HOUSE OF COMMONS
CHAMBRE DES COMMUNES
CANADA

Standing Committee on Agriculture and Agri-Food

AGRI • NUMBER 021 • 1st SESSION • 42nd PARLIAMENT

EVIDENCE

Thursday, September 29, 2016

Chair

Mr. Pat Finnigan

Standing Committee on Agriculture and Agri-Food

Thursday, September 29, 2016

● (0845)

[*English*]

The Vice-Chair (Mr. Bev Shipley (Lambton—Kent—Middlesex, CPC)): Welcome, everyone, to our second meeting of the agriculture committee as we study genetically modified animals for human consumption.

At our first meeting we had the Canadian Cattlemen's Association. Today, for two hours, the department people are going to speak to us.

First we have Paul Mayers from the Canadian Food Inspection Agency, vice-president, policy and programs branch.

Second, from Department of Health we have Karen McIntyre, who is the director general, food directorate, health products and food branch.

Third we have Andrea Johnston, who is the director general, sector development and analysis directorate, market and industry services branch, Department of Agriculture and Agri-Food.

Is there an acronym for that?

Ms. Andrea Johnston (Director General, Sector Development and Analysis Directorate, Market and Industry Services Branch, Department of Agriculture and Agri-Food): Yes, MISB.

The Vice-Chair (Mr. Bev Shipley): I want to welcome my colleagues back. We have a couple of fill-ins this morning, Randy Hoback, who is not very familiar with the agriculture committee, and Mr. Erskine-Smith, who is also joining today.

I welcome you. We will start off with 10 minutes each from the department heads, starting with Mr. Mayers.

Mr. Paul Mayers (Vice President, Policy and Programs Branch, Canadian Food Inspection Agency): Thank you very much, Mr. Chairman.

Good morning to the committee. It's a pleasure to be with you again.

[*Translation*]

I appreciate the opportunity to participate in this study, and I would like to explain the CFIA's role when it comes to genetically modified, or GM, animals. The CFIA is a science-based regulatory agency dedicated to safeguarding plants, animals, and food. Our work promotes the health and well-being of Canada's people, environment, and economy. The first priority is the health and safety of Canadians.

In the case of GM animals, the CFIA works closely with Health Canada and Environment and Climate Change Canada to thoroughly assess that GM products are safe for food, feed and the environment before they are introduced into the Canadian marketplace.

[*English*]

Let me provide some background before I provide a specific example. Essentially, a GM food is one derived from an organism that has had some of its inherited traits changed. This can involve traditional techniques of crossbreeding; using chemicals or radiation to alter the genetic makeup of the organism's cells in a process called mutagenesis; and applying recombinant DNA or genetic engineering techniques, for instance, introducing a gene from one species into another species.

We use the term “novel” to cover products that have not been previously available for sale in Canada such as those produced through genetic engineering. We have a rigorous, science-based assessment process in place to make sure that these products are safe for humans, livestock, and the environment. Typically it takes a company seven to 10 years to research, develop, and test a GM food before it has compiled enough data to submit an application for market access to the Government of Canada. The company is required to submit detailed information to Health Canada outlining exactly how the product was developed. This information is reviewed by Health Canada scientists with expertise in areas such as molecular biology, toxicology, chemistry, nutritional sciences, and microbiology.

GM foods are becoming more common every day and are part of the regular diet of Canadians. GM foods that have been approved by Health Canada have been consumed in Canada for many years and are as safe and nutritious as their non-GM counterparts.

● (0850)

[*Translation*]

I also mentioned livestock. The CFIA evaluates and regulates all feed ingredients, including novel feeds derived from GM organisms, in the same manner as food assessments.

Any feed ingredient that is new, or has been modified such that it differs significantly from a conventional ingredient, is required to undergo a pre-market assessment and approval before being allowed into the Canadian marketplace.

Now let me address the specific example — AquAdvantage Salmon. This is the first genetically engineered animal to be approved in Canada for use as food for human consumption or animal feed.

[*English*]

The AquAdvantage salmon is a GM salmon developed to promote rapid growth during early life. This was achieved by introducing a growth hormone gene from the chinook salmon to an Atlantic salmon. The AquAdvantage salmon has undergone separate safety and nutritional assessments by Health Canada for use as food, and by the CFIA for use as livestock feed. These reviews both found the salmon to be as safe and nutritious as conventional salmon.

Health Canada and the CFIA conducted the safety assessments based on guidelines developed by the Codex Alimentarius Commission as well as principles from the World Health Organization, the Food and Agriculture Organization of the United Nations, and the Organisation for Economic Co-operation and Development.

The CFIA and Health Canada assessments complement a regulatory environmental and indirect human health risk assessment that was already completed for AquAdvantage salmon. Environment and Climate Change Canada in collaboration with Fisheries and Oceans Canada conducted that assessment in 2013.

Following all of the assessments, Canada approved this product on May 19, 2016. However, Canada is not the first country to approve this product for use as food and livestock feed. In November 2015, the AquAdvantage salmon was approved by the United States Food and Drug Administration following that agency's scientific safety review.

Still, the decision to market this product is up to the company. It's our understanding it could take up to two years before the first GM salmon products would be made readily available in the Canadian feed or food markets.

For this salmon, the company has advised that GM salmon eggs are to be produced in a contained facility in Prince Edward Island and then shipped to Panama for growing. Neither the eggs nor the live fish will be released into the Canadian environment.

If this salmon product enters the market, it will need to comply with all Canadian laws and regulations just like any other feed or food product, and this includes meeting standard labelling requirements.

[*Translation*]

Health Canada requires labelling for food products where clear, scientifically established health risks or significant changes to the nutritional qualities of the food have been identified and can be mitigated through labelling. For example, if there is an allergen present in a food, it must be labelled to alert consumers. In this case, given that no health and safety concerns were identified, there are no special labelling requirements for AquAdvantage Salmon.

However, Mr. Chair, there is a Canadian national labelling standard for genetically engineered foods that can be used when companies choose to make claims. This standard was developed through extensive consultation with industry and the public.

● (0855)

[*English*]

The voluntary labelling and advertising of foods that are or are not products of genetic engineering was first adopted by the Standards Council of Canada in April 2004. It provides guidance to food manufacturers that choose to make claims regarding genetically engineered foods so that they are in compliance with the labelling requirements of the Food and Drugs Act and the Consumer Packaging and Labelling Act.

Products can be voluntarily labelled based on the national standard, provided conditions are met and the claim is understandable, informative, accurate, and not misleading. The CFIA is responsible for enforcing these labelling requirements. The decision of whether or not to proceed with voluntary labelling rests with the company.

Thank you again for this opportunity to provide insight into the CFIA's role regarding genetically modified animals.

Thank you, Mr. Chair.

The Vice-Chair (Mr. Bev Shipley): Thank you very much, Mr. Mayers.

We'll now turn to Ms. McIntyre from Health Canada for 10 minutes, please.

Ms. Karen McIntyre (Director General, Food Directorate, Health Products and Food Branch, Department of Health): Thank you, Mr. Chairman, for the opportunity to speak with you this morning about Health Canada's role in regulating genetically modified foods, including GM animals intended for human consumption in Canada.

[*Translation*]

Health Canada's mission is to help Canadians maintain and improve their health. In order to fulfill its mission, Health Canada develops appropriate regulatory frameworks and guidance to help ensure that the food products Canadians purchase are safe and nutritious.

[*English*]

Within Health Canada, the food directorate is the federal authority responsible for establishing policies, setting standards, and providing authoritative advice and information on the safety and nutritional value of all food sold in Canada. In support of this role, the food directorate conducts scientific research as well as health risk and benefit assessments. We also conduct pre-market reviews for products including food additives, infant formula, and novel foods.

In the 1990s, Health Canada established new regulations under division 28, part B, of the Food and Drug Regulations, also known as the novel foods regulations. These regulations capture any GM micro-organisms, plant or animal, and require food companies to notify the department prior to making them available for sale in the Canadian marketplace. This allows Health Canada to determine that the product is safe for use as a food.

