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Innovation and the Competitiveness of the Canadian Economy with Special Focus on the Agri-Food Sector: Workshop Report*

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* A summary report of the presentations and the discussion at the national workshop on innovation in the Canadian economy and the Canadian agriculture and food sector held on September 26-27, 2002 in Guelph, Ontario

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1. INTRODUCTION

Several recent studies have raised concerns about Canada's competitiveness performance. According to the Global Competitiveness Report 2001-2002 which ranked 75 countries, Canada's ranking in the current competitiveness index dropped to eleventh place in 2001, after holding sixth place in 1998 (World Economic Forum 2002). Finland, the United States, Netherlands, Germany, Switzerland, Sweden, United Kingdom, Denmark, Australia and Singapore were all deemed more competitive than Canada. More specifically, Canada ranked fourteenth in company operations and strategy and eleventh in quality of national business environment. Other studies by the Conference Board of Canada (2002) and the Canadian Manufacturers and Exporters (2001) have raised similar concerns about Canada's competitiveness performance.

Canada's weak competitiveness performance is due in part to a history of protectionism that insulated Canadian firms from competing on the basis of efficiency. However, the implementation of the Canada-United States Free Trade Agreement (FTA) in 1989 and the North-American Free Trade Agreement (NAFTA) in 1994 started a process whereby Canadian businesses had to shift their thinking from serving a small protected market in Canada to competing in the North American market against businesses located anywhere on the continent. This shift required a significant restructuring of operations and substantial capital expenditures to move from short production runs of multiple products to much longer production runs of a few products which would be marketed on both sides of the border. This process of rationalization affected both Canadian-controlled and foreign-controlled plants.

With respect to the food processing industry, at this point in time, multinational enterprises (MNEs) appear to be ahead in the game, as foreign-controlled plants are on average considerably larger than Canadian-controlled plants. The 1998 Survey of Advanced Technology in the Canadian Food Processing Industry (Baldwin, Sabourin and West 1999) shows that foreign-controlled plants use advanced technologies with a much higher frequency than Canadian-controlled plants. Proprietary technologies tend to be developed by MNEs in their home country, to be transferred to their subsidiaries in Canada and elsewhere as fully operational, proven-in-production technologies. In the short run, this practice boosts the productivity and competitiveness of the foreign-controlled plants in Canada. In the long run, it means that there is relatively little original product and process development in Canadian plants. This issue is significant in a global economy where proprietary products and processes are emerging as the key to sustainable competitive advantage.

The issue of enhancing Canada's competitiveness performance was placed on the priority list of the federal government in 2001. That year, in the Speech from the Throne, two commitments were made:

- to have Canada among the top five countries in the world for research and development (R&D)
- to double the current federal investment in R&D by 2010.

To achieve these commitments, the Government of Canada intends to strengthen the research capacity of Canadian universities, to accelerate Canada's ability to commercialize research discoveries, and to pursue a global strategy for Canadian science and technology.

In addition to these two commitments, Industry Canada's innovation paper (2002) entitled "Achieving Excellence: Investing in People, Knowledge and Opportunity" also set the goal of having Canadian firms rank among the world leaders by 2010 in the share of their sales originating from innovative products, processes and services.

With a view to improving the competitiveness of the Canadian agriculture and agri-food sector, the federal, provincial and territorial ministers of agriculture agreed in June 2001 on the concept of the Agriculture Policy Framework (APF) (Agriculture and Agri-Food Canada 2002). The APF envisages integrated action in five general areas: food safety and food quality, the environment, science and innovation, business risk management and renewal of the sector. In June 2002, nine provincial and territorial governments joined the federal government to sign an umbrella accord which defines the common goals and the key policy directions of the APF. One of the goals of the APF is to make the agriculture and agri-food sector a world leader in innovation. The APF emphasizes the coordination of research and innovation efforts across governments, the private sector, universities and private research institutions to achieve maximum returns on investments in the key areas of food safety and the environment.

2. OBJECTIVES OF THE WORKSHOP

To enhance the public policy debate on the issue of innovation, a workshop entitled "Innovation and the Competitiveness of the Canadian Economy with Special Focus on the Agri-Food Sector" was held in Guelph, Ontario on September 26-27, 2002. A committee of representatives from Agriculture and Agri-Food Canada (AAFC), the University of Guelph and the private sector organized the workshop. Speakers with expertise in various aspects of the innovation process from governments, universities, and the private sector were invited to address a set of 16 questions at the workshop. Approximately 50 individuals were invited to attend the workshop. Many of the attendees are currently involved with the innovation process or associated with the agriculture and agri-food sector. In the interest of promoting open and candid discussions, invitations to participate in the workshop were made with the understanding that the present report would not attribute ideas to individual

speakers, panelists or participants.

There were three specific objectives of the workshop:

- to recognize the importance of and the need for leadership in innovation in the Canadian economy and to emphasize the importance to competitiveness of creative innovation versus the acquisition and the diffusion of new technologies,
- to examine the changing roles of governments, universities and the private sector in the innovation process and to discuss issues arising from Industry Canada's innovation paper,
- to develop a national innovation strategy and an action plan for the Canadian agri-food sector.

It is envisaged that issues identified in this Workshop will be submitted to the organizers of the federal National Innovation Summit in November 2002.

The Workshop was a one-and-a-half-day event. The first day was devoted to presentations by speakers covering the first two objectives with question and answer opportunities. On the second day, two panel sessions focused on the third objective again with question and answer opportunities.

The workshop program and the 16 questions, the list of speakers and panelists, the list of participants, and one participant's comments on the workshop are given in Appendices A, B, C and D, respectively.

The purpose of this report is to provide a summary and a synthesis of the presentations and the discussion at the workshop. Our hope in preparing this report is that it will serve as a catalyst to the development of an effective sectoral strategy to improve the innovation performance of the Canadian agri-food economy. The workshop identified some areas of near consensus on issues and actions. In other areas, the discussion helped illuminate knowledge gaps.

3. THEMES

Several overarching themes became evident during the course of the workshop as various presenters, panelists, and participants offered their perspectives on innovation and competitiveness in the Canadian agri-food system. Boxes 1, 2 and 3 contain a number of key points drawn from the Plenary and Panel sessions held during the workshop. These boxes are included to highlight important areas raised by presenters, panelists and workshop participants. This section provides a synthesis of the themes.

