



CANADIAN SEED TRADE ASSOCIATION

L'ASSOCIATION CANADIENNE DU COMMERCE DES SEMENCES

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Fostering Innovation in Canadian Agriculture

A submission by
The Canadian Seed Trade Association
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*“Food security, poverty eradication, human nutrition, environmental renewal, peace and stability—
they all start with a seed.”*

Fostering Innovation in Canadian Agriculture February 2011

Executive Summary

For many years, Canada has enjoyed a positive national and international image as a provider of innovative products to farmers and consumers around the world. However the truth is that our agriculture and agri-food industry is falling behind its competitors for many crop kinds. A recent study puts Canada near the bottom of the list of competitors with respect to yield improvements in wheat, and the story is the same for many cereal and other crops. There is a direct correlation between productivity and investment in innovation, by both the private and public sectors in Canada.

Research and plant breeding are critical to innovation in agriculture and agri-products. Canadian agriculture and agri-products have benefited from both public and private sector research and plant breeding. It is important that both continue and that measures are implemented to encourage a positive and mutually beneficial public-private sector relationship

The private seed sector has accepted a growing role as an investor in research and plant breeding, and has demonstrated that where it can operate in an enabling trade, regulatory and intellectual property protection environments, the private sector invests - \$56 million in 2006 and nearly double that by 2012.

The seed driven innovation pipeline is bulging with new improved varieties, developed through both biotechnology and conventional plant breeding, which will deliver even better productivity to farmers and will bring improved traits to enhance food quality, health and the environment. Whether these innovations are available in to Canadian farmers and consumers on a timely basis depends on the investment environment in Canada. Specifically, the private seed sector requires:

- A continued commitment to science based regulatory and trade systems.
- A commitment to using all possible negotiating and other measures to facilitate the international trade of seed, specifically the development and implementation of an international policy on the low level presence of genetically modified products which have been approved as safe for food, feed and environmental release in countries that employ sound science, but not in the country of import.
- A seed regulatory environment that anticipates changing customer needs and quickly adapts to the resulting new technologies and advances in both conventional plant breeding and biotechnology.
- Recognition, communication, coordination and cross compliance between regulatory bodies, departmental policy makers, and legislation affecting seed driven innovation.
- An intellectual property protection tool box that is comparable to that of our competitors. A major tool in that box is Canadian Plant Breeders' Rights legislation that fully complies with the 1991 convention of the International Union for the Protection of New Plant Varieties (UPOV).
- The implementation of incentives through the Canadian tax system and in risk management programs that will allow farmers to realize the many benefits of the certified seed system.

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The Canadian Seed Sector's Contribution to the Canadian Economy

The Canadian Seed Sector contributed \$3.95 billion to the Canadian economy in 2007, and employed over 14,000 Canadians.

The seed industry in Canada makes a very strong contribution to the economy – \$3.95 billion in 2007. A study recently commissioned by the CSTA also found that our industry employed over 14,000 Canadians in 2007. More than 3,000 were highly-skilled plant breeding staff including scientists, biotechnologists and technicians. In addition, a large number of these jobs are located in small regional centres and rural communities.¹

The Canadian Seed Trade Association brings together 132 member companies who are engaged in all aspects of seed research, production and marketing both domestically and internationally. Our membership ranges from those who sell garden seed and herbs to large western grain handlers; and from small family-run businesses to large multinational corporations.

In 2007 our member companies invested \$56.1 million in research and development. That is 6% of the total retail sales of these companies, and 26% of their combined operating budgets.

Success in Agriculture Starts with Seed

Not only does our sector make a substantial contribution to Canada's GDP and employment; it is a very strong contributor to the success of Canada's agriculture and agri-products industry. In fact, seed is the driver of success.