To support the pre-market safety assessment process, the company wishing to sell the product must submit detailed scientific data to support the safety and nutritional value of the genetically modified food. Only once Health Canada is satisfied that the data provided demonstrates that the food is safe and nutritious will it be allowed for sale on the Canadian market.

These regulations address any new GM product because they are triggered by the addition or change in a trait of a product as opposed to the technology used to produce it. In order to evaluate the safety of GM foods for food use, whether a GM crop or a GM animal, Health Canada uses a rigorous process that is consistent with internationally established scientific principles and guidelines developed through the work of the Organisation for Economic Co-operation and Development, the Food and Agriculture Organization, the World Health Organization, and the Codex Alimentarius Commission.

[*Translation*]

This assessment is conducted by Health Canada scientific evaluators, who have expertise in molecular biology, toxicology, chemistry, nutritional sciences and microbiology. They review how the food was developed, compare its compositional and nutritional profile with conventional counterparts, and look at the potential for the food to be toxic or to contain a toxin or allergen.

[*English*]

If in any area of the assessment Health Canada scientists determine that the data provided is not sufficient, additional information and/or testing would be required and requested in order to fully demonstrate the safety of that product. Only when all the scientists evaluating a GM food agree that there are no safety concerns is the food permitted into the Canadian marketplace.

It should also be noted that Health Canada scientists also consider other published data, in addition to that provided by the company, that is relevant to the product in question when it is completing the safety assessment.

Under the current regulatory framework approval, no single government body is responsible for making a final decision on these products. Health Canada, the Canadian Food Inspection Agency, and Environment and Climate Change Canada all have a role to play in the overall approval process that allows for a GM food to enter the Canadian marketplace.

While each department or agency makes its own independent decisions regarding the authorization of a GM food according to its own regulatory authorities, Health Canada and the CFIA have a “no split” approval policy that ensures the coordinated communication of positive decisions. This is aimed to prevent unapproved GM foods, feeds, or seeds from entering the Canadian marketplace.

Historically, most GM food submissions have been related to foods derived from GM crops. However, Health Canada and the CFIA did receive a GM food submission from AquaBounty for its GM salmon. This product was modified using recombinant DNA technology to grow faster and thus reach market weight sooner than a non-modified farmed Atlantic salmon. This was the first submission for approval of a GM animal for food and animal feed use in Canada.

In May 2016, Health Canada and the CFIA completed thorough and rigorous scientific reviews of the AquAdvantage salmon and determined that it was as safe and nutritious for humans and livestock as conventional salmon is. This completed the Government of Canada's scientific safety assessments required to let AquAdvantage salmon be allowed for use as food.

Under the Food and Drugs Act, Health Canada requires mandatory labelling for any food, including food derived from genetic modification, when there is a health risk or significant nutritional changes to the food that can be mitigated through labelling. In these situations, labelling is required to alert consumers or susceptible populations. Given that the GM salmon was determined to be safe and nutritious, there are no special labelling requirements.

● (0900)

As my colleague from CFIA has already noted, voluntary labelling is permitted to provide consumers with information that is not related to the safety of the product. The national voluntary standard allows companies to voluntarily label foods as GE or non-GE. Voluntary labelling is a marketing issue and does not fall under the mandate of Health Canada, which is related to food safety only.

[*Translation*]

We are also committed to ensuring openness and transparency in our evidence-based decision-making. So, to help inform Canadians on the regulatory decisions related to novel foods, including GM foods, Health Canada posts detailed decision documents along with plain language summaries of the safety assessment on our website.

[*English*]

I hope that the activities I have highlighted today help explain the science-based approach that Health Canada takes to regulating novel foods and, in particular, those that are products of genetic modification.

[*Translation*]

Thank you for your time today.

[*English*]

Thank you.

The Vice-Chair (Mr. Bev Shipley): Thank you, Ms. McIntyre.

We will now move to our third presenter, Andrea Johnston from the Department of Agriculture and Agri-Food.

Go ahead for 10 minutes, please.

Ms. Andrea Johnston: Good morning and thank you.

It is my pleasure to appear before this committee today as you study the framework around genetically modified animals in Canada.

[*Translation*]

I would like to provide some context on this important issue with a high-level overview of: the importance of innovation to agriculture, including biotechnology; the approach of the Government of Canada to biotechnology; the applications of biotechnology in agriculture; and the international context around the regulation of genetically modified products.

[*English*]

AAFC's role is to support innovation and competitiveness within the sector, including through funding, as well as to facilitate coordination throughout the value chain and to undertake international advocacy to ensure a level playing field.

In terms of the importance of innovation to the agriculture sector,

[*Translation*]

the agriculture sector worldwide faces a major challenge: growing more food with fewer inputs.

[*English*]

It is estimated that the world's demand for food will grow by at least 50% by 2050. Meanwhile, producers face competing pressures on land, water supply challenges, demands for a reduced environmental footprint, and the effects of climate change, such as extreme weather events that are creating new risks to agriculture production.

To meet this challenge of sustainable growth, we will need to rely heavily on scientific research and innovation.

● (0905)

[*Translation*]

The government has a key role to play in fostering private sector investment and creativity through support for basic research and regulatory and trade regimes.

[*English*]

Science and innovation are core priorities for the Government of Canada, with a commitment to a new innovation agenda and significant investments in core economic sectors, including agriculture. The history of agriculture is one of creativity and innovation. Today, we're producing more food per acre and using less water, fertilizer, and other resources. Farmers today require half the amount of inputs that they did half a century ago in order to produce the same amount of food. That's thanks in part to investments in productivity growth.

Biotechnology, for example, has expanded the tool box available to develop a wider range of functional and value-added traits, while bringing those changes to the market faster than ever. Canadian producers rely on plant science technology to stay competitive and tackle a growing number of challenges, from climate change to plant pests and disease. Not only do these technologies help farm businesses and the economy, but they strengthen global food security as well.

Advances in biotechnology will continue to drive productivity and competitiveness in the agricultural sector in many ways. We are now moving beyond traits and benefits such as disease resistance and reduced pesticide use to benefits for consumers, such as improved nutrition and other attributes—for example, non-browning apples.

In terms of the Government of Canada's approach to biotechnology, our primary responsibility in an innovation-driven economy is to ensure its regulatory system protects the health and safety of Canadians, as well as the environment. The government follows a science-based approach in approving products by conducting environmental health and safety assessments.

There is also a need to create a climate that fosters investment in innovative technologies to drive the long-term viability of the industry. For its part, industry will need a level of certainty and predictability in the regulatory framework before investing in Canada and in these technologies.

Industry is best positioned to make non-health and safety considerations, such as the market's willingness to accept new technologies. This approach supports a wide variety of production methods, helping the sector supply the vast array of products needed to meet both domestic and international market demands and offer a wide array of choices to consumers. Indeed, in recent years we have seen a number of new consumer products brought to market, including organic, non-GMO, free-range, and sustainability certifications.

Given that industry decides whether and how it will develop and adopt new technologies following regulatory approval, biotechnology applications in agriculture have proceeded differently for grains and oilseeds, fruits and vegetables, and animals.

With respect to grains and oilseeds, Canada is a top-five producer globally of genetically modified crops. Grain producers have embraced the technology. Today, 95% of canola acreage in Canada is genetically modified. For corn it's 90% and for soybeans it's 85%. These crops have become well accepted in international markets, with grains and oilseeds comprising a third of all Canadian agriculture and food exports.

The use of biotechnology for animals and for fruits and vegetables has not progressed at the same pace. As a result, there has been a limited number of cases of genetically modified animals. The most notable, of course, is the AquAdvantage salmon, which was the first to be approved for food and feed use in Canada in May 2016.

The willingness of the marketplace to accept genetically modified animals continues to be a prime consideration for industry before moving forward with these technologies.

Within the international context, regulatory systems based on factors other than scientific evidence can create non-tariff trade barriers. Canada's long-standing and science-based approach to regulatory approval has helped all sectors of the Canadian economy, including agriculture and agrifood, to adopt innovative technologies.