Box 1. Key Points from Day One - Morning Session

Objective: to recognize the importance of and the need for leadership in innovation in the Canadian economy and to emphasize the importance to competitiveness of creative innovation versus the acquisition and the diffusion of new technologies.

Importance of World Leadership in Innovation

- Competitiveness is about winning (being first to the market). It can be achieved through operational excellence, innovation and commitment to consumers.
- For Canada to become a world leader in innovation, it must grow its companies, build a culture of innovation, support technology clustering and integrate national efforts.
- Training/attracting/retaining highly qualified people is a key to achieving world leadership in innovation.

Creative Innovation versus the Diffusion of New Technologies

- Canada needs to innovate not to replicate if we are to succeed relative to other countries in the world.
- Canada needs to carry out leading-edge research to ensure that the national system of innovation is active and growing.
- Canada must create an environment where highly qualified people want to live, work and innovate.

Other Key Points

- Innovation is not an event, it is a process that focuses on the development of products and methods of production and distribution that satisfy consumers wants.
- There is a need to grow both small and large companies to generate innovative products and processes and to compete in the world market.
- The educational system must help to develop more entrepreneurs to achieve success in innovation.
- There is a need to orient public sector infrastructures to support innovation, particularly post-secondary education.
- There is a need to encourage the repatriation of Canadian researchers.

Box 2. Key Points from Day One - Afternoon and Evening Sessions

Objective: to examine the changing roles of governments, universities and the private sector in the innovation process and to discuss issues arising from Industry Canada's innovation paper.

Collaboration for Innovation

- Success in innovation requires greater coordination and collaboration among private sector, governments and universities/colleges/research organizations.
- There is a need to foster provincial and national collaboration, and to build collaborative organizations, clusters, consortia and joint ventures.

Changing Roles of the Government, Private Sector and Universities

- The private sector must invest in and provide world-class opportunities for university graduates and researchers.
- The private sector must provide adequate direct funding and in-kind support for sustained R&D programs, and take a lead in identifying profitable R&D ventures.
- The private sector must focus on understanding consumer needs and wants.
- The Government must ensure that the innovation environment (macro-economic management, tax structure, regulatory system) is conducive to investment and commercialization.
- The Government needs to provide more funding for education, research, technology transfer, and commercialization.
- Universities must deliver an educational package that stresses: world-class education, basic and applied research, a culture of innovation, entrepreneurship and risk taking, and the importance of commercialization efforts.
- Universities must participate in public debate, establish networks and joint ventures and advise policy makers.
- The Government, the private sector and universities must coordinate their research efforts.

Other Key Points

- Relative to the United States, Canada has a significant gap in the standard of living, due in large part to a productivity gap – innovation can help close this gap.
- Canada has a gap in excellence in R&D, commercialization and workforce training, relative to the G7 countries.
- Canada needs to double the number of science and engineering graduates to meet the target of ranking among the top five countries in the world in R&D by 2010.
- Canada needs to recognize the diversity in skills, and build on the diversity through alliances, joint ventures, networks and clusters for innovation to work.
- The basic priorities to support innovation in the agri-food sector are financing, managerial training, business alliances, and responsiveness to consumer preferences.
- Imagination is what makes all things possible; it fuels new ideas and creative innovations.
- Firms that invest in new ideas realize that the greatest return is on imagination. New ideas are the cornerstone of sustainable competitive advantage.

Box 3. Key Points from Day Two

Objective: to develop a national innovation strategy and an action plan for the Canadian agri-food sector. Issues identified in this workshop will be submitted to the organizers of the proposed federal National Innovation Summit in November 2002.

Proposed Elements of a Sectoral Innovation Strategy

- Canada needs a national brand in the international marketplace that emphasizes food quality, food safety, traceability, and environmental friendliness.
- Canada's agri-food innovation strategy must be well focused, market driven, strategic in direction, long term in perspective, and reflect national priorities.
- An effective innovation strategy needs vision, imagination and a commitment to excellence.
- Success of innovation in the agri-food sector requires investing in R&D, fostering creativity at the scholastic level, sharing the risk among governments, the private sector and universities/colleges, building an infrastructure to guide individuals through the pitfalls of starting a business, and rewarding and recognizing those who innovate.
- Strategy must promote commercialization and a national network of clusters, and focus on adding value in Canada versus exporting commodities.
- The Government needs to permit innovation, to encourage it and to assist it.

Other Key Points

- There is a need to overcome consumer mistrust of science (safety), business (ethics) and government (policy makers and policies) through communication with the citizenry.
- Trade and investment policies must converge to keep innovators and innovative companies in Canada.
- Profit is not made by standing still – innovation is a key.
- There is a need to educate regulators and invest in regulatory capacity – if regulators are not as skilled as innovators, regulations will not keep pace.
- Everyone must recognize that failure is part of the innovative process – need failure and risk tolerance.

Innovation/Competitiveness Linkage

Innovation is a key to prosperity in many sectors, and indeed, the economy as a whole. Recent analysis by Martin and Porter (2001) suggests that Canada is becoming a country of replication not innovation. According to this analysis, if Canada is to achieve the goals set out in Industry Canada's innovation paper, it must re-orient its focus from a follower that replicates to a leader that innovates. However, the process of re-orienting this focus must emphasize that innovation is a process, not an event and that the need to add value is in Canada rather than exporting raw commodities.

In many respects, this theme is the most important. A country's ability to compete successfully in the international marketplace is intimately tied to its ability to generate and to capitalize on ideas. While being able to turn an innovation into commercially-successful products, processes and services is key, so too is being first to the marketplace.

Value-added Activities

As indicated above, being first to the marketplace with products, processes and services that satisfy the needs of an identifiable market is key to developing and maintaining a competitive position in the international marketplace. It is also important that such products, processes and services generate value-added activity in Canada. Retention of value-added activities within Canada will, among other things, boost the productivity and competitiveness of Canadian firms, and enhance Canada's competitiveness position.

A Changing Marketplace

Another important theme to emerge relates to a fundamental change in the marketplace within which Canada's economy operates. Being able to better identify changing and emerging consumer needs and being able to respond to them in a timely manner is critically important if Canada is going to become a leader which capitalizes on a "first-to-the-market" advantage. Such a response requires an ability not only to assemble and to assimilate information (from domestic and international sources), but also to have the infrastructure and knowledge base needed to turn ideas and information into marketable products, processes and services.

