

**Turning Crisis into Opportunity
Fostering Innovation in the Canadian Agriculture and Agri-Products Industry
Through *Growing Forward* – the Next Generation of Agriculture and Agri-Food Policy**

Submission to the House of Commons Standing Committee
On Agriculture and Agri-Food
December 10, 2007

**There is a Looming
Crisis in Agriculture**

Canadian agriculture is on the brink of a competitiveness crisis. If current trends continue, the effects will be felt through the entire production and consumption chain.

The trends can be reversed with a concerted effort to foster innovation and facilitate competitiveness. Growing Forward, the proposal for the next generation of Canadian Agriculture and Agri-Food Policy can serve as a strong contributor to that effort.

There is a crisis brewing in much of Canadian agriculture. With current high grain and oilseed prices, one might be tempted to discount that statement, but a closer look at the industry reveals that there is a growing problem, that is quickly reaching crisis.

The crisis is one of competitiveness. Once thought to be the “breadbasket” of the world, Canada is falling behind its competitors as a producer and exporter of many cereal grains.

For example, Canada’s production of wheat other than durum has fallen 20% over the last 20 years (between 1987 and 2007). And exports have also fallen 20%. Barley production over the same period has dropped by 34%, with exports falling by over 70%. Over that time, yield gains in both crops have only increased slightly.¹

While the challenges are most obvious in these areas, there are other very serious challenges to other segments of the industry, including the forage and garden seed sectors.

If these trends continue, the value added sector that relies on these industries will face challenges, and it will affect Canadian consumers.

The Canadian Seed Trade Association (CSTA) believes that these trends can be reversed with a concerted effort to foster innovation and facilitate competitiveness in Canadian agriculture. *Growing Forward*, the proposal for the next generation of Canadian Agriculture and Agri-Food Policy can serve as a strong contributor to that effort.

**Private Sector
Investment in Seed
Innovation**

Private seed companies will invest \$56.1 million in research and development in 2007, almost doubling by 2012.

Over 92% of that investment will be in just three crops.

CSTA recently surveyed its members to determine the current and projected level of investment in plant research and development in Canada. The survey shows that our member companies are substantial investors in seed driven innovation.

In 2007 CSTA’s member companies will invest \$56.1 million in research and development. That is 6% of the total retail sales of these companies, and 26% of the total operating budget. Most of that investment will be in research and development on canola, corn and soybeans.

Additionally, these companies expect to almost double their investment within 5 years to \$106.4 million. Once again, the bulk of that investment will be in canola, corn and soybeans while the share of private sector investment held by other crops, including forages and cereals, continues to decline.

¹ Canada: Grains and Oilseeds Outlook Market Analysis Division, AAFC <http://www.agr.gc.ca/mad-dam>

The table below shows the total investment and the share of the total by crop kind.

Annual Research Investment by Crop								
	1987		2001		2007		5 Year Projection	
	\$ million	% of Total	\$ million	% of Total	\$ million	% of Total	\$ million	% of Total
Canola	7.1	50	30.5	67.3	41.9	74.7	80.0	75.2
Soybeans	0.7	4.9	2.6	5.7	3.9	6.9	12.7	11.9
Corn	2.8	19.7	7.9	17.4	4.8	8.6	9.0	8.5
Cereals	1.5	10.6	2.3	5.1	3.3	5.9	2.7	2.5
Forages	0.3	2.1	0.8	1.8	0.5	0.9	0.5	0.5
Special Crops	0.1	0.7	0.4	0.9	0.1	0.2	0.1	0.1
Garden Seed	0.1	0.7	0	0	0	0	0	0
Other	1.6	11.3	0.8	1.8	1.6	2.8	1.4	1.3
TOTAL	14.2		45.3		56.1		106.4	

Source: CSTA member surveys

The private sector is focusing its investments in three crop kinds, canola, soybeans and corn. The share of private sector investment in cereal crops, special crops and forages is declining, and private sector investment in garden seed is non-existent.

CSTA acknowledges that public sector breeding in cereal crops is strong, and appreciates that the federal government continues to make this investment. However It is very clear from the table above, that the private sector is focusing its investments in three crop kinds: canola, soybeans and corn. The share of private sector investment in cereal crops, special crops and forages is declining, and private sector investment in garden seed is non-existent.

This is already causing very substantial concerns in the value added sector in Canada. For example, the livestock sectors are very concerned with lack of new feed grain and forage varieties that will help them be competitive in the marketplace, and the ethanol industry in Canada is missing out on new varieties designed just for that industry.

