Driving the Canadian Advantage

A Submission to the House of Commons Standing Committee on Agriculture and Agri-Food

October 2016

On behalf of Canada's plant science industry, CropLife Canada appreciates the opportunity to provide comments on the Committee's study of Genetically Modified Animals for Human Consumption.

CropLife Canada is the trade association representing the manufacturers, developers, and distributors of plant science innovations- pest control products and plant biotechnology- for use in agriculture, urban, and public health settings. CropLife Canada is committed to protecting human health and the environment, and in providing a safe, abundant food supply for Canadians. We believe that driving science and innovation through continuous research creates benefits for all Canadians.

As this committee completes their study on one element of biotechnology, CropLife Canada believes it is important to reflect on the past success of plant biotechnology, an industry that has been providing benefits to Canadians for over 20 years. By reviewing the history and the success of products of plant biotechnology in Canada we can see where this technology has lead us and what the path might be moving forward, plus how it could also benefit Canada's robust animal agriculture industry.

The plant biotechnology industry is a global, research-based industry with significant amounts of capital and time invested into the discovery, development and regulatory approval of a wide variety of products of plant breeding innovations (RIAS, 2015). These innovations have produced new varieties of crops that are resistant to insects, diseases, drought, and certain herbicides. These genetic traits deliver more predictable yields for farmers, improved crop quality and encourage more environmentally sustainable farming practices. Genetically engineered crops are valuable tools for farmers and have been adopted around the world on over 2 billion hectares of farmland (Clive, 2015).

Globally, biotechnology innovations have delivered benefits for the environment, consumers and farmers in both developing and developed countries. The use of biotechnology has many positive environmental impacts. With pest control products and herbicide tolerant crop varieties combined, farmers have more options for weed control and can move towards the adoption of conservation tillage strategies. In fact, from 1981-2011, 62% of farmers across the Canadian prairies have reduced the amount of tillage used on farms and 39% of Ontario farmers have done the same. Reducing tillage reduces greenhouse gases in the atmosphere, no-till or reduced till soils sequester atmospheric carbon more efficiently than tilled soil (as measured by the Soil Organic Carbon Change (SOCC)) and reduced tillage systems decrease the number of times a farmer needs to drive over their fields, thus reducing greenhouse gas emissions from the burning of fossil fuels. Overall, thanks to plant science innovations, farmers have been able to reduce greenhouse gas emissions by an estimated 29 million tonnes annually (RIAS, 2015).

Agricultural productivity has increased rapidly over the past two decades; innovations in plant science have been a key component in this success. In Canada 25.6% and 15.6% of the current yields can be attributable to pest control products and plant biotechnology, respectively. Without these innovations farmers would need an additional 14.2M hectares of land to produce the same level of output. Seventy one percent or $8.3 Billion of Canada's trade balance in crops can be attributed to innovations in crop protection products and plant biotechnology (RIAS, 2015). Increasing the efficiency of each acre allows for more acres to be maintained or restored as wildlife habitat and natural areas.

As biotechnology improves the efficiency of Canadian farmers, consumers also experience concurrent benefits, without the use of plant biotechnology and pesticides, Canadians would pay 55% more for food, which equates to roughly $4400 more per family annually and $60 billion more as a country (RIAS, 2015).

Moving forward it is important to recognize the importance of investing in sustainable technologies that reduce environmental risks. CropLife Canada is very proud of the role that plant biotechnology has played in improving sustainability thus far. Limiting tillage and equipment passes saves Canadian farmers up to 194 million litres of fuel, reducing annual greenhouse gas emissions by 29 million tonnes (RIAS, 2015). Far from harming biodiversity, biotechnology promotes it, by getting the most out of every acre farmers cultivate, whereby allowing more area to be maintained for wildlife. Future research is underway to develop crops that can thrive in changing and challenging climatic conditions including, drought, excess moisture and salty soils. Modern agriculture will play an important role in the solution to climate change thanks to innovation and a focus on sustainability (Food and Agriculture Organization of the United Nations, 2016).

Biotechnology in Canada has been a tremendous success, supported by a public policy in which successive Canadian governments can take pride. Specifically, this success has been made possible by the Canadian regulatory system, a transparent, predictable and science-based system that has been able to ensure safe and healthy food for Canadians since the advent of the first commercially grown genetically engineered crops over 20 years ago. Canada's science-based regulatory system is world renowned, and since its official formation the Canadian Food Inspection Agency and Health Canada have done an outstanding job in establishing a regulatory model in which innovation could be commercialized.

Looking to the future it is clear that there will be a global opportunity for countries that lead in agricultural exports and agricultural innovation, not only as the global population grows but as the percentage of the population that is considered middle class. Dominic Barton, Chair of the Canadian Advisory Council on Economic Growth, sites agriculture and food as a leading priority for economic growth in Canada, "We could be a major ag-food player in the world if we wanted to be, we have the land, the resources, the technology, the people." When it comes to realizing this potential, Barton sites the need for efficient regulations "getting rid of regulations that inhibit people from doing more, from being more ambitious" (Barton, 2016).