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- Plant breeding and research brings new technologies to farmers, and new attributes and quality to consumers. For example:
 - 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, delivering beneficial fatty acids and anti-oxidants to improve health

¹ The Value of the Canadian Seed Sector to the Canadian Economy, June, 2008

Prepared for the Canadian Seed Trade Association by AgGenuity Consulting Inc. and AgBioT Research Consulting Ltd.

As an early adopter of innovation, Canada is positioned to be one of the leaders in the charge to feed the future world, but this can only be done in an environment that enables and promotes investment in seed driven innovation.

The United Nations has stated that in order to feed a quickly growing population, the world must double its food production by 2050. World agriculture is striving for that goal at the same time as it is faced with serious challenges including climate change, increasing competition for limited land and water resources, and declining supplies of fossil fuels. CSTA's members are committed to meeting those challenges through the development of innovation and technology to make better use of limited resources to produce more food on every acre.

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Investing in Innovation

Canadian agriculture and agri-products have benefited from both public and private sector research and plant breeding. It is important that both continue

In 2007, the private sector accounted for 39% of total investment in plant research and development in Canada.

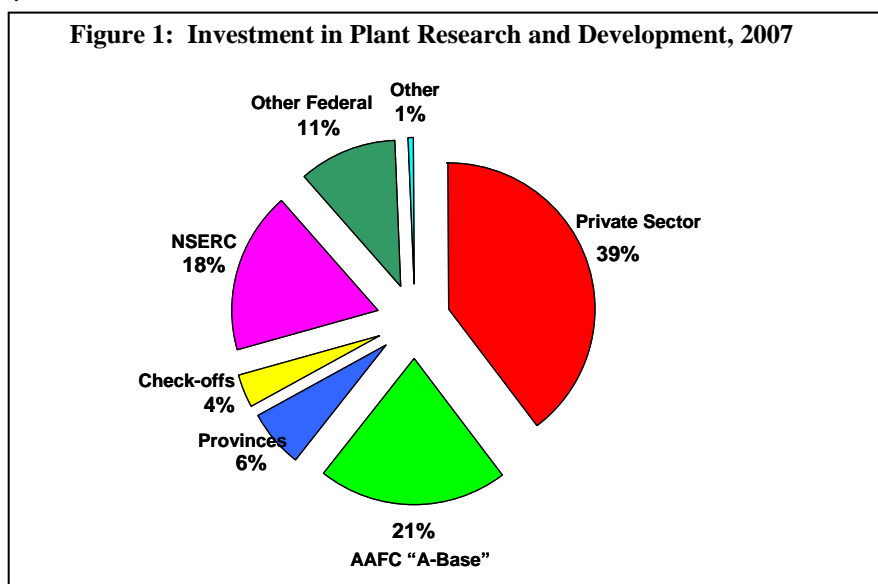
The private sector requires a positive environment to maintain and expand its investment.

Seed is the primary driver of agricultural innovation and the agricultural economy. By creating an environment that enables and promotes investment in seed driven innovation, the government will be providing an economic stimulus to the entire agriculture and agri-products sector.

Research and plant breeding are critical to innovation in agriculture and agri-products. Canadian agriculture and agri-products have benefited from both public and private sector research and plant breeding. It is important that both continue and that measures be implemented to encourage a positive and mutually beneficial public-private sector relationship.

A good example can be found in the canola industry. Canola was developed by the Research Branch of Agriculture and Agri-Food Canada, and now benefits from about 75% of total private sector research spending.

CSTA supports continued and increased funding for public sector plant breeding and research. However, as demonstrated in the graph below, the private sector is playing a very strong role in research and development, and requires a positive environment to maintain and expand that investment.



While the private sector is a very significant investor in plant breeding and research, as shown in Figure 2, that investment is concentrated in three crop kinds: canola, corn and soybeans.

By 2012, 95% of total private sector investment in plant breeding and research will be in canola, corn and soybeans.

