



F O R A G E N VISIONS

A Vision for Canada making Canadians the Healthiest People in the World.



*John Oliver, President of
Maple Leaf Bio-Concepts*

“We want to make Canadians the healthiest citizens with the best quality of life of any country in the world.” says John Oliver, President of Maple Leaf Bio-Concepts and Board member for Foragen Technologies Management. He is talking about a new initiative he and Dr. Murray McLaughlin launched a few months ago. Through this venture they hope to raise awareness of agriculture as a ‘solution provider’ to society. He goes on to say that he believes agriculture is a fundamental pillar in the foundation of a healthy society.

If patterns remain unchanged the future prospects for Canada are very

poor. Crippling health care costs, diminishing quality of life caused by disease and high taxation levels, and an environment facing threats from many forces have the power to erode Canada’s much envied status. Oliver is however, optimistic. He says, “ We have a vision for Canada. We see our country as a world leader in the enhancement of human, animal and environmental health. We will achieve this through the application of research, technology and social innovations in agriculture and the bioscience industry”. To be successful Oliver notes that a range of public policies must be revised. He says “While improved nutrition is the key aim, policies across all sectors to be considered. We must pay particular attention to those related to agricultural practices and research. They can have a significant, positive impact on diet and health, and generate a smaller environmental footprint for our industry.



Oliver warns that there is no time to delay in reshaping the Canadian approach. He is keenly aware that “time is not our friend”. He says, “We must immediately begin to prioritize the actions different stakeholders should take toward improving the diet and nutrition of Canadians. The implied benefits, of course, are a healthier nation and our ability to significantly curb the rising costs of health care.”

These benefits must be captured soon. According to the World Health Organization (WHO), the impact of the obesity epidemic on non-communicable diseases such as cardiovascular disease, Type 2 diabetes and cancer threatens to overwhelm health systems, not only in Canada, but also in many industrialized countries. The need for prevention and control of obesity is well documented. Given available evidence, the economic impacts of obesity on the Canadian health system are considerable.

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Public health expenditures are projected to rise as a share of total provincial and territorial government revenues from 31 per cent in 2000 to 42 per cent by 2020.* Adjusting for inflation, public per capita spending on health care is projected to increase by 58 per cent. At the same time, public per capita spending on all other government services will increase by 17 per cent over the forecast period.* The 10 year forecasted bill for health care delivery in Canada is \$1.4 trillion dollars.

The 1974 *Lalonde Report: A New Perspective on the Health of Canadians* promotes the idea that the health and wellbeing of Canadians involve more than the health care system. It identifies the need for the adoption of healthier lifestyles and a more conscientious approach toward the social and physical environment in which people live. Three decades later, these are still the principal means of improving the health of Canadians and reducing the cost of health care

Health Canada reports that cardiovascular disease is the number one killer in Canada. It also remains the most costly disease in Canada, putting the greatest burden on our national health care system.

Health specialists have proven that the primary factor in the increased risk of cardiovascular disease is the consumption of saturated fats, and trans fats, commonly found in hydrogenated vegetable shortenings, some margarine, crackers, cookies, snack foods, and other foods. Unfortunately despite a blizzard of information about the inherent dangers, these products are consumed daily by Canadians.

Dietary changes are influenced on three levels: production, supply, and advertising that creates or encourages consumer demand. The challenge is to provide Canadians with healthier food choices and motivate them to make the appropriate selections for good health.

In an attempt to protect their citizens from the risks of high fat diets, both the US FDA and Health Canada require food manufacturers to clearly state on nutrition labels the total saturated fat as well as the trans fats content in their products. These labeling requirements become law in January '06 but labeling is not enough. North Americans are addicted to foods high in damaging fats and seem reluctant to consider alternative foods.

Providing better, more nutritious food is the work of agricultural specialists at all levels – researchers, producers, food processors and manufacturers, food retailers, as well as agri-business professionals. Fortunately, agricultural research has continued to focus on producing alternatives to “unhealthy” oils. For example, a canola oil made from a new canola variety bred and grown in Canada contains essentially no trans fats and the lowest levels of saturated fat of any oil on the market. This cardiovascular-friendly product, if used widely, could significantly reduce the amount of unhealthy trans and saturated fats Canadians consume.