Building Trust Among the Stakeholders

At the same time, a need exists to overcome the mistrust of science, business and government. Such communication must not be limited to consumers alone, but to the broader citizenry. We also need a better understanding of the underlying causes of

the apparent growing skepticism regarding science. Consumer preferences are expressed in the marketplace, whereas citizen preferences are expressed in the political process. Just as it is important to secure a better understanding of the factors shaping the evolution of consumer preferences, it is also important to understand the factors shaping the preferences of citizens. Specific to agriculture is the need to communicate an acceptable image to citizens of agri-food innovation and biotechnological developments. Lessons garnered thus far demonstrate the unfortunate consequences of focusing on one segment of the marketing channel or ignoring the concerns of a broadly-defined citizenry. From a public policy perspective, this theme cannot be understated. All stakeholders must have a voice in helping to shape Canada's innovation strategy and agenda.

National Innovation Agenda

Presenters, panelists and participants expressed the view that the Canadian agri-food sector needed an integrated national innovation strategy. This strategy needs to be developed through national engagement and co-ordination between industry, academia, governments and the citizenry at a broad level. While the contents and the context of a national innovation strategy will reflect engagement with stakeholders, it must reflect the need to create an environment that fosters innovation. Such an environment will include the following factors:

- an improved awareness of innovation opportunities
- the educational system to produce highly qualified personal required to conduct R&D in the sector
- the promotion of the creation, adoption and commercialization of knowledge (which in turn can generate wealth at a national level)
- a sound investment climate
- the establishment of mechanisms that provide appropriate incentives and rewards to innovators.

The themes discussed above show the need for a cohesive approach to development of an innovation strategy in the Canadian agri-food sector. The next section will discuss some of the factors that drive the innovation process.

4. DRIVERS

Several drivers motivating the need for Canada's agri-food sector to become more innovative emerged during the discussion.

Consumer Needs and Wants

Consumers are becoming more informed, demanding and vocal. If Canadian firms

cannot respond effectively to changing and emerging consumer wants through innovation, then firms in other countries will. The ability of Canadian firms to innovate in response to consumer demands increases the chance that value-added activity will remain in Canada. By the same token, open borders and expanded international trade also means that Canadian firms must be more responsive to their international customers. In this context, the following specific elements surfaced:

- **Safety:** consumers want food that is safe in a microbiological/chemical/physical perspective. They also want a steady and predictable supply of food that is not prone to unpredictable disruptions. Clearly, the scope for innovation in all areas related to food quality (broadly speaking) is also a significant element.
- **Convenience and value:** consumers search for the right food product, at the right place, at the right time and at a desirable price. The need for convenience and value provides a motivation for the development of new food products and delivery systems.
- **Health:** many consumers are becoming increasingly health conscious, a trend that has a bearing on the choices made at the grocery store and when eating outside of the home. In this regard, the functional role of food in maintaining and promoting good health is opening the door to innovation related to functional foods and nutraceuticals.
- **Environment:** consumers and non-consumers are also becoming more aware of the consequences of agri-food production and their own consumption on the environment. As such, the environmental wants and needs of consumers and non-consumers are an important driver of innovation.

Global Marketplace

The globalization of agri-food marketing suggests that institutional, regulatory and governance differences influence the innovative capacity. Differences in these factors, especially in light of continued multi-lateral trade negotiations, cannot be neglected. Examples include, but are not limited to, taxation, intellectual property rights, competition policy and capabilities of the domestic work force.

Differences in laws governing the use of and citizens' attitudes toward natural resources can also drive differences in a country's ability and inclination to engage in innovative activities that use such resources. How the citizenry perceives and balances the value of innovation relative to resource use is a significant driver, especially in light of recent biotech-oriented products developed and marketed in agriculture, and the negative press received as a whole.

Socio-demographic Trends

The changes in the socio-demographic trends of the population represent an important driver motivating the need for innovation. These changes include aging trends in developed nations, increased migration from developing to developed nations, increased cultural diversity and changing food habits.

Other drivers such as the liberalization of trade, advances in biotechnology, and regulations in the domestic and international markets also emerged throughout the course of the workshop.

5. ISSUES

One objective of the workshop was to identify key issues regarding innovation in the Canadian agri-food sector. Given the broad diversity of workshop participants, it is only natural that many different issues emerged. The information presented in this section and in Box 4 is based on participant responses to a questionnaire completed at the end of the first day of the workshop. Participants were asked to list three or four of the most significant issues and challenges regarding innovation in the Canadian agri-food sector. A list of 39 different issues was compiled which was further grouped into broader sets of issues. The following discussion presents a summary of the issues listed in Box 4.

Collaborative Environment

Collaborative and co-ordinated efforts between businesses, governments and academic institutions will enhance Canada's ability to foster growth of innovative enterprises, both commercial and non-commercial in nature. Given Canada's large geographic size, but small population base, the need for collaboration is imperative.

The formation of research networks and clusters will facilitate the flow of information related to basic research and potential applications across diverse sectors of the economy. Through such exchange, developments in one area may spillover and benefit other areas. While such spillover effects may occur in a serendipitous manner, collaboration will facilitate the speed and extent to which they occur.

Interaction between governments, industry and academia is a necessary condition for basic research to be of practical use. Innovations that lead to successful commercialization must be driven by the needs of the marketplace. Vital to this is the need for national engagement in setting priorities and in developing a cohesive approach to managing such collaboration. Such engagement will work to eliminate duplication and regional rivalries, as well as to strengthen existing relationships.

Box 4. Key Issues Impacting Innovation in the Agri-Food Sector

Human Capital Development

- Provide adequate financial support for graduate studies and related research infrastructures.
- Provide incentives to the private sector for the training and development of employees.
- Develop relevant educational programs on innovation and entrepreneurial ability.
- Attract/retain/train highly qualified people (HQP).

Financing

- Facilitate access to venture capital and angel capital.
- Provide financial assistance at all stages of the innovation process.
- Encourage joint venture financing between governments and the private sector.

Regulatory Framework/Tax System

- Review the regulatory system to remove obstacles to innovation.
- Streamline the regulatory system to speed up the approval and the introduction of new food products and ingredients to the market place.
- Review tax laws and regulations with a view of removing obstacles and providing incentives to innovation.