Figure 2: Private Sector Investment in Plant Breeding and Research by Crop Kind

	1987		2001		2007		2012	
	\$M	%	\$M	%	\$M	%	\$M	%
Canola	7.1	50	30.5	67.3	41.9	74.7	80	75.2
Corn	2.8	19.7	7.9	17.4	4.8	8.6	9	8.5
Cereals	1.5	10.5	2.3	5.1	3.3	5.9	2.7	2.5
Soybeans	0.7	4.9	2.6	5.7	3.9	6.9	12.7	11.9
Forages	0.3	2.1	0.8	1.8	0.49	0.9	0.5	0.5
Special Crops	0.1	0.7	0.4	0.9	0.12	0.2	0.1	0.1
Garden Seed	0.1	0.7	0.0	0	0.0	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	

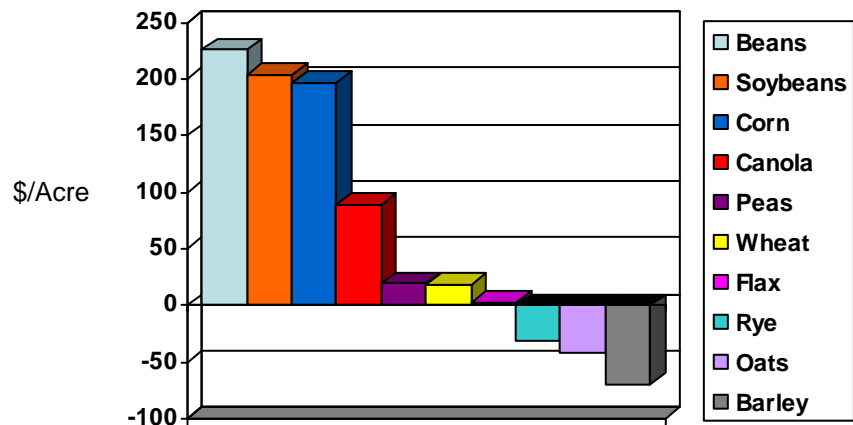
Private Sector Investment Benefits Canadian Agriculture

The increased productivity and profitability delivered to producers as the result of the investments by the private sector are demonstrated in Figure 3. Plant breeding and research in three (soybeans, corn and canola) of the 4 highest net returning crop kinds is funded with private sector investment.

(It should be noted that while the cost of production estimates used here include the cost of seed, they do not include the costs of producer levies and check-offs.)

The increased productivity and profitability delivered to producers by private sector investment are easily demonstrated. R&D in three of the 5 highest net returning crop kinds is funded by private sector investment.

Figure 3 – Net Cash Returns per Acre

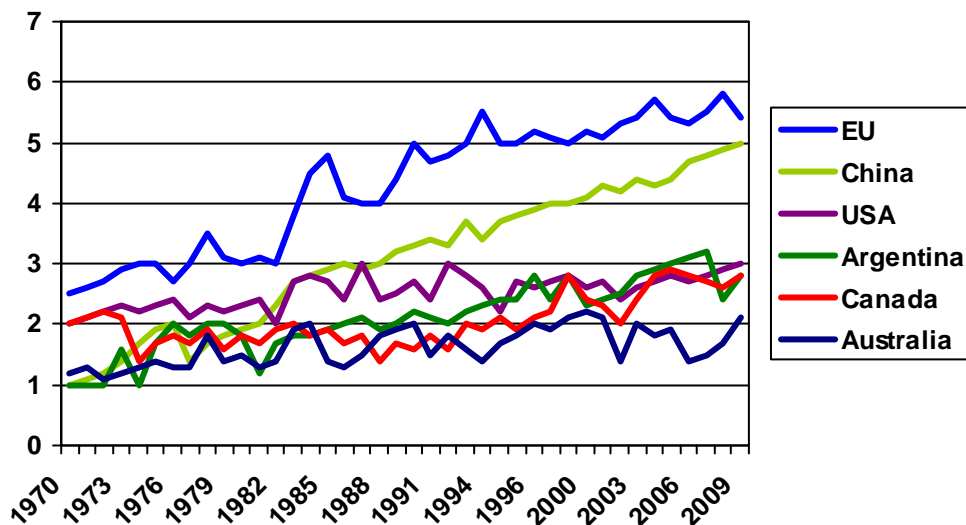


Sources: Statistics Canada (Farm Cash Receipts)
Manitoba Agriculture (Cash Costs of Crop Production)