The Potential for Increased Prosperity

Plant science innovation has brought significant benefits to Canadian farmers, and end users. There is the potential to bring much more.

It is possible to turn a potential crisis into prosperity, and it comes with innovation. Research and development in plant science, both by the public and private sectors, has brought advances to farmers and end users. The prospects for the future are even greater. The Grow Canada® Coalition estimates that within the next decade, there will be the potential for a global bio-economy driven by plant science innovation that will be worth \$500 billion.

Working together in partnership with value chain stakeholders and policy makers, both inside and outside of *Growing Forward*, Canada's industry could capture a substantial part of that.

Innovation Starts with the Seed

Innovation in agriculture starts with the seed. Plant breeding and research brings new technologies to farmers, and new attributes and quality to consumers

We welcome *Growing Forward's* vision: "A profitable and innovative agriculture, agri-food and agri-based products industry that seizes opportunities in responding to market demands and contributes to the health and well-being of Canadians."

CSTA submits that innovation in agriculture starts with the seed. Plant breeding and research brings new technologies to farmers, and new attributes and quality to consumers.

For example:

- Seed driven innovation has substantially increased productivity for Canada's farmers. For example in the past 15 years:
 - Canola yields have increased 27%
 - Corn yields are up 59%
 - Ontario winter wheat yields have increased 62%
- Innovation delivered through seed brought canola to Canadian agriculture and all of the food and feed benefits associated with it.
- Seed driven innovation has delivered crops that are increasingly resistant to diseases and pests. That, combined with herbicide tolerance reduces crop risks; lowers costs for farmers; and reduces the pesticide load on the environment
- Plant breeding and research is improving food quality for consumers, for example by delivering beneficial fatty acids and anti-oxidants to improve health.

A competitive and Innovative Sector

While all of the policy outcomes identified in the *Growing Forward* policy are important, CSTA's comments will focus specifically on one policy outcome: A competitive and Innovative Sector.

We are encouraged by the objective stated in *Grow Canada*: "An agriculture, agri-food and agri-based products industry equipped to compete successfully in domestic and international markets, innovate, adapt to change, and seize new opportunities, thereby achieving sustained growth and profitability."

In supporting this objective, Ministers have committed to helping to turn crisis into opportunity. In our opinion, many of the directions and strategies that have been outlined will contribute to achieving the objective, but some necessary actions are absent.

A Major Challenge – The Process for Regulatory Change

One of the biggest challenges to innovation is Canada's process for regulatory change, which is cumbersome and slow to respond.

*Modernizing regulatory systems is an absolutely critical goal for *Growing Forward*.*

The agriculture and agri-product marketplace is changing rapidly. Windows of opportunity open and close very quickly. However, the Canadian industry is at risk of repeating history and missing significant windows of opportunity.

One of the biggest challenges to innovation is the Canadian process for regulatory change, which is cumbersome and slow to respond to the changing needs of industry innovators, farmers and end users.

The *Growing Forward* document identifies a possible strategy as: "Modernizing regulatory systems and improving regulatory cooperation across Canada and assuring adequate capacity for regulatory systems to deal with emerging issues." We submit that this is absolutely critical to foster innovation.

Variety Registration

There is no better example of the impact of regulation on innovation than the seed variety registration system.

This system has operated in its current form for almost two decades, and in many cases, it is a very significant barrier to innovation.

Where seed innovators are not subjected to variety registration, or where the system has adapted to changing farmer and market needs, the level of private sector investment and development of new varieties is high. However, where the regulatory system has not adapted, the story is much different. For example, wheat investment is declining and there hasn't been a new variety of red winter wheat in western Canada in five years.

In order to foster innovation and competitiveness, Growing Forward needs to create a regulatory framework for seed that can respond quickly to changes in demand and to developing market opportunities

There is no better example of the impact of regulation on innovation than the seed variety registration system. This system has operated in its current form for almost two decades, and it is a very significant barrier to innovation. The link is clear:

Where seed innovators are not subjected to variety registration, or where the system has adapted to changing farmer and market needs, the level of private sector investment and development of new varieties is high. This is the case for all three crops in which the private sector is focusing investment.

- Corn is outside of the variety registration system. While corn is still subject to the seed certification system, and to industry self regulation, innovations in corn are far ahead of other coarse grains in Canada.
- In the cases of canola and soybeans, the system has adapted, through strong value chain partnership to meet the needs of farmers and the market. Investment is strong and advances are constantly being made.