Culture

- Celebrate success stories by recognizing and rewarding innovators.
- Foster a culture of innovation and educate the public about the importance of innovation to productivity and competitiveness.

Linkages

- Improve linkages both between and within governments, the private sector and universities/colleges.
- Encourage the formation of partnerships and alliances both between and within governments, private sector, and universities/colleges.

Regional and National Coordination

- Eliminate duplication, minimize regional rivalries and integrate national efforts.
- Promote cooperation and coordination between and within governments.

Clusters and Networks

- Promote the formation of clusters as centers of excellence for agri-food development, and encourage SMEs involvement in these clusters.
- Invest in incubator facilities and facilitate access for entrepreneurs and SMEs.

Consumers

- Assure consumers, both domestic and international, that agri-food products are safe and of high quality.
- Develop products that the consumer wants.

Innovation Capacity

Innovation capacity concerns the development of physical and human capital. Research networks and clusters were mentioned as a way to facilitate the flow of information related to innovation. They also serve a significant role in fostering innovation itself. Given their importance, it is imperative that the requisite physical infrastructure is in place to allow research networks and clusters to thrive. Whether led by industry, academia or governments, research networks and clusters often require financial assistance when being established. While outside the purview of academic institutions alone, the provision of seed money is well within the purview of governments and industry. Moreover, research networks and clusters could draw upon existing and future funding programs tied to industry partnering agreements.

The development of human capital involves several aspects: formal education, training and skills development, building a base via the immigration of skilled and qualified individuals, and the repatriation of skilled and qualified Canadians currently residing outside Canada.

One component of the human capital development that emerged throughout the workshop concerns the relationship between education, entrepreneurial ability, risk-taking and a culture of innovation. Specifically, it was suggested that the development of entrepreneurial ability must be a key component of the educational system. Through its incorporation, graduates will enter industry with a mindset focused on developing ideas that address the needs of the marketplace. However, such activities are not without risk. In this regard, the development of human capital must emphasize the role of risk-taking in innovation and that no reward is risk free. Underlying both entrepreneurial ability and risk-taking is the need to develop a culture of innovation. While it is possible to instill this culture in industry, it is important that graduates and people entering the workforce understand the importance of innovation and recognize the need to innovate.

Financing

While the generation of ideas reflects an individual's creativity, it was repeatedly emphasized that successful commercialization cannot occur without financial support. An innovator's ability to attract financial support reflects the potential success his/her innovation holds in the marketplace and the extent of funds available. Hence, at times, financing could be a factor limiting the successful commercialization of innovations. Then, there is a need to focus attention on how to finance commercialization as well as the innovation process itself. Such financing could take many forms depending on the task at hand; for instance, seed money for early investigations and infrastructure, research grants for basic research and so forth. While these specific instances largely pertain to the Government and Government agency research financing, private sector financing plays a critically important role as

well. Joint venture financing between industry and governments may well be the optimal mechanism by which innovation and commercialization is funded. In addition, there is a need to create accessible and sustainable pools of capital and to ensure that incentives make investment in agri-food innovation attractive to angel investors.

Consumers/Citizens

Individuals act in the marketplace as consumers and in the political process as citizens. Both roles are relevant in the innovation process. Consumers are direct beneficiaries of many innovations and are key drivers of the innovation process. By the same token, citizens, a group that includes consumers and non-consumers, will benefit from innovation via enhanced national prosperity, but may also bear the cost of some innovative activities and commercialization. While the direct costs are evident, for example in the form of increased taxes, there are non-monetary costs that are likely of more importance in many citizens' minds. These include the impact on the environment and natural resource usage. Clearly, such concerns must be heard.

Regulatory Framework

Many participants made a link between Canada's regulatory framework and the innovation performance of the economy. Different views were expressed on this issue. Some participants suggested that Canada's regulatory framework is an encumbrance to innovation, technology transfer and commercialization. Others pointed out that the regulatory framework is a driver of change where people innovate in response to regulation that serves to protect the environment, the citizenry of Canada and the trading system. Still others believe that there is a need to educate regulators and to invest in the regulatory capacity so that regulations will keep pace with innovations. Regardless of where one stands, the regulatory framework in Canada consists of a myriad of rules and procedures that must be navigated. Reviewing the regulatory system to remove obstacles to innovation, and streamlining it to speed up the approval and the introduction of new food products and ingredients to the marketplace would facilitate the various stages of the innovation process.

6. KEY ELEMENTS OF AN INNOVATION STRATEGY

The organizing committee of the Workshop structured the program on Day Two to focus on the development of an innovation strategy for the Canadian agri-food sector. Panelists in Panel Sessions II and III were asked to identify key elements of an innovation strategy. Participants were asked to complete a questionnaire indicating

their views on the elements of such a strategy. Box 5 provides a summary of the views of panelists and participants. It was clear from the presentations and the discussion that it would have been premature to attempt to articulate a sectoral strategy as an outcome of this workshop. Nevertheless, important elements of such a strategy were suggested. The purpose of this section is to discuss these key elements.

Brand the Canadian Agri-Food Products

The strength of the Canadian agri-food sector is intimately tied to consumers' awareness and confidence in products from that sector. Making consumers aware of the high quality and safety of products originating from the agri-food sector is a must if economic value is to be generated from innovation. Canada needs a national brand in the international marketplace that emphasizes food quality, safety and environmental friendliness. As Canada holds a significant trade position with respect to agri-food products, it is incumbent upon public and private decision makers to work together to brand the Canadian agri-food products in the domestic and international marketplace. Furthermore, establishing an effective tracking and tracing system will provide the added insurance of supplying high-quality and safe food products.

Understand the Marketplace

The dynamic nature of the agri-food marketplace necessitates the streamlining of business and regulatory strategies to take advantage of emerging opportunities both globally and domestically. Consequently, substantial growth will come about by identifying global market opportunities. These opportunities can be identified by focusing on market dynamics, regulatory requirements and nature of competition, looking outside traditional modes of marketing agri-food products and competing on the basis of product quality and customers satisfaction.

Also, it is important to understand the needs of consumers in domestic and international markets. The process of developing such an understanding will not only lead the way to innovation, it will reveal where governments, industry and academia can work to improve the perception of Canadian agri-food products. The voice of citizen activists must also be a focal point in developing the strategy. Citizen activists are becoming increasingly vocal in expressing their concerns over agri-food products and processes.