The most critical element in the commercialization process impacting the development of capital intensive, research-based innovations in Canada is the regulatory regime for safety approvals. Lengthy and unpredictable review processes and periods diminish an already small window of opportunity for innovators to make a commercial success of research-based investments; this is prohibitive for large corporations and smaller start-ups alike.

In the context of plant biotechnology, Canada has set the example for innovation and efficient regulation for the past 20 years. In order for Canada to maintain its status as a global leader, to remain competitive on the world's agricultural stage, and to realize the benefits that products of plant breeding

innovations present; farmers require timely access to the latest agricultural tools. It is imperative that Canada's regulatory pathway for commercialization is maintained and modernized to remain timely, predictable and transparent; creating an environment that encourages investment.

The pace of innovation in these fields has never been greater and shows no sign of diminishing. Canadian regulators are already involved in the international science community, tracking the discussions on these issues. I recognition of this, Health Canada and Agriculture and Agri-Food Canada hosted an Organisation for Economic Co-operation and Development (OECD) meeting in Ottawa, gathering international experts from around the world to discuss the wide range of benefits that new gene-editing technology can bring to plant and animal agriculture, aquaculture, the environment and human health as well as the associated regulatory requirements (OECD, 2016).

Given this pace of innovation it is important for governments to invest in, and review, their regulatory regimes. In the past this investment took the form of the Canadian Biotech Strategy Fund (1998-2006) which resulted in the development of improved regulatory frameworks for all disciplines of biotechnology, and processes which were more efficient for both the government and industry while maintaining the government's commitment to safety (Canada's Biotechnology Strategy, 2005).

In the instance of plant biotechnology, government should be reviewing the regulatory system in the light of two decades of safe and successful commercialization of plant biotechnology products. Throughout this time period, there has not been a single product submitted for review that has been deemed harmful to either humans, animals or the environment in Canada or in any other country (RIAS, 2015). The high degree of safety of these products is farther demonstrated by the trillions of meals safely consumed, and the 2 billion hectares of biotech crops safely grown across the globe (A.L. Van Eenennaam, 2014). Building on the record of safety, regulatory agencies in the United States, Australia, Brazil and Japan have all publically stated that they are working towards improving the efficiency of their regulatory systems (Sato, 2015) (US EPA, 2015). This trend by some of Canada's key agricultural competitors and trading partners is important as global investment and innovation will flow to the jurisdictions with the most timely, efficient and predictable regulatory frameworks. Targeted investments in Canada in enhancing the predictability, consistency and efficiency pf regulatory frameworks for animal and plant biotechnology would be timely considering this long standing area of science is seeing renewed interest and investment.

Policy Recommendations

In support of the above statements, CropLife Canada has two recommendations for the committee's consideration, that are aligned with the Government of Canada's new Innovation Agenda, particularly the commitment to "Ease of Doing Business", which has clearly signaled the Canadian Government's desire to modernize its regulatory regimes to adapt to and capture the potential of innovative industries while maintaining Canada's high safety standards.

1) CropLife Canada recommends that the Government of Canada publically commit to improving the efficiency of the approval system for products of both plant and animal biotechnology through directed investment in the regulatory departments involved in their

oversite. This investment would be time limited and focused on finding efficiencies by improving the underpinnings of the already functioning systems and embracing risk based approaches to regulation. This commitment to improve would clearly indicate to innovators that in these sectors are encouraged while also driving home to the general public that safety will remain a top priority.

2) CropLife Canada strongly recommends that the Government of Canada develop a tiered risk assessment process which are founded in the principal of risk-based allocation of resources and built on its already strong science-based regulatory system, leveraging the international scientific consensus on the safety of these products and their domestic and global history of safe use. Ensuring that government resources are appropriately allocated will ensure the regulatory regime can process new innovations quickly and efficiently. A review of Canada's regulatory framework should specifically address recent plant breeding innovations such as, products of gene-editing (e.g. CRISPR-Cas9), which are early indicators that the pace of technology development is increasing rapidly compared to the previous twenty years. It is essential that a modernized approach to reviewing these innovations be based on a predefined and transparent process focused on a definition of risk that is consistent across all parties involved in the regulatory regime, as often different elements of product approvals are housed in separate government agencies and departments.

In conclusion, it is clear that plant biotechnology has delivered clear and measurable benefits to Canadian consumers, farmers and the environment. These benefits have been facilitated by successive Canadian governments having the foresight to maintain a transparent, predictable and science-based regulatory system. We believe that maintaining the integrity of that system, and respecting the scientists with in it, is critical to fostering future innovations in Canada for both plant and animal biotechnology. Equally as important to fostering innovation, will be clear measures to improve efficiency and timeliness of that regulatory system without sacrificing high standards of safety.

CropLife Canada would like to again extend our appreciation to provide input to the House of Commons Standing committee on Agriculture and Agri-Food. We believe that Canada has an opportunity to develop its reputation as a global science and innovation leader by continuing to modernize its regulatory systems for plant and animal biotechnology. This will drive investment and job creation in Canada, and will provide both benefits to consumers and in turn the continued sustainability of modern agriculture in the future.

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