Other oils such as those derived from flaxseed are also very well researched. The benefits of flax oil include lowering total cholesterol levels (specifically LDL cholesterol), blood triglycerides (the main form of fat in foods) and blood pressure. Recent studies have also shown a positive effects of flax oil in Crohn's Disease and colitis.

Although there have been some significant inroads in the quest for a

healthy Canada, more research is needed on agricultural products, foods and plant based components that carry the potential to curb the development of disease. “We must embrace this opportunity to enhance the wealth of agricultural resources in Canada,” says Oliver.

Oliver recognizes that no single group can achieve such a feat. To create a healthier Canada, government, private industry, nutrition and health practitioners, the food industry, agricultural scientists, specialist and other stakeholders must establish a common mandate. Under this mandate participants will be able to manage a coherent and effective cross-boundary program in order to achieve a healthier diet for Canadians. Over time, working together, we can become the solution providers.”

The approach outlined through *Agri-Visioning* calls for a bold strategy that articulates the way in which stakeholders can work together to secure a profitable and internationally competitive future for the food and farming industries, while contributing to a better environment and simultaneously improving nutrition and public health. It's a big dream. It requires courage and single-mindedness but the pay-off could change the future for Canadians.

*The Conference Board of Canada
The future cost of health care in Canada, 2000 to 2020
Balancing Affordability and Sustainability,
333-01 Detailed Findings. By Glenn G. Brimacombe,
Pedro Antunes and Jane McIntyre

President's Message



Dr. Murray McLaughlin PhD, P.Ag.

Some time ago, John Oliver, a member of the Foragen Technologies Management Board, and I were discussing the dismal outlook for health care in Canada. As we talked, we began to realise that many of the causes of ill health— cardiovascular disease, diabetes, cancer, and chronic obstructive pulmonary disease— are rooted in our lifestyle choices and particularly in the options we select in our diet. These diseases have reached crisis proportion. For example, the Canadian Cancer Society web site tells us that one in three Canadians develops cancer

during their lifetime. Only half of these cases will become long-term survivors. Experts predict that the number of new cases of cancer diagnosed each year will increase by 60% over the next 20 years.

Cardiovascular diseases, diabetes and cancer cost the Canadian economy more than \$55 billion every year. This represents the major and growing component of health care costs in Canada. According to some specialists, the cost of public health care in Canada will reach \$1.4 trillion by 2015. It is clear that our economy cannot sustain this financial burden.

A statement on the Cancer Society web site makes an important point: “We cannot stop the Canadian population from aging, nor can we control the increased demand for care for this aging population in the foreseeable future. What we can control are the risks of developing cancer, through prevention. . . .” Changing diets is one of the most simple and effective ways to beat or ameliorate the chronic illnesses mentioned above.

John Oliver and I have devoted our careers to the advancement of science in agriculture. We have wrestled with the issues related to agriculture, food production and the creation of value-added products from an agricultural base. In the process we became advocates for the development of designer foods with enriched components that boost wellness and offer therapeutic levels of selected nutrients.

We believe that an important factor in finding solutions for many of the future challenges facing our society lies in our ability to capture and exploit the true value of our agricultural crops. This belief is the foundation for a new initiative – *Agri-Visioning for Action*. We believe the endeavour can be a force to create the new paradigm that will change the face of tomorrow.

Change comes about through action, and we have chosen to be activists. Perhaps when you read the feature article in this issue of *Visions* you will want to join us.

Cash in on *Wellness Practices*

According to findings of the Centre for Chronic Disease Prevention good nutrition, physical activity and weight loss save money.

Diet related diseases such as heart disease, cancer, stroke and diabetes cost Americans over \$33 in medical costs and \$9 billion lost productivity. Improved food choices can markedly reduce this cost.