Business Environment

The environment within which firms and organizations operate is clearly a factor in their ability to carry out successfully an idea through the various stages of the innovation process. As such, the business environment must be conducive to innovative activity. This business environment is perhaps the area that holds the

Box 5. Key Elements of an Innovation Strategy

Brand Canadian Agri-food Products

- Produce, manufacture, and market high quality, safe and environmentally-friendly food products and ingredients.
- Establish an effective tracking and tracing system to ensure the quality and safety of food.
- Promote good practices in animal production.

Understand the Marketplace

- Identify global market opportunities by focusing on market dynamics, regulatory requirements, nature of competition, and customers' changing demands.
- Compete on the basis of product quality and customers satisfaction.
- Understand the basic needs and wants of consumers domestically and internationally.

Create a Friendly Business Environment

- Ensure that Canada's corporate taxation regime is internationally competitive.
- Streamline and simplify the regulatory process.
- Improve investment climate
- Eliminate inter-provincial barriers.

Foster a Culture of Innovation

- Promote creativity and foster entrepreneurship in the Canadian food system.
- Enhance public debate on innovation.
- Recognize and reward innovators.

Develop Well-defined and Focused Goals

- Establish a clear and measurable set of goals with specific target dates.
- Align regional and national priorities.

greatest potential to foster innovation and the area that governments, private sector and academia can all work toward improving. The Government can serve a facilitating role by streamlining and simplifying the regulatory system, providing infrastructure for innovation, funding basic research at academic institutions, and promoting the creation of linkages between stakeholders.

The private sector can contribute by seeking out alternative funding sources, taking a participatory role in partnering with government-related research agencies and academic institutions (which could include additional funding of basic research at such institutions), and collaborating with other industry partners in research networks or clusters.

Culture of Innovation

Several participants argued that if Canada is to achieve success in building its innovation capacity, it must develop a culture of innovation. Fostering entrepreneurial ability and promoting creativity among players in the agri-food system were considered crucial in this regard. Such a task may prove difficult to achieve in the short term. However, embedding such a philosophy within the curriculum of universities and colleges and helping scientists and researchers in the public and private sectors to develop an entrepreneurial mind set will set forth the necessary conditions for building a culture of innovation.

Building a culture of innovation also requires effective leadership and an ability to articulate the aims and objectives of Canada's agri-food innovation strategy.

Develop Well-defined and Focused Goals

Strategy can be thought of as a road map showing where an organization would like to be in the future and the actions and activities to be undertaken to close the gap between the organization's current position and its future position. A key element of Canada's agri-food innovation strategy is the identification of goals/targets and an anticipated time line for their attainment. There must be a regional and national alignment of these goals. This alignment can be obtained through a consultation process with stakeholders. Only through such concerted efforts will a truly national strategy and agenda be articulated.

7. RESEARCH AGENDA

Several innovation policy and management research questions emerged in the course of the workshop. The generally accepted thought was that the innovation performance of the Canadian agriculture and food system, compares poorly with comparable sectors in other developed economies. Productivity comparisons suggest

that primary production in Canadian agriculture compares well with that in the agricultural economies of the high income countries, but the Canadian food processing, distribution and retailing components of the sector do not fare as well. Relatively little is known about the relative productivity of Canadian firms in the agricultural input supply industries.

The Workshop did not produce a consensus on the explanation for Canada's low relative ranking in innovation. Several possible factors might be responsible: Is our market too small? Is our system for intellectual property protection deficient? Are there other more profitable things for domestic firms to do? Is less food R&D done in Canada because MNEs do R&D in their home countries and Canada has a low share of food MNEs or do Canadian food MNEs do less than the average amount of R&D? Are our taxes too high? Is our exchange rate too low? Are our regulations too cumbersome? Is our immigration policy ineffective in encouraging highly qualified personnel from taking up residence in Canada? Is there something wrong with our culture? In some respects, the Workshop raised many more questions than it answered. These questions suggest a need for a sustained research focus on these issues. Making progress to improve Canada's relative position hinges on our being able to answer these questions.

Assessing the Relative Importance of Innovation

One participant suggested that commercial and competitive success in the Canadian agri-food sector can be achieved by pursuing one or more of three strategies: operational excellence, customer intimacy and innovation. This taxonomy may do a good job of spanning the strategic options but it begs the question of the relative importance of these three strategies in the context of the economic environment in which Canadian firms operate. If the innovation performance of the Canadian agriculture and food sector has fallen behind its counterparts in the developed countries, this fall could be because Canadian firms find it more profitable to direct resources toward achieving operational excellence or customer intimacy than toward innovation. This direction of resources could, at least in principle, be the basis of a successful competitive strategy. On the contrary, if investments in innovation are made less attractive for Canadian agri-business firms because of institutional or structural impediments to appropriate those benefits, and if those impediments can be mitigated, then this could enhance the prospects of success for agri-business enterprises that opt for the innovation strategy.

The 1998 Survey of Advanced Technology in the Canadian Food Processing Industry (Baldwin, Sabourin and West 1999) found that for most Canadian-controlled and foreign-controlled establishments, price competition is the most intense form of competition, followed by product quality, then customer service. However, foreign-controlled establishments were found to be more innovative.

If competitiveness of the Canadian food economy is the goal, then improved innovation performance may be an area where significant gains can be realized if existing impediments to innovation can be identified and overcome. Of course, the food processing, distribution and retailing components of the Canadian food system are diverse. Innovation as a competitive strategy will likely vary in importance across firms and even across product lines.

Lead, or Embrace and Extend

The Workshop presenters and participants generally supported the idea that Canadian firms should strive to be world leaders in innovation in the medium term, although some suggested that this goal might be unrealistic in the time frames being discussed. However, given Canada's current low relative ranking in innovation, a deeper issue is whether the best way forward is to strive to be a world leader in agriculture and food products or whether we would be better off following an adoption and adaptation approach or a diversified approach that combines efforts to achieve global leadership in some areas and follows the adoption and adaptation approach elsewhere.

