation**

## Following the Sustainable Road

The Research and Development (R&D) Section of Norjohn Limited has been busy looking at ways to shift their product line from petroleum to a more renewable and sustainable future. In October 2007, patent applications were filed for two emulsion products. One patent is for biobased wax emulsion developed by Maria Racota. The other is for a soya/vegetable oil emulsion developed by Larry Sinnige.

For the past couple of years, Maria Racota has been focusing her attention on developing wax emulsions from renewable animal and vegetable oils. The idea is to provide a product that will provide water resistance on composite panels, paper coatings and gypsum board. The challenge for Maria was to make a renewable product that uses wax from renewable resources but provides our diverse customers with the same or better water resistance.



Larry Sinnige and  
Maria Racota  
of Norjohn Limited

Larry Sinnige has been working on the oil emulsions that we supply to the fiberglass industry. Our emulsions are used as dust suppressants by the fiberglass industry. Fiberglass is made by spinning molten glass and producing fibers; similar to what happens when transforming sugar into cotton candy. A binder is then added to glue the fibers together. Our emulsions are added with the binder and remain with the fiberglass product to prevent dust being generated when the fiberglass pieces are broken or cut by the user.

Any emulsion developed for use by the fiberglass industry must be compatible with the binder, must be effective as a dust suppressant and must be stable. So the goal for Larry was to develop a product that performs the same or better than our existing products and is made from renewable resources.

With these goals in mind, both Larry and Maria spent time in the laboratory starting from what they already knew and knowing their end goal. They looked at what might work and then kept testing different formulations until they had something that does work.



Maria is able to make wood and gypsum panels in the lab. So when she has a formulation to try, it is used in the panels that are made in the lab. Assessing how the fabricated panels perform with each new formulation provides clues as to how to improve the next formulation so it meets our customers' needs. R&D is about taking what you know and what you can learn from others then applying it to solve a problem. It is a process of trial and error to develop something that works. It's about learning from what goes wrong and improving on what goes right.

In addition to the work in the lab, once the product is developed Maria and Larry are both responsible for preparing the patent application. Not an easy task. Maria's submission was about 50 pages of technical information.

## Following the Sustainable Road

Once the patent is filed, Norjohn has 12 months to do technical assessments of the products. That means working with our customers to do trials at their operations on their manufacturing lines. So far Norjohn has 3 trials arranged in 3 different market sectors (wood, paper and insulation). Trials provide more information on the performance of the product in real manufacturing settings. R & D then takes any information and knowledge from the trials and uses it to improve on the formulation.

Successful trials will mean that Norjohn has new biobased products that will help customers move towards greening their operations.

Norjohn will now be watching the Chicago Board of Trades commodity index for agriculture products. Archie Reynolds will soon be fluent in the cost per bushel of corn and soya beans. In the last year, soya prices have risen 40% and corn prices have risen 100%. This is all due to the interest in biofuels.

The advantages of these new biobased emulsions are:

- they are made from renewable resources
- they are not dependent on the unpredictable and rising petroleum market
- the vegetable oils have a higher flashpoint (less volatile) which means they stay with the product and aren't lost to the atmosphere and there is less risk of fire
- the fiberglass product provides a unique stability when mixed with the binder which is an improvement to our existing product.

So far these potential products are getting a good reception from our customers. We are looking forward to hearing about the success of the trials so Norjohn can help our customers embrace the EARTH 1st principles.

Contributed by: Alison Braithwaite, Director, Environmental Performance Department, Norjohn Limited

[www.EARTH1st.com](http://www.EARTH1st.com)



## \$1.5-Billion—Next Generation of Jobs Fund

Ontario is launching its Next Generation of Jobs Fund to give companies quicker decisions so they can get projects off the ground and create opportunity for families.

The Next Generation of Jobs Fund is part of Ontario's plan to keep pace with changes in the global economy and create jobs for families. The government is providing \$1.15 billion to support companies whose products reduce pollution, save energy, make transportation more efficient or help the environment in other ways.

The government is now accepting applications. Companies are guaranteed a decision within 45 days of submitting a complete proposal.