However, where the regulatory system has not adapted, the story is much different.

- A good example can be found in western wheat. The opportunities presented by the growing bio-economy are enormous, but very few new western wheat varieties have been registered in the last few years. In fact, according to SeCan, no new varieties of red winter wheat have been registered in western Canada in five years. As shown in the table above, private sector investment in cereals has dropped from over 10% in 1987 to an anticipated 2.5% by 2012.
- Another example can be found in the forage industry. In many cases variety registration of forage species requires testing and support of recommending committees, where committees are substantially under-resourced, or in some cases don't even exist. As a consequence, the share of private sector investment for forage research will be less than 1%.

In order to foster innovation and competitiveness, *Growing Forward* needs to create a regulatory framework for seed that can respond quickly to changes in demand and to developing market opportunities, including but not limited to:

- A “smart regulations” approach to plant products regulations to ensure that Canadian innovators are on an even footing with our competitors.
- Science Based regulatory systems that anticipate and provide for new technologies such as plant molecular farming, and other advances in biotechnology.
- Consideration of a larger role for accreditation of private sector institutions and establishments to take on some of the activities that are currently the responsibility of federal government employees, where the core CFIA mandate to protect health and safety is not a factor.

Intellectual Property Protection

Documentation and policy proposals associated with the government's Science and Technology strategy clearly recognize the value of intellectual property protection as a means of generating investment in innovation. We hope that this will also be given thorough consideration as policy as Growing Forward is developed.

Canada's Intellectual Property Protection Tool Box is not as complete as those of our competitors, and the IP tools that are available to Canadian innovators have not kept pace with the needs of the industry or the marketplace.

- *Canada's Plant Breeders' Rights legislation does not conform to the most recent international convention*
- *Unlike their competitors in the USA and Australia, Canadian plant breeders cannot patent varieties*

It takes about 9 years and about \$1 million to develop a new plant variety. In order to recover the investment, and to ensure that new investments are made in innovation, developers need to be able to protect their innovations – the varieties and technology associated with them.

Documentation and policy proposals associated with the government's Science and Technology strategy clearly recognize the value of intellectual property protection as a means of generating investment in innovation. We hope that this will also be given thorough consideration as policy under *Growing Forward* is developed.

A very good example of the impact of the intellectual property protection environment in seed innovation can be found in the case of Garden Seed.

Two decades ago, the private sector was making some investments in research and development in vegetables and ornamentals for gardens. However, Canadian innovators did not have access to large markets because of international "national treatment" provisions, where only countries with Plant Breeders' Rights legislation in place could have access to many large international markets. By the time Canada put in place Plant Breeders' Rights legislation, the market opportunity had been captured by large centres of excellence in California, the Netherlands and Japan. There is no longer any Canadian commercial investment in garden seed plant breeding.

Canada's Intellectual Property Protection Tool Box is not as complete as those of our competitors, and the IP tools that are available to Canadian innovators have not kept pace with the needs of the industry or the marketplace. For example:

- The International Union for the Protection of New Varieties of Plants (UPOV) includes 64 member countries. Most of these members including our major export competition, the United States, Australia and most of Europe, subscribe to the 1991 convention which recognizes the legitimate interests of the breeder, and better defines farmer and breeder exceptions, among other improvements. However, Canada is among the 24 UPOV member countries that still operates under the 1978 convention.

CSTA was part of a Minister's Advisory Committee on Plant Breeders' Rights, which developed a report over a year ago. It is our understanding that this report has not yet been submitted to the Minister. While that report recommends that Canada become part of the 1991 UPOV convention, it is also very important that the implementing legislation take measures to recognize the legitimate rights of plant breeders.

- Unlike the United States and Australia, Canadian plant developers cannot make use of patents to protect plant varieties.

- *Enforcement of existing intellectual property protection tools is light to non-existent.*

- Enforcement of existing Intellectual Property protection tools such as Seeds Act provisions and Plant Breeders' Rights is light to non-existent.

The Seeds Act serves as a type of Intellectual Property protection tool itself, because it states that seed cannot be sold by variety name unless it is of pedigreed grade. In addition to the fact that this provision is not consistently enforced, it is also not reflected throughout other Acts, both federal and provincial (eg. Grain Act, Crop Insurance Legislation) which freely allow the use of variety names.

An Immediate Need – Export Facilitation

Another example where the regulatory process is not keeping pace with changes in the marketplace is the process for seed export certifications. This situation is currently costing opportunities and putting Canada's reputation as a reliable exporter at risk..