In some respects, this issue was central to the list of questions that provided the organizing structure for the workshop. While there seemed to be considerable support for the leadership alternative, the basis for participants and speakers holding this view was not clear and this issue remains an open research question. It would be useful to answer the following questions to address this issue: In which product areas are Canadian food-sector firms currently world leaders? In which areas are they not world leaders? What share of sectoral revenues and profits are generated from product areas in the world leader category? What trends are evident in this share?

Critical Success Factors in Clusters

Clusters, open labs and incubators were seen by various presenters and participants as critical elements in improving innovation performance in the Canadian food economy. But the experience with agriculture and food with these institutions is limited. Before we adopt this model, are there any lessons to be learned from the experience of other sectors? What factors contribute to the success or failure of clusters, open labs and incubators? Do they spring up voluntarily or do they need government help? If governments subsidize the development of clusters, does this encourage or discourage private sector innovation investment? When clusters work, why do they work? Is there an ideal "size" for a cluster? How do you measure "size"? How spatially close do facilities have to be to constitute a cluster? Does the best spatial arrangement depend on the sector?

Understanding Consumers

Many presenters and participants observed that food consumption patterns, both in

North America and in Canada's leading export markets, are becoming more complex and diverse. Successful innovation requires an improved understanding of the changing preferences and behavior of the various customers in the relevant markets. This area is dynamic and consumer preference data probably have a short shelf life. Furthermore, consumer preference information for Canadian consumers may be uninformative about the preferences of consumers in Canada's food export markets. Efforts to identify emerging market segments, which are increasingly based on qualitative characteristics of food are needed. For example, how was the food produced? What are its associated nutritional or health benefits? What safety and security standards were applied along the supply chain? Is traceback possible?

Understanding Competitors

A familiar principle of military strategy is "Know your enemy." The commercial corollary of this principle is "Know your competitors." Markets involve the interaction of producers and consumers. It is sometimes said that conditions in the Canadian food economy are increasingly demand driven. But no industry has ever been "supply driven". Maybe the relevant transition for North America agriculture and food is that, concurrent with the post-war multilateral trade liberalization process, belatedly applied to agriculture, North American agriculture faces an increasing number of effective competitive suppliers, which compete with domestic firms in North American markets as well as internationally. When Canada was the leading supplier of hard red spring wheat and the United States was the leading supplier of soybeans, competitive conditions for producers of those crops were different than it is now. Maybe the way to say this is that the bargaining position of primary product producers in North America has eroded.

In any case, if it is true that successful innovation in the Canadian food system depends on a better understanding of consumers, it is equally true that this success depends on a better understanding of current and emerging competitors. This statement is true at the primary production level, as Argentina, Brazil, Ukraine and even potentially Russia and China become more and more important commodity production regions and as the European Union and the United States continue to subsidize exports of surplus production. We need a better understanding of the dynamics of agricultural development and reform and the dynamics of domestic agricultural policies. What effect will the current financial crises in Argentina and Brazil have on the productive capacities of their respective agricultural economies over time? Will the Ukraine, Russia or China emerge as important suppliers of agricultural commodities produced by Canadian farmers? It is equally true at the food product stage, where a better understanding of the potential of foreign suppliers to offer competitive and innovative food products into the Canadian market and into export markets currently served by Canadian firms is required.

Understanding the Policy Environment

Regulation and taxation were identified as impediments to innovation for Canadian agri-business firms, but regulations were seen by some participants as at least a potential catalyst to innovation. What do we know about the conditions under which regulations stifle or promote innovation? What policy process would yield a regulatory reform outcome that increases the incidence of innovation-promoting regulations and that reduces the incidence of innovation-inhibiting regulations?

Some participants indicated that corporate income tax policies do not encourage investment, including investment in innovation in Canada. Some also thought that Canadian income taxes and sales taxes discourage highly qualified personnel from relocating in Canada. Ongoing comparisons of taxation regimes between, at the very least, Canada and the United States are needed to give an indication of the effect of taxes on competitiveness in general and on innovation performance in particular. These comparisons, especially on the personal tax side, need to reflect differences in the bundles of services financed by taxes. They also need to reflect a comprehensive measure of taxes levied by all levels of government in the countries being compared.

Options in the Development of an Integrated Strategy

The Workshop speakers and participants showed strong general support for an integrated, focused sectoral national strategy for innovation, but it was far from clear what constitutes “integration”. Some went so far as to suggest a national system of rationalization of effort and prioritization of research. Others favoured a process of identifying and removing impediments to innovation, but rejected the idea of a national priority setting and planning process. Unlike the “leadership versus adaptation” choice, the options confronting an integrated strategy would seem to admit no middle ground. Research is needed to help us understand the advantages and disadvantages of the two options for integration. Does excessive duplication of effort exist in innovation activities presently in Canada, especially when an inventory of private sector, university and government resources devoted to innovation is considered? Is duplication *per se* a bad thing, or does it potentially increase the probability of successful innovation when more than one organization is attempting to solve a given problem? A system of coordination of agricultural research aimed at primary production currently exists. Would it be useful to extend this system to innovation efforts beyond the farm gate?

Redefining the Roles of the Government, Universities and the Private Sector in Research

Various presenters were asked to comment on the roles and responsibilities of governments, universities and firms in achieving better sectoral innovation performance. Several views on these respective roles were expressed, but there did

not seem to be a consensus. Clearly, with ongoing fiscal pressure facing all levels of government, and with the continued evolution of intellectual property rights, the model of agricultural innovation that has been so successful in Canada needs to be reconsidered. One presenter concluded, unhappily, that private sector and university researchers have become, in some contexts, competitors. This suggests a need to revisit the relationship between university research and private sector research.

One participant suggested that university researchers tend to think about how to do basic research and how to create new technologies first, and, if they are successful, then ask if there is any useful application or commercialization opportunity. Maybe this emphasis is misplaced. What if university researchers started by trying to identify problems that needed to be solved first?

This question highlights our lack of understanding about the motivations and decision-making processes of a critical participant in the innovation process. It also pits what Kealey (1996) calls the linear model of innovation, in which basic research begets applied research that leads to development of technology and adoption, against a non-linear model that traces the origins of new technology to experience with the limitations of old technology. These two models represent fundamentally different perspectives on the economic nature of the innovation process. Understanding which applies better to the goal of improving the innovation performance of the Canadian food system is a critical research question.