In 2000, health care costs associated with physical inactivity reached more than \$76 billion. If only 10% of adults began a regular walking program \$5.6 billion in heart disease costs would be saved. Every \$1 spent of physical activity for older adults with hip fractures results in a \$4.50 return.

A 10% weight loss will reduce an overweight person's lifetime medical

costs by \$2,200 to \$5,300. The lifetime medical costs of five diseases and conditions (hypertension, diabetes, heart disease, stroke, and high cholesterol among moderately obese people are \$10,000 higher than among people of a healthy weight. Source www.cdc.gov



Ensuring Canadian Competitiveness for the 21st Century

In his delivery of the recent Princeton Investments Distinguished Lecture in Finance, Gordon Nixon, President and CEO of RBC Financial Group identified actions that can help Canada deal with the powerful economic shifts and global re-balancing that could threaten the country's future prosperity.

Economic Drivers

“If we wish to achieve our potential as a successful society in the 21st Century we must understand the economic challenges we face. More importantly, we must meet those challenges in a way that provides a higher standard of living for Canadians,” Nixon told listeners at the School of Business at the University of Alberta. He went on to say that future prosperity will come primarily from new activity—the development of new goods, the creation of new services, and the adoption of new approaches to both new and traditional economic activities. He predicts that science and technology will drive economies as never before, which is why countries around the world are investing increasing levels of resources in research and development to advance their own frontiers of knowledge and understanding. International markets are no longer secure platforms for industrialised nations. Nixon says, “Canadians face an increasingly competitive world. Countries like China India,

Brazil, and Mexico have become more sophisticated in their own capabilities and are formidable competitors.”

Financial Services – Tools for Growth

Nixon believes that the approach to financial services will have to evolve in order to ensure that Canada does not lose out to more aggressive nations. “Canada has to build business services that can support entrepreneurs and nurture the creation of globally competitive companies,” says Nixon. The implementation of highly developed, globally competitive and innovative financial services is vital to the stimulation of business growth.

Nixon points to the success RBC has had in recruiting foreign funds for Canadian ventures, particularly knowledge-based industries (KBIs). Since 1999, RBC has helped 48 new companies in the KBIs raise more than half a billion dollars. Over half of those funds came from investors based outside Canada. Nixon sees this as “a great validation of the quality of science in this country.” It also demonstrates the positive influence a respected advocate can bring to the investment forum.

Nixon says one way to improve performance is to facilitate greater access to capital through a wider scope of partners and more flexible models. In particular, more financial innovations are needed to finance the development of knowledge-based companies where risk levels are high,

time to market can be very long, and the profitable life cycle of new products and service is becoming shorter.

Technology Transfer: The Challenge for Canada

The ratio of commercialization revenue to research expenditures is about three times higher in the United States than in Canada. In addition, institutional research in the US generates far more patents per dollar of investment than in Canada. Nixon urges Canadian policy makers “to ensure that knowledge generated here leads to successful commercialization in Canada, so that the resulting jobs and wealth flow to Canadians.”

Nixon says that Canada must identify and build support for improvements in the technology transfer process. He sees the need for more consistent and user-friendly intellectual property policies throughout the network of universities and research centres. At the same time, he says, there is a need to improve venture capital participation in early-stage technology business. This can be done, says Nixon, “through better public/private sector risk-sharing models.”

Nixon calls for an integrated approach to development. His concept envisions a financial

The logo for 'foragen' features the word in a lowercase, sans-serif font. A green, curved line arches over the letters 'o' and 'r', resembling a stylized leaf or a swoosh.

system that enables growth; government policies that encourage, facilitate and reward growth; and an educational system that produces both the people capable of generating new ideas and the people with the management skills necessary to successfully exploit innovative potential.

According to Nixon, the greatest need for venture capital for new technology businesses is at the proof-of-principle and the seed stages. Nixon believes that financing these stages is critical to establishing the validity of new technologies and enabling the creation of new start-up companies.