Work done recently for the International Seed Federation ranks Canada at the bottom of its surveyed countries when it comes to the ability to realize a return on investment in wheat. The result of that is evident in Figure 4, which shows that Canadian wheat yields are not making the gains of those of most competing countries.

However, a different story can be told for Canadian wheat, which will only account for 2% of private sector investment in 2012. Work done recently for the International Seed Federation ranks Canada at the bottom of its surveyed countries when it comes to the ability to realize a return on investment in wheat. The result of that is evident in Figure 4, which shows that Canadian wheat yields are not making the gains of those of most competing countries.

Figure 4 – Wheat Yield 1970-2009



Source:

Private sector investment can only occur if the costs to develop and bring new varieties to market can be recovered. This requires a regulatory and intellectual property protection environment that fosters private sector investment.

Private sector investment can only occur if the costs to develop and bring new varieties to market can be recovered. As can be seen in Figure 5, for some crop kinds that investment is not being recovered.

Figure 5

Hyland Seeds FT Wonder (wheat)

Variety Development Cost - 9 years - \$926,814

	Year 1	Year 2	Year 3
Margin	\$1.92/25kg	\$1.84/25kg	\$1.90/25kg
Sales	176,000 units	10,546 units	32,000 units
Profit	\$337,920	\$19,405	\$60,800

Variety Development Cost \$ 926,814

Three Year Total Profit \$ 418,125

Three Year Net (\$508,689)

Fostering Innovation

The pipeline is bulging with new improved varieties developed through both biotechnology and conventional plant breeding which will deliver even better productivity to farmers, and improved traits to enhance food quality, health and the environment. Whether these innovations are available in to Canadian farmers and consumers, on a timely basis, depends on the investment environment in Canada

Research and development in plant science, both by the public and private sectors, has brought advances to farmers and end users. For example:

- Yield increases from just 7 new varieties introduced since 2007 increased farm cash receipts by \$140 million in 2009.
- New varieties of soybeans and high yielding canolas virtually eliminate the need for hydrogenation, eliminating trans-fats in fried foods, baked goods and other processed products
- A new variety of flax has 20% more omega 3 in its oil – for heart health
- Waxy, hulless barley varieties that have twice the cholesterol-lowering betaglucan content of regular barley
- New drought, salinity and herbicide-tolerant plant varieties not only improve productivity for farmers but help to protect the environment.
- Plant products now make up a large part of many non-food products, not just biofuels, but plastics, foam fillers, candle wax, lubricants and paints, solvents and cosmetics just to mention a few

The potential for the future is tremendous. The pipeline is bulging with new improved varieties developed through both biotechnology and conventional plant breeding which will deliver even better productivity to farmers, and improved traits to enhance food quality, health and the environment. Whether these innovations are available in to Canadian farmers and consumers, on a timely basis, depends on the investment environment in Canada.

A Regulatory Environment that Fosters Innovation

Science based regulations to protect health and safety are important, but Canada's seed regulatory system must also anticipate changing customer needs and quickly adapt to new technologies and advances in both conventional plant breeding and biotechnology.

Recent events such as the removal of Kernal Visual Distinguishability requirements for wheat registration do appear to be having positive results. However there are still many examples of regulatory impediments.

The agriculture and agri-product marketplace is changing rapidly. Windows of opportunity open and close very quickly.

Seed industry participants deliver the innovation required to capture opportunities, but they do it in an environment that is very highly regulated.