Human Capital

Several presenters and participants emphasized the need to recruit and to retain highly qualified personnel if innovation performance is to be improved. Some participants suggested that Canadian taxation policies and the value of the Canadian dollar with respect to its U.S. counterpart impede both the recruitment and the retention of highly qualified personnel. But other participants suggested that, in their experiences, these factors were less important. Non-pecuniary quality-of-life factors in communities where industry, government or university facilities are located were seen to be important in recruitment. Clearly, there is much to learn about the factors that influence the career and location decisions of the kinds of people that industry, government and university employers consider to be critical to the success of the R&D efforts that will improve innovation performance in agri-food in Canada.

Entrepreneurship

Entrepreneurial ability in the Canadian agriculture and food economy was identified as a potential weak link in improving innovation performance. One participant observed that we do not have a culture that values entrepreneurship in Canada. This weak link needs to change if we are going to do a better job in innovation and it raises several critical research questions: What would it take to change the cultural

valuation of entrepreneurship? What is entrepreneurship? Can it be measured? What is the level of entrepreneurial ability in the agri-food sector? What factors influence the development of this ability? What policies or programs have the potential to improve entrepreneurship in the sector?

Understanding the Impediments to Financing Innovation

Many presenters and participants emphasized the need to improve access to various forms of financing as a means of improving the innovation performance of the Canadian food economy. Closer examination of the discussions on this issue reveals that financing sources seem to be better connected to some phases of the innovation process than to others. Several hypotheses were suggested as explanations for what was generally perceived to be impediments to venture capital finance for the sector. There may be a lack of information on the part of potential investors and their agents regarding the nature of opportunities for innovation in food-related enterprises. If this observation is true, what can be done to enhance networking opportunities between firms in the agri-food industries and venture capitalists? There may be less financial capital available to invest in innovation in Canada, relative to the size of its economy, than is the case of other developed economies. Is this the case? If it is, is there an explanation? Are Canadians excessively risk averse in their investment decisions?

8. NEXT STEPS

A comment offered by one participant highlights the need for Canada's agri-food innovation strategy to be the outcome of consultative process and that it be integrated, realistic, and find support from the various stakeholders in the sector.

"The key elements (issues) have been identified by the participants and there is general consensus on what they are. The next key question is how to integrate these elements in a coherent and comprehensive strategy so that progress in one area will not impede or defeat progress in another area. Having done that, the next step is to develop an action plan that is workable and has "buy-in" from those who are expected to deliver on the action plan. Finally, there is a need to stick to the plan, making course changes as necessary, and to have an over-arching source of leadership, vision and inspiration to drive the plan."

This quotation also illustrates the steps needed for effective development of Canada's agri-food innovation strategy. The first step is to engage in a consultative process with all stakeholders to identify the targets/goals of Canada's agri-food innovation strategy. It is important that such a process be generic in nature, and does not

reflect one industry or component of the sector more than any other. The consultation process could be achieved by :

- Organizing a series of regional workshops (similar to this one) across the country during the winter and spring of 2003 to review and to discuss the issues and elements of strategy identified at this Workshop. The regional workshops would begin with those issues and would formulate specific strategies and steps to be included in a national innovation strategy.
- Holding a national agri-food summit in the fall of 2003 to identify the targets/goals and to develop an innovation strategy for the agriculture and agri-food sector. The issues and elements of strategy identified at this workshop and the other proposed regional workshops would be a natural starting point to develop a strategy and an action plan.

Once the targets are identified, actions needed to achieve these targets must be developed and implemented. Creating a culture of innovation is of paramount importance in implementing such an action plan. A culture of innovation could be fostered by:

- Developing a set of regional and national indicators to measure and monitor the sector's innovation performance, and to compare the performance of the agriculture and agri-food sector with those of other countries.
- Articulating sectoral research needs, in support of improving innovation performance, that were identified at this workshop and develop an effective research program located in an agricultural economics department at a Canadian university and undertaken with the support of governments and the private sector to address those needs.
- Publishing an annual report which would assess the innovative performance of the Canadian agriculture and agri-food sector using information obtained from the indicators in the first action.
- Establishing an outreach/extension program to assist agricultural producers and food processing SMEs in understanding the benefits of innovation and the potential collaboration within the agri-food chain.

We conclude this report with a quotation from one of the speakers.

"All we need is the will, the way, and the wherewithal."

References

Agriculture and Agri-Food Canada. "The Agriculture Policy Framework", www.agr.gc.ca/cb/abf/index.html. 2002.

Baldwin John, David Sabourin and Donald West. "Advanced Technology in the Canadian Food Processing Industry", Catalogue No. 88-518 XPE, Ottawa, Statistics Canada. 1999.

Canadian Manufacturers and Exporters. "The Business Case for Innovation", Ottawa. 2001.

Industry Canada. "Achieving Excellence: Investing in People, Knowledge and Opportunity", www.innovationstrategy.gc.ca. 2001.

Kealey, Terence. "The Economic Laws of Scientific Research", Pinter Publishers. London. 1996.

Marin, Roger L. and Michael E. Porter. "Canadian Competitiveness: A Decade after the Crossroads", Rotman School of Management, University of Toronto. May 2001.

The Conference Board of Canada. "Performance and Potential 2002-03". Ottawa. 2002.

World Economic Forum. "The Global Competitiveness Report 2001-2002". New York, Oxford University Press. 2002.

APPENDIX A:

Workshop Program



A National Workshop on

“Innovation and the Competitiveness of the Canadian Economy with Special Focus on the Agri-Food Sector”

September 26-27, 2002 • Guelph, Ontario

OBJECTIVES

- A. To recognize the importance of and the need for leadership in innovation in the Canadian economy and to emphasize the importance to competitiveness of creative innovation vs. acquisition and diffusion of new technologies. (Day One - Morning Session)
- B. To examine the changing roles of governments, universities and the private sector in the innovation process and to discuss issues arising from the recent federal innovation paper. (Day One - Afternoon Session)
- C. To develop a national innovation strategy and action plan for the Canadian agri-food sector. Issues identified in this workshop will be submitted to the organizers of the proposed federal National Innovation Summit in November 2002. (Day Two Session)

Day One

- Morning Session Chair: Dr. Alan Wildeman
- 8:00 am Registration and Continental Breakfast
- 8:30 am Welcoming Remarks
▶ Dr. Alan Wildeman
Vice President, Research
University of Guelph
- Opening Speech
▶ The Honourable Lyle Vanclief
Minister of Agriculture and Agri-Food Canada

- Plenary Session I
9:00 am - 9:45 am
- Importance of World Leadership in Innovation
- ▶ Mr. Don Morrison
Chief Operating Officer
Research in Motion Limited

Speaker in this session will address the following two questions:

1. What does it mean to be a world leader in innovation in a specific field (first successful application of a product or process in the market place)? Is it important to be a world leader in innovation? Or should the focus be on identifying areas of broad importance across sectors and not on asserting world leadership in any particular area?