The RBC Model

RBC Financial helps to cover the commercialization shortfall through its subsidiary RBC Technology Ventures. This subsidiary is focused on early-stage venture financing, starting with seed capital. A cluster of specialized partnerships operates under RBC Technology Ventures and provides expert services to fledgling companies in areas such as biotechnology, information technology, engineering physical sciences and agri-food

technologies. As an example, Foragen Technologies Management Inc. is one of the partners in this venture. It holds portfolios and provides management support to companies concentrating on developing new products from an agricultural base.

Nixon stresses that it is not enough to have a good business idea or a hot new science. What matters most is the ability to design and execute a credible business strategy. "The single biggest reason why smaller businesses fail to get the financing they want is because investors do not have confidence in their management abilities. RBC has addressed this issue by providing management support to the companies in their portfolio. Like Foragen, all partners in the technology group have many years of experience and an in-depth knowledge of their sector. This brings an important strength to investee organisations.

Nixon is emphatic when he says, "Our goal must be to build a new generation of Canadian companies that are headquartered in this country. With proper support these operations will create good jobs by producing valuable goods and services that will be sold around the world." The goal is within reach if the focus is maintained on the key components of development: progressive public



Gordon Nixon, President and CEO of RBC Financial Group

policy, education that advances human skills, single-minded concentration on developing highly advanced technologies, the pursuit of international markets, the stimulation of innovation, and support for initiative taken by entrepreneurs.

Canadians have many advantages: an abundance of natural resources, the only budgetary surplus among the G7 nations, a ratio of net debt to Gross Domestic Product that is among the highest in the OECD. In addition, Canada's immigration policies facilitate attracting valuable human capital to this country— a nation with a reputation as one of the best countries in the world in which to live and do business. As Nixon says, "With concentrated attention to the nurturing of knowledge-based business development, we can ensure that Canada achieves its potential as a global leader."

A full version of this speech is available at <http://www.rbc.com>

Global Competitiveness Ranking

- | | |
|------------|--------------------|
| 1. Finland | 7. Singapore |
| 2. USA | 8. Switzerland |
| 3. Sweden | 9. Japan |
| 4. Taiwan | 10. Iceland |
| 5. Denmark | 11. United Kingdom |
| 6. Norway | 12. Netherlands |

- | |
|---------------|
| 13. Germany |
| 14. Australia |
| 15. Canada |
| 16. UAE |

EXTRACT FROM
The Global Competitiveness Report 2004-2005
by Professor Klaus Schwab



Health and Nutrition in *Canada*

Canadians are actively taking steps to reach their goal of staying healthy by changing their diets, reducing stress and exercising regularly. In concert with these changes, consumers are searching for foods with additional health benefits and using natural health products (nutraceuticals) to combat common ailments or prevent and/or manage chronic disease.

Functional foods as defined by Health Canada (1998)¹ are:

- similar in appearance to, or may be, a conventional food
- consumed as part of a usual diet
- demonstrated to have physiological benefits and/or reduce the risk of chronic disease beyond basic nutritional functions.

Examples would be tomatoes with enhanced lycopene levels, and foods with added soluble fibre.

The natural health product definition² has two components: function and substance. The function component refers to substances that are manufactured, sold or represented for use in one or more of:

- diagnosis, treatment, mitigation or prevention of a disease, disorder or abnormal physical state or its symptoms in humans
- restoring or correcting organic functions in humans
- modifying organic functions in humans in a manner that maintains or promotes health.

The substance component refers to products available in a dosage form and comprised of one or more of the following:

- a plant or a plant material, an alga, a bacterium, a fungus or a non-human animal material or their extracts
- vitamins, amino acids or essential fatty acids
- synthetic duplicates of any of the above
- minerals
- probiotics

Governments, the agri-food sector and the research community are enthusiastic about the potential for nutraceuticals and functional foods to improve citizens' health, help growers diversify, and contribute to increased

sales of high-value products to niche markets³. It is estimated that the current demand for these products in Canada is in the range of \$1-2 billion Canadian annually⁴.