Science based, internationally recognized regulations to protect the health and safety of humans, livestock and Canada's environment are extremely important, but Canada's seed regulatory environment must also anticipate changing customer needs, and quickly adapt to the resulting new technologies and advances in both conventional plant breeding and biotechnology.

Recent events have clearly demonstrated that where the regulatory system facilitates, advances can be made. One specific example is the decision of the federal government to remove the requirement for wheat varieties to be visually distinguishable. Since that decision was implemented, there have been some positive signs of interest in wheat expressed by the private sector, and a number of new wheat varieties have been entered into variety registration trials.

There are also examples of where the regulatory system has been an impediment to investment. Specifically in the area of variety registration. It took well over a decade to implement changes to the structure of the variety registration system, but fully two years after the flexible variety registration was designed, we are still waiting for crops to be placed in that system, to facilitate more timely registration.

It is extremely important that there is recognition, Communication, coordination and cross compliance between Regulatory Bodies and Legislation affecting seed driven innovation.

All aspects of the seed industry, from R & D to production, marketing and trade are subject to many different pieces of legislation and associated regulations, administered by many different government departments.

In some very important cases, the regulations conflict. For example requirements around the use of seed variety names are different between the Seeds Act and regulations; the Canada Grain Act and regulations; and the Plant Breeders' Rights Act. Another example can be found in the food, feed and environmental release approval processes for products of biotechnology.

It is extremely important that there is recognition, Communication, coordination and cross compliance between Regulatory Bodies and Legislation affecting seed driven innovation.

Open Trading Systems For our Products

We encourage our leaders to continue to make use of all opportunities to facilitate trade of seed.

The seed industry requires, on an urgent basis, the development and adoption of an international low level presence policy to facilitate the trade of seed.

Canadian seed is valued around the world for its consistent quality, and our health, safety and environmental protection regulations are the envy of many countries. However, all too often the political goals of other countries have a negative impact on our ability to supply the requirements of our trading partners.

Trade measures that are not based in science, such as bans on products of biotechnology that have been found to be safe in other countries; rejections of very low level presence of those products; and unreasonable sampling and testing requirements have had a significantly detrimental impact on Canadian seed exports. We encourage our leaders to continue to make use of all opportunities to negotiate, and failing that, the measures available in trade agreements to facilitate trade of seed.

Specifically the seed industry requires, on an urgent basis, the development and adoption of an international policy to facilitate the trade of seed that may contain a low level presence of genetically modified products that have been found to be safe for food, feed and the environment using sound internationally recognized science.

Intellectual Property Protection Fosters Investment

There is a strong link between private sector investment and the ability to protect intellectual property.

Where the primary intellectual property protection tool is Canada's Plant Breeders' Rights legislation, private sector investment is not expected to increase.

For crops with the highest share of private sector R&D investment – canola, corn and soybeans - the link between intellectual property protection and investment in new technologies is well recognized and accepted by most producers. There are a variety of options available to protect intellectual property and generate funds for investment such as hybridity, contracts, gene patents and technology use agreements.

However where that variety of options for the protection of intellectual property does not exist – primarily in open pollinated crops like cereals, forages and pulse crops, investment is not expected to increase substantially, at least in the shorter term. For these crops, the primary intellectual property protection tool is Canada's Plant Breeders' Rights legislation.

Despite the fact that Canada signed the most recent convention of the Union for the Protection of Plant Varieties (UPOV) in 1992, our country has still not ratified the convention by amending its Plant Breeders' Rights Act to conform to the 1991 convention. Not only does this limit the tools that can be used to generate funds for investment by Canadians, it is impacting our ability to attract international investment.

Canada's out of date PBR legislation not only impacts on investment by Canadians, it is a deterring factor in international investment decisions.

Canada must bring its Plant Breeders' Rights into conformity with the 1991 UPOV Convention by implementing the convention in its entirety.