This has given our economy a competitive edge, helping to position Canada as a top-five exporter of agriculture and agrifood products. It also fosters a high degree of confidence in the Canadian food supply, both domestically and internationally.

Canada's focus on science is consistent with our international trade obligations. It is also a pillar of our international market strategy, especially with products of biotechnology, which can often face unscientific restrictions in foreign markets.

The government continues to press for regulatory frameworks that are science-based, transparent, and predictable. This will not only facilitate trade but will also strengthen our ability to compete internationally and maximize economic benefits for the Canadian agriculture and agrifood sector. To support these efforts, we continue to work actively with countries that have adopted regulatory approaches comparable to Canada's, including the United States, Brazil, and Argentina.

Our common focus is to grow opportunities for our exporters, especially in key markets such as the European Union and China. The department continues to promote science-based international standards in the global trading community and to provide a predictable trading environment for our exporters.

To close, Mr. Chair, biotechnology and other innovative techniques are helping the agriculture sector become more productive, consume fewer resources, and help feed a growing world population sustainably.

Canada's commitment to sound, science-based regulatory decisions is essential to protect the health and safety of Canadians, as well as our farmed animals and our environment. Science-based regulatory decisions are essential in providing a predictable investment and trading climate. The marketplace, through evolving consumer demands, continues to work well, providing a vast array of choice to consumers in Canada and around the world.

Thank you again for this opportunity, Mr. Chair.

● (0910)

The Vice-Chair (Mr. Bev Shipley): Thank you very much.

I want to thank each of the presenters for giving us very thorough presentations.

We're now going to open it up to our colleagues for questions.

I'll start with Mr. Hoback, please, for six minutes.

Mr. Randy Hoback (Prince Albert, CPC): Thank you, Chair.

It's great to be back at the ag committee. If I could have both trade and agriculture, I would, there's no question about it. I love both committees.

I have to start off by thanking you guys for all the hard work you did in China in that canola market. I know you did the work in the background. I know you made this happen. A lot of people back out west and a lot of farmers who are sitting in combines today appreciate the hard work you did and really want to say thanks. I want to make sure that I relay that to you here in committee. If I get a chance to do it in the House sometime, I'll try to do that also.

I love B movies. I really do. On Sunday afternoons I'll sit and watch a B movie, and one of my favourites is *Sharknado*.

Voices: Oh, oh!

Mr. Randy Hoback: I don't know why, but maybe it's because I can turn my brain off and watch TV for a couple of hours.

You know, though, a lot of those B movies are based on fears about GMOs. *Sharknado*, I would assume, is based on that somewhere down the road. I'm going to go down that route to try to alleviate some of those fears.

You've talked about the processes you go through in improving these products. We've seen it done in canola. You've talked about the importance of that for the canola market. It used to be that if you grew a 30-bushel canola crop, that was pretty good, and if you grew a 45-bushel canola crop, you were lying, but now, if you don't grow a 55- or 60-bushel canola crop, then you're not a good farmer.

It's amazing how that new technology has increased our productivity and also has reduced our water consumption, our chemical usage, and soil erosion. The economic and agronomic benefits are phenomenal.

Now I see this in the animal sector. It is exciting, but it is a little nerve-wracking for people if they don't understand the science and what goes in behind the science, and if they don't have comfort in knowing that the proper systems have been put in place to make sure that when it hits the table, it's safe to eat.

Also, in the animal sector, I think people also want to know what the environmental implications are. I'll use the example of the fish that you brought up here. As they are being developed and produced, if one were to escape and get into the ocean, what would that mean? What would that impact be?

Can you give us some background? I'll start with you, Paul. As you go through the process, and as somebody presents an idea to you in terms of doing a GMO fish or a GMO cow, what are the prerequisites before they even get started in doing the science?

Mr. Paul Mayers: Thank you very much for the question, and indeed, let me also thank you for the kind words with respect to the work on continued trade with China in canola. That's incredibly valuable for the Canadian economy and I think a testament to excellent collaboration between industry and government in getting there, so I very much appreciate your words.

You raised, I think, an extremely critical point about fostering better consumer understanding of just how much care and effort goes in before a product ever even approaches the market. Industry members in Canada have been extremely responsible in relation to the development of GM crops and GM animals. They are encouraged to take part in, and all of the regulators are very open to, what we call pre-submission consultation. Companies avail themselves of that to have a conversation with the regulators about what's in the pipeline and about any issues with what's in the pipeline so that the regulators can be clear with companies about what the expectations are.

In support of business, we also have very clear and comprehensive suites of guidance documents that outline the requirements in order to enable each of the relevant departments to conduct a comprehensive safety assessment. Long before a company contemplates bringing forward a submission, it has the opportunity to get a deep understanding of what data it has to generate. It's critical to understand that the decisions are based on a comprehensive evaluation of data. It's not about whether something sounds like a good idea or a bad idea. We don't have a role in making a judgment in that regard. Instead, we focus on the data that demonstrates the product's nutritional and safety parameters—my colleague from Health Canada can elaborate further on that—and in CFIA's case, that demonstrates that animals fed products derived from it will be able to be successful, because farmers want to buy feeds that work. That focus on a data-driven scientific endeavour in order to provide assurance to Canadians is something in which we take great pride, in the work we do.

● (0915)

Mr. Randy Hoback: As we see a product develop and as that data stream starts to develop, what do you do to audit that data? What do you do to ensure its integrity?

Mr. Paul Mayers: We expect data presented to us to come from an experimental design that's sound, because our own scientific experts are reviewing that data against.... We essentially go through the same process that would go into looking at information presented for a publication. As Karen mentioned in her remarks, in our review, we don't just say, “well, here's what the company's given us”; we're also looking at the wider scientific literature. Assessing their design and their outcomes against a backdrop of the entire scientific environment is an important consideration, and that doesn't just stop when an approval is granted. If anything emerges from the scientific literature, or if there's a new finding that is relevant, we'll go back and reassess if necessary.

Mr. Randy Hoback: So if you point somebody—

The Vice-Chair (Mr. Bev Shipley): Sorry, we don't have enough time, Mr. Hoback. You'll likely get another chance.

Ms. Lockhart, go ahead, please, for six minutes.

Mrs. Alaina Lockhart (Fundy Royal, Lib.): Thank you very much. We've been commenting down the way here that your presentations are very good and quite frankly they have answered some of our questions, so thank you for that and for being so well prepared.

Ms. McIntyre, you mentioned that there are three bodies involved in this process: Health Canada, CFIA, and Environment and Climate Change Canada. Could you speak a little bit about the work they're doing? I'm kind of tying that back to Mr. Hoback's question about consumer confidence and the environment.

Ms. Karen McIntyre: Paul mentioned a little bit about their role. There are three departments involved in looking at genetically modified organisms. Of course, the CFIA has the responsibility for the animal feed use. We look at human food safety, and Environment looks at the potential impacts of the organism on the environment.

You asked something more specific about consumer information and environment?

Mrs. Alaina Lockhart: Part of the concern is that if a GMO salmon product was released into the wild, what is going to be the impact on the environment? Is that something that you can answer, or do we need to talk to Environment as well?

● (0920)

Ms. Karen McIntyre: I would suggest that you speak to Environment, but I can say that if they wanted to do something different than what they've applied for, then they would have to resubmit an application to Environment Canada in order to have that approval.

Mrs. Alaina Lockhart: That's because the current application is to ship eggs to Panama, correct?

Ms. Karen McIntyre: That's right. It's specific to growing those in containment in Panama.

Mrs. Alaina Lockhart: Ms. Johnston, you talked a lot about the advances in technology in the plant aspect of agriculture, and that from an animal perspective we haven't kept up. Can you give us some reasons as to why that is, and where we are in the timeline? Is this just beginning? Is it a lack of investment? What are the differences?

Ms. Andrea Johnston: I think a lot of it has to do with cost. Sometimes researchers find they can get the same output without using genetic modification or genetic engineering. The other issue is the marketplace and acceptance. Generally, when a proponent will bring something to a regulatory process, they will have taken into consideration where that product will end up. We're in early days with this technology in animals.