Agriculture and Agri-Food Canada in 2003 sponsored a survey of 576 companies⁵. The survey has provided first-ever information on Canadian companies engaged in activities related to functional foods and nutraceuticals, an emerging part of Canada's life sciences sector. Highlights of the survey are as follows:

- Canadian firms were most likely to be active in four areas: producing products or scaling up new products; manufacturing consumer products; performing scientific research and development; and wholesaling products.
- About 17% of companies had revenues of \$10 million or more related to sales of functional foods and nutraceuticals in 2002. More than half of all firms exported functional foods and/or nutraceuticals in 2002.



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- Just over three-quarters of those exporting companies shipped to the United States. Japan was the second most popular destination, followed by North and South Korea, Taiwan, Australia and/or New Zealand, the Hong Kong Special Administrative Region and the People's Republic of China.
- Export revenues for this relatively new sector have plenty of room for growth. About 11% of companies reported export revenues of more than \$5 million relating to exports of functional foods and nutraceuticals. Another 18% reported revenues of between \$1 million and \$5 million, while the majority (70%) had revenues of less than \$1 million.
- About 27% of firms reported that the product area

generating their highest revenues was “general well-being.” Some 17% cited vascular or heart health products, and 11% said products related to the immune system.

Saskatchewan is a prime example of the prospects for development in functional foods and nutraceuticals. The province has a growing industry that produces both functional food ingredients and natural health products that are being exported globally. Estimates project that Saskatchewan generates \$50-60



million in annual sales, from about 30 companies⁶. The product range is diverse and includes essential fatty acids and plant and animal extracts for sale in the functional food, natural health product, personal care and pet supplement/food markets.

Source: Ag-West Bio Inc. Web site [http:// www.agwest.sk.ca](http://www.agwest.sk.ca)

1 Health Canada, 1998. Policy Paper on Nutraceuticals/Functional Foods and Health Claims on Foods. http://www.hc-sc.gc.ca/food-aliment/ns-sc/en/health_claims-allegations_sante/e_nutra-funct_foods.html#1

2 Health Canada, Natural Health Product Regulations http://www.hc-sc.gc.ca/hpfb-dgpsa/nhpd-dpsn/overview_nhp_regs_e.html#2

3 Agriculture and Agri-Food Canada, Functional Foods and Nutraceuticals. http://www.agr.gc.ca/misb/fb-ba/nutra/index_e.php

4 Scott Wolfe Management. Potential Benefits of Functional Foods and Nutraceuticals to the Agri-Food Industry in Canada., March 2002.

5 Agriculture and Agri-Food Canada. 2003. Functional Food and Nutraceutical Survey. <http://www.statcan.ca/Daily/English/031006/d031006c.htm>

6 Saskatchewan Nutraceutical Network. 2002. The Saskatchewan Industry

Foragen's Investments In Nutraceuticals / Functional Foods / Feed

Cevena, (website: www.cevena.com)

See Visions Newsletter Vol 2, No 1

A company focused on beta glucan from barley and oats.

A heart health technology.

CreAgri, (website: www.creagri.com).

A company focused on hidrox technology from olives.

Anti-inflammatory benefits.

MCN Bioproducts, (website: www.mcnbioproducts.com)

See Visions Newsletter Vol. 1, No.1

A company focused on canola meal fractionation for better animal / fish feed.

Radiant Technologies, (website: www.radiantinc.com)

See Visions Newsletter Vol. 2, No.2

A company focused on process efficiency using a new platform extraction technology.

THE FORAGENTEAM

In addition to our 5 full time employees, Foragen has a strong Board and Science Advisory Team, along with interns that work with our three regions.



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Roger Laurent Bernier, Ph.D., P.Ag.



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*Dr. Roger Bernier has
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*His phone, fax and email
address remain the same.*

FORAGEN BOARD OF DIRECTORS'

A strong part of our team, providing advice and guidance on governance, investments, and strategy.

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John Oliver, Maple Leaf
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Quebec

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A critical part of our Foragen Team providing directional advice on areas of the agri-food sector that will create future opportunities, contacts for existing investments, and strategic input into our present portfolio.

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