### Objectives:

- Create and sustain jobs in Ontario
- Attract foreign direct investment
- Make Ontario businesses stronger
- Support research and development
- Support Go Green: Ontario's Action Plan on Climate Change
- Support Fast Forward: Ontario's Innovation Strategy

Three components to the fund:

1. [Jobs and Investment Program \(JIP\)](#) - supports business expansion/retention and attracts foreign direct investment
2. [Biopharmaceutical Investment Program \(BIP\)](#) - supports new biopharmaceutical research and development and manufacturing
3. [Strategic Opportunities Program \(SOP\)](#) - supports industry-led work to turn Ontario research and ideas into products and services sold around the world.

Target sectors include:

- Green auto research, parts production and vehicle assembly
- Clean fuels, clean industries and environmental technologies
- Bio-economy (taking plant-based raw materials and turning them into fuels and other products)
- Health technologies and pharmaceutical research and manufacturing
- Digital media and information and communications technology

### Learn more

Program details, contact information and application documents are available at [http://www.ontariocanada.com/ontcan/en/home\\_en.jsp](http://www.ontariocanada.com/ontcan/en/home_en.jsp)



## Events

### **Fueling a Renewable Energy Start-up: The StormFisher Biogas Success Story**

**Thursday, March 27, 2008 Toronto Board of Trade , Toronto**

In just 18 months, entrepreneur Ryan Little and two MBA classmates turned a desire to reduce greenhouse gas emissions into one of the most well-funded bio-gas companies in the world. A \$350 million partnership now has StormFisher Biogas poised to become a catalyst in turning organic waste into energy. Join Little as he shares how StormFisher is laying the foundation for this renewable energy sector in Ontario. For more information: <http://m2m.oce-ontario.org/>

### **Growing the Margins 2008**

**April 2-5, 2008 London Convention Centre**

The program for the 2nd Growing the Margins Conference and Exhibition will include: Tours of new leading edge technologies and processes in use at that time, Excellent Conference program with speakers and topics targeted to your interests and needs, plus value-added poster presentations and exhibits.

For more information: <http://www.qtmconf.ca/welcome.htm>

### **Growing a Sustainable Future: Jobs, Agriculture and Bio-innovation in Essex County**

**April 11, 2008 Council Chambers, Essex County Building, Essex ON**

Hosted by the Windsor-Essex County Environment Committee, Southwestern Ontario Bio-Innovation Network, Canadian Auto Workers' Green Jobs Program. A half day event designed to introduce some of the economic opportunities agricultural bio-innovation can bring to the Essex area. Topics include cellulosic fuels: driving beyond corn and soy, Ontario BioAuto Council: Growing Auto Parts and growing sustainable jobs. Morning keynote speaker will be Senator Eugene Whelan, former Federal Minister of Agriculture. Breakfast (provided) at 8:00a.m. Keynote speaker at 9:00a.m. No fee to attend, but space is limited. For more information or to Register contact: Ron Elliott, Coordinator WECEC-519-326-8789 [wecec@elliottenergy.ca](mailto:wecec@elliottenergy.ca)

### **International BioMass Conference and Trade Show**

**April 15-17, 2008 Minneapolis, Minnesota**

Biofuels, Sustainability, and Carbon: Getting it Right

Some recent analyses of biofuels have focused largely on how we might "get it wrong" with respect to sustainability and carbon emissions. This panel will focus on strategies to "get it right". Perspectives will be offered on paths forward that reconcile sustainability objectives and the interests of the existing biofuels industry from some of the most highly cited environmental scientists and analysts in the world. For more information: <https://www.biomassconference.com>

### **2008 World Congress on Industrial Biotechnology & Bioprocessing**

**April 27—30, 2008 Chicago**

The dynamic fifth Annual World Congress on Industrial Biotechnology and Bioprocessing will provide a forum for interdisciplinary interaction and networking.

For more information: <http://www.bio.org/worldcongress>

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# SOBIN

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## WHO WE ARE

The mission of SOBIN is to strengthen the economy of Southwestern Ontario by cultivating new bioproducts, fostering energy conservation and expanding alternative energy sources. We envision progressive companies leading the world in growing all facets of the bioproducts industry in Southwestern Ontario leading to a vibrant regional economy.

Thanks to our FUNDING PARTNERS



Ministry of Research & Innovation



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RIDGETOWN CAMPUS