Innovation and the Competitiveness of the Canadian Economy with Special Focus on the Agri-Food Sector

2. What is the nature of the relationship between leadership in innovation and competitiveness?

9:45 am - 10:00 am

Health Break

Plenary Session II

10:00 am - 11:00 am

Creative Innovation vs. Diffusion of New Technologies

- ▶ **Dr. Peter Hackett**
Vice President, Research
National Research Council
- ▶ **Prof. J. Adam Holbrook**
Associate Director, Centre for Policy Research
on Science and Technology; Head of Innovation and
Competitiveness Network, Simon Fraser University

Speakers in this session will address the following three questions:

3. Can the world economic leadership in a specific field be achieved without path-breaking research and development?
4. Or can the aggressive acquisition of new technologies developed elsewhere in the world and the rapid diffusion of these technologies be a substitute for being the first to market with new technologies?
5. Or can the world economic leadership be achieved by finding a balance between creative innovation and diffusion of new technologies and the targeting needed in each area?

11:00 am -12:00 pm

Questions and Discussion

12:00 pm

Networking Lunch

Afternoon Session Chair:

Dr. Gordon A. Neish

Plenary Session III

1:30 pm -2:15 pm

Collaborating for Innovation: Canada's Innovation Strategy

- ▶ **Mr. Jerry J.J. Beausoleil**
Director General, Strategic Policy Branch, Industry Canada

Panel Session I

2:15 pm - 3:30 pm

Innovation in a Knowledge-Driven Economy: Changing Roles of Government, Private Sector and Universities

- ▶ **Dr. Jayson Myers**
Senior Vice President and Chief Economist
Canadian Manufacturers and Exporters
- ▶ **Dr. Jom Aw**
President
Inno-centre

- ▶ **Mr. Michael Detlefsen**
Executive Vice President
Vertical Coordination
Maple Leaf Foods Inc.
- ▶ **Mr. Geoff Clarke**
President & CEO
Materials and Manufacturing Ontario
- ▶ **Dr. Craig J. Pearson**
Dean
Ontario Agricultural College
University of Guelph

Panel members to address the following questions:

6. While the private sector has primary responsibility for bringing forward new product and process innovations, do current indicators suggest that the private sector is over- or under-investing in innovative activity? If current trends continue, will Canada attain world leadership in innovation by 2010?
7. Are there aspects of the functioning of markets which constrain private sector firms from realizing their innovative potential? What would induce these firms to augment their investment in innovative activities? What institutional factors play a role in innovation and technology development in the agriculture and food sector?
8. What role can and should the government play to foster technological change in the economy and help innovators to innovate?
9. What role can and should the universities play to promote technological innovation in the economy?
10. How do we continuously adjust each of the roles of the players (government, private sector, universities) to assure that Canada is on the right track?

3:30 pm - 3:45 pm	Health Break
3:45 pm - 5:00 pm	Questions and Discussion
5:00 pm	Adjournment
5:30 pm	Reception and Networking

Dinner Session Chair: Dr. Garth Coffin

Dinner and Speaker **An Innovation Strategy for Canada**

6:00 pm

- ▶ **Mr. Tom Wujec**
Co-author of "Return on Imagination: Realizing the Power of Ideas"

Speaker will address the following questions:

11. What strategy should Canada adopt to be a world leader in innovation by 2010?
12. Should Canada's innovation strategy focus on being an innovative economy or a fast adopter of new technology?
13. Or should Canada's innovation strategy focus on finding a balance between being an innovative economy and a fast adaptor of new technologies?

Day Two

Morning Session Chair: Ms. Deborah Whale

8:00 am Continental Breakfast

8:30 am Workshop Facilitator reviews Day 1 results and objectives of Day 2

(9:00 am - 12:30 pm) A Strategy for Innovation in the Agri-Food Sector

Panel Session II

9:00 am - 10:00 am

- ▶ **Mr. Rick Tofani**
Chief Executive Officer
Olds College Centre for Innovation
- ▶ **Dr. Murray McLaughlin**
President and Chief Executive Officer
Foragen Technology Ventures Inc.
- ▶ **Dr. Douglas Hedley**
Assistant Deputy Minister
Farm Income & Adaptation Policy Branch
Agriculture & Agri-Food Canada
- ▶ **Dr. David Muir**
Technical Manager
Technology Services
3M Canada

10:00 am - 10:15 am Health Break

Panel Session III

10:15 am - 11:15 am

- ▶ **Mr. Peter Hannam**
President
First Line Seeds

- ▶ **Mr. Ray Price**
President of Trochu Meat Processors
Sunterra Farms Ltd.

- ▶ **Mr. Yves Potvin**
President
Yves Veggie Cuisine

- ▶ **Mr. Gary Fread**
President
Fread & Associates

Panel members in panel sessions II and III to address the following questions:

14. What are the key elements which should be included in the innovation strategy and what areas should be addressed in the action plan to achieve the strategy?
15. Are there aspects of the agri-food sector which would require a custom-designed strategy?
16. Are there identifiable obstacles to the development of entrepreneurial ability in the Canadian agriculture and agri-food sector that can be diminished? What can be done to improve the entrepreneurial ability in the agriculture and food sector?

11:15 am - 12:30 pm **Discussion and Questions**

12:30 pm **Adjournment / Lunch**

LOCATION: Ramada Inn Hotel and Conference Centre
716 Gordon St., Guelph, Ontario N1G 1Y6
(519) 836-1240 or 1-800-272-6232

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APPENDIX B:

List of Speakers and Panelists



A National Workshop on

“Innovation and the Competitiveness of the Canadian Economy with Special Focus on the Agri-Food Sector”

September 26-27, 2002 • Guelph, Ontario

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