Mrs. Alaina Lockhart: I don't know if you're able to speak to this, but this is the first animal product. We've heard from the cattlemen that this isn't an area where they're looking at doing any amount of investment right now, but are there other industries that are considering this?

Ms. Andrea Johnston: In general, it's very expensive, so I think they're looking at some of these traits and they're looking at it from more conventional breeding. On the pork side, they're looking at better feed utilization to reduce methane emissions. They looked at it awhile ago in genetic modifications, but decided that the marketplace wasn't ready for genetically modified animals like pigs.

Mrs. Alaina Lockhart: When you say the market's not ready, what factors make the market not ready?

Ms. Andrea Johnston: As consumers, we all decide what we prefer. They're looking for choice. It depends. They have to find the retailers who will want to put it in the marketplace and sell it, so they would have to do some market awareness studies to determine willingness and appetite from consumers in what areas and in what regions. It's all about market acceptance and understanding where the consumer is coming from, and then they'll make the determination whether there is enough acceptance in order for them to sell it.

Mrs. Alaina Lockhart: I guess that ties back to the idea that there's a need right now for education in respect to the science behind the regulatory process. Okay, thank you very much.

The Vice-Chair (Mr. Bev Shipley): Thank you very much, Ms. Lockhart.

We'll now go to Ms. Brosseau, please, for six minutes.

Ms. Ruth Ellen Brosseau (Berthier—Maskinongé, NDP): Thank you, Chair.

I'd like to thank the witnesses for their presentations this morning on this study on genetically modified animals for human consumption.

When the announcement came that GM salmon was accepted in Canada, I think the media and the Canadian population were divided. A lot of Canadians were worried, and there were some people who were interested in this.

I read that in 2010 there was a government-commissioned poll that talked about the concerns of Canadians. The poll showed that 58% of Canadians surveyed did not approve of the genetic modification of fish, 74% disagreed with the development of GM fish that grow faster than non-GM fish, and 58% had little or no confidence in the safety and the regulatory approval system for GM fish.

As it is right now, in Canada, we do not have labelling for genetically modified organisms and animals. We do have a bill that's coming out in the House shortly. My colleague has tabled Bill C-291 for the mandatory labelling of GMOs. We tend to think that Canadians have a right to know what they're eating. When it comes to GMO animals and fish like salmon, I think it's important that when Canadians go to the supermarket, they're aware of what they're buying. This salmon is mixed with eel. What is it mixed with exactly? It's a pout? What percentage of it is salmon and what percentage is pout? The ocean pout is supposed to make it grow twice as fast, correct?

● (0925)

Mr. Paul Mayers: I'll start, and my colleague from Health Canada can elaborate further.

In terms of the makeup of the product in the marketplace, as noted, the product in the marketplace is not different from Atlantic salmon. The issue is not about the percentages in the makeup, because the product is equivalent to the product in the marketplace. Genetically speaking, the growth hormone is from the chinook salmon, but the ocean pout genetics have to do with how that gene is expressed in the salmon. With the chair's permission, I'll ask Ms. McIntyre to elaborate on that specific issue further.

Ms. Karen McIntyre: It's a promoter gene that has been genetically engineered into the Atlantic salmon from that species. I'm wondering if your question is whether this actually changes the species.

Ms. Ruth Ellen Brosseau: It doesn't change the species, does it?

Ms. Karen McIntyre: No.

Ms. Ruth Ellen Brosseau: Okay, so it's just an additive that will make it...because generally, I think it takes three years for salmon to be ready to be eaten, but with this modification, it will take 15 months. Is that right?

Ms. Karen McIntyre: Yes, it will grow to its normal size in half the time, so instead of two years, it will grow to its normal size and weight in one year.

Ms. Ruth Ellen Brosseau: I think there have been some concerns that maybe this GM salmon will get out, and it could endanger our wild salmon. There have been some studies and some articles talking about that fear, but from what I understand, for the most part, these salmon are sterile.

Ms. Karen McIntyre: That's correct.

Ms. Ruth Ellen Brosseau: Is that 100% the case? I've read some things saying that possibly 5% of them might not be sterile. I know we're still in the hypothetical, because it's not here yet, but there is still a concern that it might not be 100% sterile.

Ms. Karen McIntyre: I'm not aware of that, but I know that all of the studies that are out there have been considered in terms of the assessment that has been done, and it has been determined to be safe.

Again, I think it's important to remember that it is not approved for release into the wild. There are a lot of controls in place to ensure that it doesn't go into the environment, and that includes the fact that it is sterile as well. There are a number of things involved, a number of safeguards in place.

Ms. Ruth Ellen Brosseau: What role does the Department of Fisheries and Oceans play in the evaluation of GM salmon?

Ms. Karen McIntyre: Their role was to look at the impact of that organism on the environment.

Ms. Ruth Ellen Brosseau: In the States, I think California and Washington have banned GM salmon. In Canada I think there have already been some supermarkets, Costco notably, that have expressed some concerns and have said they're not willing to sell it. When we're talking about marketplace acceptability and whether consumers and Canadians want this, is it the federal government's role to fact-check and demystify and explain the process better, the transparency and the analysis that goes into accepting genetically modified fish, or maybe other animals in the future, or even just grains? Is it the government's role to explain to Canadians, or is it really up to the industry that is pushing for these products in the marketplace in Canada?

Ms. Karen McIntyre: I think absolutely that the government does have a very important role in terms of explaining the safety assessment process and how decisions are made, and in making that information public and transparent. As I mentioned earlier, we publish very detailed scientific assessments of how any decision we reach has been made and how we considered each of the aspects or each of the criteria, including things like nutritional composition, potential for allergens, or potential for toxins.

We go through and we publish a very thorough scientific review, and we also do a complementary plain-language summary, which is less technical and can be understood by somebody who doesn't have a technical background in biotechnology.

● (0930)

The Vice-Chair (Mr. Bev Shipley): Thank you very much, Ms. Brosseau.

We'll now move to Mr. Drouin, please, for six minutes.

Mr. Francis Drouin (Glengarry—Prescott—Russell, Lib.): Thank you, Mr. Chair.

I too will repeat Mr. Hoback's comment, although I won't comment on his choice of movies. I do want to congratulate you for your work on the canola file and on the beef file. I think it's tremendous news for our farmers. As Ms. Johnston said, by 2050 food production has to increase by 50%, so I think it's important that we have access to those growth markets.

I'm going to continue with the line of questioning of Mr. Hoback and Ms. Lockhart in terms of consumer confidence.

Mr. Mayers, you've mentioned that it typically takes a company seven to 10 years to research, develop, and test the GM food before it has compiled enough data to submit an application to the Government of Canada. Here's what I want to understand. Is the government involved in the process in that seven to 10 years? Is there a back and forth with a department? I think you mentioned that.

Mr. Paul Mayers: Yes, and thank you very much for the question. Also, thank you for the kind words with respect to the work in terms of market access.

During that period, typically at the early research stage, there is little interaction, because the company at that point is finding out if they have something that will have mileage. Once they believe they do, that's typically when interaction starts. We encourage that interaction, but it isn't mandatory.

It's entirely possible for a company to go through all of that process and come to us only when they're ready to come to market. It's not the wisest decision in the world, and the reason for that is that when we have questions during the review process, the review stops. We go back to companies with questions in terms of deficiency letters, and, in essence, if they haven't had a lot of interaction with us, it can sometimes take them almost a year to compile the necessary data just to answer those questions.

For the efficiency of the system, we would rather reduce that cycle time, because if a company is coming to us with what they believe to be a legitimate market opportunity, then we're interested in carrying out the due diligence in a time frame that can give some predictability for market entry. That's why we encourage that interaction.

That interaction typically takes place less in the pure development end of the research and more in the market preparation end as they are compiling the regulatory data, as opposed to the research to develop, for example, the AquAdvantage. As they move to something that they think is going to work, what do they need to do to be able to demonstrate that it's safe? It's not whether they can get it to to grow at an accelerated pace, but rather, now that it seems to be working, what do they need to do to get it into the market? That's where the significant interaction helps.