Currently, seed can only be exported if it is accompanied by an export certificate that is issued by the CFIA using CFIA laboratories and personnel. Reduced resources at CFIA means that the work required to satisfy the conditions to issue an export certificate cannot always be done in a timely manner.

To reduce the drain on CFIA resources, the CFIA and the Canadian Seed Institute piloted an Authorized Exporter program almost five years ago, to accredit private labs and seed establishments to do the sampling and testing required for export certificates.

Despite the success of the pilot, that program has not yet been made available and the demand for export certificates has taxed CFIA inspectors beyond their ability to respond. It is our information that it is currently taking up to 8 weeks for an export certificate to be issued.

This delay means that Canadian seed exporters are losing immediate sales and incurring demurrage and other charges for delayed shipments. In addition, the uncertainty in the current system means that exporters are not able to capture opportunities as they arise. This is putting Canada's reputation as a reliable source of quality seed for export at risk. We submit that had the AE program been implemented immediately following the successful completion of the pilot project, seed exporters would not be in this current situation.

The Authorized Exporter program is a clear demonstration of the value of private sector partnerships with regulators. It is extremely important that this particular program be given a very high priority.

We submit that Growing Forward should explore other opportunities for partnerships like this one, where regulators would accredit the private sector to undertake activities that can benefit Canada's international competitiveness.

It is absolutely essential that the CFIA be given the direction to move immediately to implement the Authorized Exporter Program.

In addition, Growing Forward should explore other opportunities for partnerships like this one, where regulators would accredit the private sector to undertake activities that can benefit Canada's international competitiveness.

A Major Challenge - Funding Innovation

The main source of revenue for investment in private research and development is the sale of certified seed.

In addition to putting in place a regulatory environment that enables and promotes innovation, it is important to ensure that investment is encouraged in other ways.

CSTA's research has demonstrated that the private sector is a strong investor in innovation. The government of Canada is committed to a strong investment in public sector research. However, for both, the level of investment is dependant on the funds available.

The main source of revenue for investment in private research and development is the sale of certified seed.

The following table shows very clearly that where the use of certified seed is high, investment is also high. Where farmers choose not to purchase certified seed, investment is lower.

Certified Seed Sales Vs. Private Sector Investment

	% of Seed used that is certified	% Investment 2007	% Investment 2012
Canola	92	74	75
Corn	98	9	9
Soybeans	75	7	12
Cereals	19	6	2

Only about 30% of Canadian producers are currently carrying the costs of innovation.

CSTA supports programs to share the costs of innovation, including a tax incentive on certified seed; and incentives through existing government programs.

In fact, surveys indicated that, on average, about 30% of the seed used on Canadian farms is certified. That means that about 30% of crop farmers are funding private sector innovation, where the whole of society benefits.

CSTA supports the development of policies and programs that will spread the costs of innovation amongst those who benefit. We have developed and gained support for a tax incentive that would be paid to farmers who purchase certified seed. Under this proposal, farmers who purchase certified seed would be able to claim 155% of the cost of the seed to their expenses for income tax purposes. This would give producers access to all of the benefits of certified seed, such as access to new genetics, and assurance of purity and quality, at essentially the same cost as saving seed. It will increase the investment in innovation and share the cost of that investment throughout the Canadian tax base.

CSTA also supports the provision of incentives through other government programming such as production and income insurance. By providing discounts in premiums for these programs, government would be recognizing the reduced risks associated with planting certified seed, while at the same time helping to increase the investment in innovation.

Conclusion - Turning Crisis into Opportunity

This submission has laid out the risks to the Canadian agriculture and agri-products industry of not taking decisive steps to foster innovation.

It has also made it clear that the opportunities for Canadian agriculture and agri-products are almost without limit, and the potential benefits for all stakeholders in the value chain are tremendous. Canadian innovators, both public and private, can make a very substantial contribution to capturing those benefits, but it can only be done in partnership with our government.

Growing Forward has the potential to turn crisis into opportunity by creating a regulatory and investment climate that will foster innovation for all of the participants in the value chain by:

- Creating a flexible and adaptable regulatory system that can meet the needs of society while at the same time encourage the early adoption of new technology and innovations for Canadian agriculture and agri-products
- Ensuring that the Canadian regulatory system will put Canada on an even footing with our competitors
- Providing an intellectual property protection tool box that will encourage investment in innovation in Canada
- Adopting a system of incentives that will help producers to take advantage of seed driven innovations, and at the same time ensure that the costs are shared by all who benefit.