The European Seed Association has identified Canada's outdated Plant Breeders' Rights legislation first directly to Canada's Minister of Agriculture and Agri-Food and the President of the Canadian Food Inspection Agency, and then to the European negotiating team for the Canada/EU Trade agreement:

*"This situation is particularly relevant to the business environment and bilateral relationship between the EU and Canada as a potential factor raising a barrier to trade in seeds, since many European seed companies would not sell their varieties in Canada if they cannot rely on effective IP protection."*²

In order to facilitate investment, and ensure that Canadian farmers can keep pace with their international competitors, Canada must bring its Plant Breeders' Rights into conformity with the 1991 UPOV Convention by implementing the convention in its entirety.

Funding Innovation

Continued investment in public and private research is required to improve Canadian competitiveness and to make a positive contribution to the effort to feed a rapidly growing population and provide solutions to environmental challenges.

The private sector has demonstrated that when it generates a return, it invests. The main source of revenue for investment is the sale of certified seed.

Continued investment in both private and public sector plant breeding and research is required to improve Canada's international competitiveness and to ensure that Canada's agriculture and agr-products sector makes a positive contribution to the effort to feed and fuel a rapidly growing world population while at the same time providing solutions to environmental challenges.

It has been demonstrated that where the private sector generates a return, we invest. Farmers, consumers, the environment and the Canadian economy have all benefited from growing private sector investment in innovation.

The sale of certified seed is the primary source of revenue for re-investment by the private sector. Figure 6 shows the relationship between investment and the use of certified seed.

Table 1 – Certified Seed Use Vs. Private Sector Investment

Crop	% of Seed Used that is Certified	% of Total Private Sector Investment (Projected 2012)
Canola	92%	74%
Corn	98%	12%
Soybeans	87%	10%
Cereals	18%	2%

} 96%

Certified Seed Tax Incentive

Surveys show that the majority of farmers believe that certified seed delivers benefits and is a contributor to success. They also agree that sales of certified seed generate funds for investment in future innovation, and that the value of that innovation outweighs the cost of certified seed. However, in an effort to control short term costs, many producers choose not to regularly purchase certified seed.

² European Seed Association letter to Mr. Philippe Meyer, Directorate-General for Trade, European Commission January 18, 2010

A certified seed tax incentive would give all farmers the opportunity to benefit from the improved genetics and quality assurance associated with certified seed, and would share the costs of innovation amongst all who benefit

CSTA proposes that government implement a broad based tax incentive for farmers who purchase certified seed. By allowing producers to claim 155% of their costs of certified seed as an expense for income tax purposes, the government would make the cost of certified seed equal to the cost of saved seed. A certified seed tax incentive would give all farmers the opportunity to benefit from the improved genetics and quality assurance associated with certified seed, and would share the costs of innovation amongst all who benefit.

A very recent producer survey reveals that almost 80% of farmers surveyed would be more likely to buy certified seed if they were eligible for a tax incentive.³

Recognition in Risk Management Programming

In recognition of the reduced risk associated with the use of certified seed, governments should implement reduced risk management programs for producers who plant certified seed.

Certified seed is the product of a proven process which includes third party verification of quality and purity. CSTA supports the recognition of the reduced risk associated with the use of certified seed, in risk management programs like Crop and Production insurance. We urge government to consider reduced risk management premiums for producers who plant certified seed.

Conclusion

For many years, Canada has enjoyed a very positive national and international image as a provider of innovative products to farmers and consumers around the world. However the truth is that our agriculture and agri-food industry is falling behind its competitors for many crop kinds. A recent study puts Canada near the bottom of the list of competitors with respect to yield improvements in wheat, and the story is the same for many cereal and other crops. There is a direct correlation between productivity and investment in innovation, by both the private and public sectors in Canada.

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Seed is the primary driver of agricultural innovation and the agricultural economy. By creating an environment that enables and promotes investment in seed driven innovation, the government will be providing an economic stimulus to the entire agriculture and agri-products sector.