Mr. Francis Drouin: With regard to the scientists and the microbiologists that you hire, have they worked there for a long time? The reason I ask is that sometimes you'll hear claims out there that these scientists are all corrupted because they come from the industry. Well, they might have industry knowledge, but they've had long-term careers with Heath Canada and the CFIA.

Mr. Paul Mayers: Absolutely, though I'm not going to say that every person who works on the file has to have been in the agency for 10 years. These are career public servants. We're not drawing in hired guns just to carry out a review. These folks are carrying out reviews across the span of products that we look at, and not just in terms of GM products.

Certainly, there are some, such as the folks with the molecular biology expertise, who review the molecular biology. That's their expertise. For example, folks in the CFIA with animal nutrition expertise are not just looking at GM products; they're looking at feeds. That's our role. Our role isn't about GM or non-GM. Our role is about providing assurance with respect to feeds, and Karen's team is about providing assurance with respect to food.

That's the expertise we draw on. The same folks who are looking at conventional products are looking at these.

● (0935)

Mr. Francis Drouin: My last question is about consumer confidence.

What is the department doing to ensure that the scientific research is there, and are we communicating that to the public to ensure consumer confidence?

For instance, if I say something false in the House, you can rest assured that the other side is going to tell me right away that I've claimed something false.

The reason I mention that is, there's a lot of Google, Facebook science out there, and everybody is an expert now. We're left in a world of experts, even though they might not be experts.

How are we communicating that? Is there a team out there ensuring that we communicate the right information to consumers?

Mr. Paul Mayers: You point to something that is perhaps the most significant challenge for us. As regulators, our role is confidence in the regulatory system and the decisions we take as opposed to promoting the product.

As Karen noted, we share information, both technical and non-technically characterized, on the decisions we've made. We provide information on the technologies, and our approach is more general. However, the reality is, this is an area where I'm not going to say that we're stars.

The information is there, but we don't have a large focus on highly proactive promotion of those aspects of the regulatory system. The availability of that information, I'll freely admit, is somewhat more passive.

Consumer understanding with respect to this technology, going right back to the nineties, when we were first considering GMO plants from a regulatory perspective, has always been an issue that's been raised as a challenge.

The Vice-Chair (Mr. Bev Shipley): Thank you very much, Mr. Drouin.

We'll now go into the second round.

We'll start off with Mr. Breton, please, six minutes.

[*Translation*]

Mr. Pierre Breton (Shefford, Lib.): Thank you, Mr. Chair.

My thanks also to the witnesses who provided us with very clear information on this matter.

I accept that there are genetically modified products. We have a great deal of experience with plant and crop products. To my great surprise, based on what you said, we have been eating them for 15 years or so.

I don't know whether, when your various agencies approved these products 15 years ago, consumers were as hesitant as they are today. Consumers have become wary and mistrustful of genetically modified animals.

If we put ourselves in the shoes of ordinary people, we see this from a different angle and say that it's very capitalistic. We attribute it partly to producers, thinking that they want to produce more in less time, that they will be more productive and that they will be making more money.

In my view, we should find the proper way to communicate the correct information and the benefits to the public. Earlier, I heard what the benefits are and they seem fairly clear.

We've heard a lot about benefits, but can you also tell us about the risks for consumers? I know that studies have been conducted over the past few years and that there are risks related to toxicity, antibiotic resistance and allergens.

I would like to know a little more about those issues, which may have been analyzed by the scientists in your various agencies.

[*English*]

Mr. Paul Mayers: Okay, I'll start.

[*Translation*]

Thank you for your question.

[*English*]

There are risk considerations, and that's why the safety assessment process is there. If genetic modification didn't have any potential to introduce risk, then we wouldn't need it. We recognize that if in modifying an organism...because you are changing the heritable traits of the organism, if you introduce a gene associated with toxicity as an example, then you will be introducing risk. That's why we carry out these careful assessments.

In those assessments, we also want to determine whether, in accomplishing the modification you have made because you're affecting the metabolism of the organism, there are any additional effects. These are all carefully considered.

There have been reports from researchers pointing to their views of risks. We look at those reports carefully. I can say with confidence the products of biotechnology, which have been reviewed and approved for the marketplace, have not shown any evidence of adverse effect, even after many years of presence in the marketplace as animal feeds. I'm sure my colleague can speak to it in the context of human foods. The record with respect to biotechnology product approvals—I'm not saying biotechnology in general, but for products that are reviewed and approved using the guidance that is available—is extremely positive.

That doesn't mean it's impossible to create risk. It's not. That's why we do the work we do.

● (0940)

Ms. Karen McIntyre: I would add that we've been approving GM food since 1993, so these products have been on the market for almost 23 years. As my colleague said, we're not aware of any events or any sort of health consequences that have been linked to GM foods.

[*Translation*]

Mr. Pierre Breton: Are you talking about plants in particular?

Ms. Karen McIntyre: Yes, we are just talking about plants.

Mr. Pierre Breton: Very well.

[*English*]

Ms. Karen McIntyre: We don't look at any other food in this kind of detail. We don't look at anything at a molecular level the way we look at these products. This is a thorough and comprehensive scientific safety assessment that's not just conducted by Health Canada scientists, but it is also conducted by CFIA.

Most of these products are getting similar approvals in other countries around the world. The scientific community is on the same page, and everyone who is looking at these products is using the same criteria, the same guidelines, and the same principles, and those have been established by the international scientific organizations that both of us mentioned in our opening remarks.

This is exactly why we do these types of assessments, to determine whether or not there are any potential risks. In my experience, with all the products we've looked at—I think about 120 plants so far—we haven't seen anything like this.

The Vice-Chair (Mr. Bev Shipley): Thank you very much.

Thank you, Mr. Breton.

[*Translation*]

Mr. Pierre Breton: Thank you very much.

[*English*]

The Vice-Chair (Mr. Bev Shipley): Before I move on to Mr. Gourde, we're going to wrap up the second round. I've asked the clerk to circulate the sheet because we'll go back to the rotation for round one and a new round two. We will likely have time to fulfill that, so that will be coming.

Mr. Gourde, for six minutes, please.

[*Translation*]

Mr. Jacques Gourde (Lévis—Lotbinière, CPC): Thank you, Mr. Chair.

My thanks also to the witnesses for being here.

Some consumers are concerned about genetically modified foods, but also about the producers. Let me give you an example about grain producers. About 20 years ago, it was relatively easy to harvest a crop and sow it again. Today, professional seed producers have a number of advantages, including in terms of the quality of the grains, the starch, and the yield. However, there is also a gene inside that makes it impossible to harvest the crop and sow it again the following year.

In my riding, people had difficulty producing winter wheat, because the seeds came from another province. My neighbours, my friends and my family had the same problem. So the yield was not necessarily very well adapted to the weather conditions in my region.

We found a variety with a relatively average yield, but after seven or eight years of the same variety being sowed, it naturally adapted to the region. So after about 10 years, there was a natural mutation of the grain in our region and the results were very satisfying, which thrilled a number of producers in the region.

That being said, we are on to the third generation of genetically modified seeds where it is possible to keep some of the beneficial traits and eliminate other less desirable ones. However, our producers are concerned about our ability to find the original traits of the plants or grains should there be a global shortage of seeds. After 10, 15, 20 or 30 years, would we be able to find the original seeds from which these plants were modified?

Does Agriculture and Agri-Food Canada contribute to a Canadian or international seed bank, to at least ensure the future of agriculture overall?

● (0945)

[*English*]

Ms. Andrea Johnston: There is definitely a seeds bank. Internationally, there's work to protect different varieties of seeds. There is a seed bank that the AAFC works closely with, and internationally it's a priority to preserve the genetic heritage of many different seeds.

[*Translation*]

Mr. Jacques Gourde: Do you have an idea of the bank's capacity? Do we send tonnes of seeds or just some samples? If there were a major global drought that would limit the companies in the regions where they produce seeds, we could end up with only 50% of seeds available.

Right now, there are basically no farmers who produce seeds; professional companies and multinationals produce them. If there were a global seed crisis, would we be ready for it?

[*English*]

Ms. Andrea Johnston: At this point in time, we're not aware of a huge seed shortage. As you mentioned, it is really a commercial decision between the farmer and the seed company. AAFC's role is more to protect the genetic heritage to ensure we have the traits and seed banks from a food security perspective. It's mostly a private sector decision between the farmer and the seed company in terms of the supply of seeds.

[*Translation*]

Mr. Jacques Gourde: We now have the first generation of genetically modified salmon. There has been a lot of genetic manipulation in animals, but the same problem has been around for 40 or 50 years.

For instance, the genes of dairy cows were modified so that they produce a lot more milk. They produce four times as much as they did 100 years ago. However, in terms of their hardiness and certain traits, some cattle breeds have practically become extinct.

Does Agriculture and Agri-Food Canada have a program that makes it possible to conserve some of the genetic traits of cattle, or is it again up to the producers and the industry?

[*English*]

Ms. Andrea Johnston: I'm not aware of anything in terms of the animal perspective. I'm more aware of AAFC's historical preservation from a seed perspective.

[*Translation*]

Mr. Jacques Gourde: What can we expect from the next genetically modified generations? I think the trend is changing. Five or 10 years ago, people wanted beautiful vegetables with nice colours, but today, people tend to be more lenient. If carrots are crooked, they are still good to eat. Unfortunately, many food products have been eliminated because they didn't meet an aesthetic standard. However, today, I think Canadians and the world at large are ready to accept small imperfections, because the nutritional value is the same.

Will the next generations choose nutrition over aesthetics or will they still want aesthetically perfect products? As for the rest, we don't know whether they will be compatible with the market.

● (0950)

Mr. Paul Mayers: Thank you for your question.

[*English*]

The Vice-Chair (Mr. Bev Shipley): Could I get you to come back to that answer in a little bit? We're just over the time.

I will go to Mr. Longfield, the last questioner in round two.

Mr. Longfield, go ahead for six minutes, please.

Mr. Lloyd Longfield (Guelph, Lib.): Thank you for coming. You provide us such a great service. I'm still pinching myself, as a new MP, about the quality of the presentations and the people we get to interact with. You're the leaders working in the background in Canada to provide the science we need to be leaders in the world.

When I see things like your presentation, Andrea, saying we're in the top five, a light goes on in my head that says we should be number one. We have the best scientists. We have the best universities. We have the land available.

The University of Guelph plays a key role with all of you, and so the help that you give our scientists at the University of Guelph is also hugely appreciated. We want to be number one in the world. We've just received $77 million of CFREF funding to be the leaders in the world for food. Beyond being leaders in the world, we need to be there for the world to provide protein. The world needs more protein as the middle class in developing nations grows.

Andrea, you have some market information. Could you comment on what Agriculture Canada is trying to do to be able to feed the world as well as our country? Where can we help in terms of policy framework, which is the larger study we're doing right now? We're heading into budget time and I know you'll be interacting with the minister, but from your standpoint, where are the barriers to growth that would allow us to be number one in the world?

Ms. Andrea Johnston: As you would probably agree, I think every farmer and rancher wants to be number one. They want to access as many markets as possible. I think one of the biggest challenges is market access.

Many of you have commented about the excellent work we have done in working closely with our Chinese counterparts and some of the results we have seen. It is about that. It's about ensuring there is a level playing field internationally. Canadians can't eat as much as we produce, and we need to sell it. As you mentioned, there is a high demand for protein, and whether it's meat protein or alternatives, we want to supply that. We work closely with our trade commissioners in different countries to access those markets. We work closely with other governments to ensure that there is a level playing field. To me, it's all about market access.

We know we have the right regulatory regime within Canada. We know we have safe food. We know we have innovative scientists, researchers, and universities, and we have producers who have quite a strong vision, and so it is about getting access to those markets internationally and being competitive and innovative.

Mr. Lloyd Longfield: Thank you.

To expand on that a bit, when we look at market access and international standards that this product has been developed under, are there any international standards that we need to be connecting to in terms of the *Codex Alimentarius*, in terms of labelling development? Are we behind the EU in any way in terms of market development for genetically modified animals?

Mr. Paul Mayers: Thank you. Perhaps I can take that.

The international standard is actually quite good. The problem is uptake. Not all jurisdictions are ready to apply the international guidance in terms of safety assessment to these products in terms of GM animals.

The standard is there. I think we and our colleagues in the U.S. have demonstrated that in using that standard you can reach a conclusion informed by the science. The reality is that just having a Codex standard doesn't mean that countries automatically adopt it.

It come back to the point that Andrea made in terms of that level playing field. We don't currently have it in the international context, and this isn't just for GM animals. The same applies for GM plants. There are many jurisdictions that are not yet at a stage where they are prepared to deliver approvals on a prompt basis and, in some cases, are not prepared to consider GM products at all at this stage.

On the development from a regulatory perspective, because Canada has the benefit of having had the years of experience that Karen pointed to, we've also been active in sharing that experience with other jurisdictions in terms of helping them build the technical capacity to carry out safety assessments.

● (0955)

Mr. Lloyd Longfield: In terms of our policy framework going forward and making sure that you have access to the right resources, you were a witness here before, and I was pushing to ask if you needed more money, and you were saying that's a political decision. We need to take that up.

There are things like Dr. Moccia's “Enviropig”, as he likes to call the pork being raised at the University of Guelph. It uses less water and can be raised in drought-stricken areas. As climate change takes hold, we're going to be able to raise pigs with less water.

I'm running out of time, so just help me with any of this that we need to take forward on our study.

Mr. Paul Mayers: I think the examples you point to are further examples of Canadian innovation, such as the Enviropig and its development as a GM animal, one that hasn't come to the marketplace, and also the work that was done in terms of goats expressing spider silk in their milk. The innovative capacity is there.

The choice in bringing those to the market, however, as we noted earlier, really rests with companies. They're looking at whether they make the investment of trying to bring it to market against a backdrop of just having it in the Canadian market, where the regulatory regime is predictable in being science-based, or whether they need a bigger opportunity before they can make that viable.

The Vice-Chair (Mr. Bev Shipley): Thank you very much.

We've finished the second round, and we're going to go back to Mr. Hoback, please, for six minutes.

Mr. Randy Hoback: Thank you, Chair.

I think I'll continue on with the path and just try to explain the path to people.

Previously, when I asked about the process, you talked about what they have to go through before they even start the research, then about developing the research on the processes that are in place, and also about keeping track of that research and making sure that it's being audited and safety-checked and stuff like that.

I think I'm going to go to the next stage. We've done the research. We've proven that this is a good product. It gets to Health Canada.

Karen, you probably would have been involved in the process before, but now you have to really look at it and say, "Okay, when I put this fish in front of my nephews, it's safe to eat." You have a set of processes that are in play there. Can you give us a brief overview of what those processes would be?

Ms. Karen McIntyre: As Paul mentioned, we also do a lot of pre-consultation—pre-submission consultation—with companies. We encourage them to do so and to come in, especially the ones who are not as experienced or are bringing in products for the first time. We have that discussion with them so they're aware of what the expectations are and what kind of data we're going to be looking at, such as the criteria and the studies they're going to need to do in order to demonstrate to us that their product is in fact safe for consumption.

As I mentioned, we have scientists in a broad variety of disciplines: biology, chemistry, allergen specialists, molecular biologists, and so forth. Each of these is looking at the various components, individually, of a particular submission.

Mr. Randy Hoback: Is it fair to say that at that point that you're not really concerned about the production aspect of it, that you're just concerned with the food safety aspect and that it's actually safe to eat?

I'll use the example of organics versus non-organics. Really, that doesn't matter. I just want to make sure that plate of food is safe to eat. Is that correct?

Ms. Karen McIntyre: That's right, but in terms of production and development, for example, we do look at the molecular biology aspects of it. Although it's not a safety consideration on its own in terms of the final food, we do look at it for the potential to, perhaps, introduce a gene into the food that might be expressed into something else. We look at that, of course.

● (1000)

Mr. Randy Hoback: Again, it comes back to you having made those considerations. I wish we had a budget to promote that and show people just how thorough you are, because I know it's very thorough.

I'm going to you, Andrea. I hope you don't mind me using your first name. I'm a very informal person.

When you see a new product coming to the market here in Canada, how do you look at it and see what the impact will be on our trade partners around the world? Is it going to be mixed with other foods and food products, or used as an ingredient? How do you evaluate that process to ensure that we don't do something unintentionally?

Ms. Andrea Johnston: We don't necessarily have an evaluation role. We ensure that if they export, once it gets approved from the regulatory side, they understand the importing requirements of the country they're exporting to.

If we take the example of crops, over the years the grain sector has developed what they call "market acceptance policy". Generally, they'll get approval in Canada and the United States first, because of our trading relationship, but they won't actually commercialize until they get market acceptance in their major markets.

Mr. Randy Hoback: It doesn't make sense to go after that market if nobody wants it—

Ms. Andrea Johnston: Exactly. They have to understand.

Mr. Randy Hoback: —and they haven't conditioned that market to accept it.

We've gone through market acceptance and looked at that. Obviously that's a corporate decision or the designer's decision. We've looked at aspects of the safety side of it and the environmental side.

I think you can see that there are a lot of processes these people go through with lots of expertise and professionalism before that food ever even makes it onto the table.

What do you do then to counter-attack? Maybe you don't. Maybe that's the industry's role. Maybe your role is just to tell us, "You can be safe in knowing this stuff is safe to eat." Whether it's margarine or fish, or maybe beef somewhere down the road or another product, there's a process that's been put in place to do that. That's where I wonder, when I see organics out there, or promoting organics or natural food....

A lot of people say there are studies and research showing that a percentage of people don't like this or that, but I always say that's just a glimpse in time on that day, and it's showing who's doing the best marketing. Is that a role for government to be involved in, to try to promote one system versus the other?

Karen, do you feel you need to be there?

Andrea, do you think you need to be there?

Ms. Andrea Johnston: In general, the role of government isn't to promote biotechnology versus organics. We do the regulatory approval, and it's the marketplace.... The reality we're facing now in the marketplace is that there's a demand for many different traits such as local, organic, or non-GMO. That's just the reality of the marketplace.

Mr. Randy Hoback: When we look at something like C-13, which is going through the House now, we see that it's just a modernization of regulatory rules which we are already using in most cases.

I think, Paul, you've talked about this. We need to help other countries recognize that science is the best way to evaluate these products. How successful are we with that outside of Canada?

Mr. Paul Mayers: My view, as it relates to biotechnology, would be that we're making progress. We've seen some really important developments in developing countries, which see that the use of the technology can contribute to their development. Panama is a good example. For a country that's strongly agriculturally based, that's not just development in agriculture; it's economic development.

Mr. Randy Hoback: Social development follows, right?

Mr. Paul Mayers: We have done some really good work on the issue of low-level presence by collaborating with some of those countries that are like-minded. I know this committee is familiar with it because it represents a barrier to Canadian market access.

The Vice-Chair (Mr. Bev Shipley): Thank you very much, Mr. Hoback.

We'll now move to Mr. Erskine-Smith for six minutes, please.

Mr. Nathaniel Erskine-Smith (Beaches—East York, Lib.): Thank you very much.

Perhaps you could speak to the difference between the kinds of GMO food. We often talk about GMO broadly, but I have to think there's a difference between what Norman Borlaug did and the Enviropig. Perhaps you could speak to the different kinds of genetically engineered food, different risk profiles, and what we're talking about when we talk about genetically engineered food, specifically.

Mr. Paul Mayers: Perhaps I can start, and Karen will want to add.

The reality is that there aren't big differences when we look at it from a safety perspective. I mentioned in my opening remarks that one means of modifying products genetically is mutagenesis. It's what we would call more of a shotgun approach. While genetic engineering might change a few genes, mutagenesis tends to change a lot of genes, and then you do the back-breeding to take away the ones that have had deleterious effects on crop production. This has been applied in crop production for decades. The issue isn't the technique; it's the outcome.

● (1005)

Mr. Nathaniel Erskine-Smith: That's what I'm trying to get at. The short answer is that risk isn't a great deal of concern in different kinds of genetically engineered food.

Would you agree, Ms. McIntyre?

Ms. Karen McIntyre: Yes, I would, absolutely.

Mr. Nathaniel Erskine-Smith: Perfect.

There was some mention, Mr. Mayers, about volunteer labelling and advertising of foods. There are standards. Do we have any information or evidence of the take-up rate? There are genetically engineered foods out there. To what extent are folks advertising that they're genetically engineered?

Mr. Paul Mayers: The majority use of that standard in labelling has been for non-GM declarations, which is equally covered by the standard, as opposed to GM declarations.

Mr. Nathaniel Erskine-Smith: We don't necessarily have evidence or information about the number of products that have been approved as GMO foods or the take-up rate by those products to advertise as GMO.

Mr. Paul Mayers: Yes. It is quite low. We know that some companies have recently indicated their intent to label. They are multinationals, so this is not Canadian only. At present, that is a very small number.

Mr. Nathaniel Erskine-Smith: Fair enough. The science that you've come with to the committee today is helpful. I think it's amazing to hear how we've had these products since 1993, and there haven't been the risks that some people might think there are.

When we look at access to markets and we look at the international experience...just look south of the border. Vermont enacted a mandatory labelling law, and that's been recently superceded by the federal law. The vote was 306-117 in the U.S. Congress, which is a massive majority. Obama signed it into law, I think just in August.

In your opinion, would it make sense to follow suit by following our partners in the U.S. and have a mandatory labelling law?

Mr. Paul Mayers: You've now strayed into policy, which officials can't comment on, and so I won't because we can't.

We have been watching the U.S. developments with great care. It's an important market, and we'll want to be in a position, as the Canadian Food Inspection Agency, given our regulatory responsibilities for labelling, to support Canadian business for products going to the U.S. That's as far as I can take it, unfortunately.

Mr. Nathaniel Erskine-Smith: You had mentioned the idea that you struggle with consumer confidence. Don't you think that improved labelling laws and an emphasis on informed consumer choice might strengthen that consumer confidence?

Mr. Paul Mayers: Consumer confidence is a complex issue. It's always interesting when you contrast poll outputs with behaviour in the marketplace. I think this is one of the poster child issues for differences between what people say in polls and what they do in the marketplace. Beyond that, I'm not going to suggest that I have the answer. Like I said, it then strays into an area where I can't go.

Mr. Nathaniel Erskine-Smith: I think you can advise on policy to the committee. I think you're allowed.

Voices: Oh, oh!

Mr. Nathaniel Erskine-Smith: My last question is about—and I think my colleague Ms. Lockhart touched on it—the release of some of these animals. We're going to see more of these animals released into the wild.

I noted that it seems like we have a ton of rules and a ton of regulations, and the number of experts who are reviewing this product to make sure it's safe is incredible. It appeared to me there weren't the same levels of rules, standards, and review capacity to make sure that, after the fact, once this product's been approved, we're following up and making sure these products aren't going to be released in the wild, and that we're making sure it's just as safe on that front.

Do you have any comments on that?

Mr. Paul Mayers: Let me assure you that, in terms of addressing oversight in relation to food, that's the principal role the agency plays, so with respect to responsibilities in review, inspection, etc., that falls in our jurisdiction, absolutely, and I think the same would hold for my colleagues in Environment Canada as it relates to the enforcement with relation to CEPA, the Canadian Environmental Protection Act. I would have the same confidence in the CFIA that I have in Environment Canada to ensure that those rules are indeed respected.

We have to recognize that genetic modification isn't being applied just in this space. Many of you may have read about the really interesting research that is being done with genetically modified mosquitos in relation to Zika—the management of mosquito population by genetic modification. The same is going to be applied before consideration of the release into the environment for an application like that, as much as we would have looked at it in terms of GM salmon.

● (1010)

The Vice-Chair (Mr. Bev Shipley): Thank you very much.

Now we will go to Ms. Brosseau, for six minutes, please.

Ms. Ruth Ellen Brosseau: Thank you, Mr. Chair.

For the approval of the GM salmon, it's the same if you were to approve genetically modified animals as if you were to approve a seed or a fruit. It's the same kind of process. It doesn't change just because it is an animal or a mammal.

The Arctic apple has been approved in Canada. Can you explain where that is? Can we go to the grocery store and buy it right now? Can you just update us on where we are with the fruit side of genetically modified foods?

Ms. Karen McIntyre: Certainly. Though the Arctic apple was approved—I believe less than a year ago—it is not available on the market because they are in the process of planting the trees, but the trees have to grow for a few years before they start to produce fruit. It is not available now, but it may be in the future.

Ms. Ruth Ellen Brosseau: Will they be grown mainly in B.C.?

Ms. Karen McIntyre: That's right.

Ms. Ruth Ellen Brosseau: I know we talked a little about pigs. I was going through online.... I guess in China they have a “double-muscled” pig. Do you know about the double-muscled pig?

Mr. Paul Mayers: I don't, personally, but I'll go looking when we are done.

Ms. Ruth Ellen Brosseau: I was just trying to look at what has been done elsewhere and what could potentially come up here.

One of the presentations says that the use of biotechnology for animals has not progressed at the same rate as it has for oilseeds and grains. What would be next? The salmon has basically set a precedent. Are there any other applications or genetically modified animals—fish or mammals—in the works? Is there anything that might be coming down the pipeline that you could talk to us about?

Mr. Paul Mayers: I don't have specific examples.

Ms. Karen McIntyre: There are no other genetically modified animals in the pipeline right now.

Ms. Ruth Ellen Brosseau: Okay.

I guess that's all I have. Does anybody want my time?

The Vice-Chair (Mr. Bev Shipley): Well, we'll move on. We'll go to Mr. Morrissey, please. You have six minutes.

Mr. Robert Morrissey: Thank you, Mr. Chair.

I will acknowledge that I am familiar with the company that has developed AquAdvantage. It was AquaBounty.

Did I hear you correctly? When was the first GM product approved in Canada for commercial production?

Mr. Paul Mayers: It was in 1993 when the first food product of GM—

Mr. Robert Morrissey: I am asking specifically about food-related, for personal consumption. We've had extensive history of approving GM food. How many have been approved in that period of time, food or grain-related not directly in the food system?

Ms. Karen McIntyre: Approximately 120—

Mr. Robert Morrissey: That's products that have been approved.

Ms. Karen McIntyre: Yes, it's 120 products.

Mr. Robert Morrissey: Has there been any change? Have any of those that have been approved been re-evaluated? Is there such a thing as delisted? Have there been any questions raised?

Ms. Karen McIntyre: Not that I'm aware of.

Mr. Robert Morrissey: We have over 20 years of history of approving products, which have all been accepted within our food system for the consumer as well as production. In that 20-year period with Health Canada and Ag Canada, has anybody quantified what the impact would have been on the ag sector or the economy if those products had not been approved? Does somebody have a number?

● (1015)

Ms. Andrea Johnston: I am not aware of any study that has undertaken to do that. Generally, we don't differentiate between GM and non-GM. We look at canola and the impact it has on the marketplace.

Mr. Robert Morrissey: Most would have been driven from an economy-of-scale perspective. Is that correct?

Ms. Andrea Johnston: Yes.

Mr. Robert Morrissey: That would have led to increased yields and reduced input costs, so there would be efficiencies. So nobody would have that number, what the impact would be if this work had not been done by Ag Canada and Health, if our economy as a modern economy did not embrace GMO, the science of modified products and engineering?

Ms. Andrea Johnston: I'm not aware of a study.

Mr. Robert Morrissey: So we don't have a number.

In the 23 years on the food side, would the salmon be the first animal approved?

Mr. Paul Mayers: Yes.

Ms. Karen McIntyre: Yes.

Mr. Robert Morrissey: So then I as a parliamentarian, who is responsible for policy and regulation, should take comfort in the fact that the same rigour, the same integrity, and the same independence that were applied over the past 23 years in approving over 100 products that are now readily accepted in our food system would have taken place in the approval process?

Mr. Paul Mayers: Absolutely.

Ms. Karen McIntyre: Absolutely.

Mr. Robert Morrissey: That being said, given the development of this particular food source and the recognition of it—because we are only going to grow it to the egg stage in Canada and then move it—would you see any problem with having the product grow out to commercial value in Canada, based on the science that you did to get us to the approval stage we are at now?

Mr. Paul Mayers: It's important to understand that the part of the assessment that would be most relevant to your question is the assessment related to environmental release. That assessment hasn't been done in terms of commercial fish, so, as is the case for everything else, until the assessment is done, I wouldn't want to make any statement.

Mr. Robert Morrissey: That's a fair response. That's only a concern as it would relate to the integration of it within the wild natural environment. As far as the consumer consumption of the product goes though, we as parliamentarians should have no concern about the safety impact of eating that product.

Mr. Paul Mayers: Absolutely. The approval CFIA has provided regarding feed safety and the approval Health Canada has applied to food safety relate to the salmon itself. So whether that salmon was produced in Panama, as is the intention currently, or it was produced in Prince Edward Island, those feed and food safety assessments for salmon would still apply. The difference is that the environmental release to produce in Canada has not been granted.

Ms. Karen McIntyre: I think it's also worthwhile to point out that the FDA conducted, with its own set of experts, a completely independent review. That was done by scientists in the United States, who came to the same conclusions we did about this product.

Mr. Robert Morrissey: Did I interpret correctly that the world takes a lot of stock in Canada's regulatory regime as it relates to the approval of GMO product?

Mr. Paul Mayers: Yes. Canada is one of the countries with significant experience that many countries look to when they are contemplating how they're going to manage GM products.

Mr. Robert Morrissey: So we should take a lot of comfort in that fact.

Mr. Paul Mayers: And we should be proud of it.

Mr. Robert Morrissey: I agree.

Thank you.

The Vice-Chair (Mr. Bev Shipley): Thank you very much.

We'll now go to Ms. Lockhart.

Go ahead for six minutes, please.

Mrs. Alaina Lockhart: I'm just going to follow up on that a little bit. I'm from New Brunswick, and we have an aquaculture industry there, so I want to understand this completely.

The process we've gone through has approved this genetically modified egg product for export to Panama, and has also approved the consumption of that product by consumers in Canada. Is that correct?

● (1020)

Mr. Paul Mayers: The production of these salmon eggs in Canada in containment has been approved.

Mrs. Alaina Lockhart: Okay.

Mr. Paul Mayers: Whether they are exported to Panama is Panama's decision. As for the consumption of the food product and feed product derived from those, that has been approved in Canada.

Mrs. Alaina Lockhart: Knowing that government doesn't dictate what the market wants to do or what businesses want to do, would it be fair to assume that if this is advantageous in Panama, our own aquaculture industry potentially will be looking at this product as well in the future?

Mr. Paul Mayers: Yes, that's not an unreasonable assumption. That will take all the business calculus around production into account.

Mrs. Alaina Lockhart: If they decide to go down that road, is that regulatory process through your department or...?

Mr. Paul Mayers: It's Environment and Climate Change Canada.

Mrs. Alaina Lockhart: All right. I guess at that time it will be the actual companies that are doing any cost comparisons for inputs and all of that?

Mr. Paul Mayers: Right.

Mrs. Alaina Lockhart: Okay.

I'll share my time with Mr. Drouin.

Mr. Francis Drouin: I want to go back to the reason why the Government of Canada does not get into labelling, other than health and safety issues.

Right now, the flavour of the month might be GMO, but in 10 years from now it could be something else. What I'm concerned about is those who have legitimate health concerns, especially those with diabetes, for instance, who have to constantly look at the carbohydrates and the sugar levels they consume. If we mandate something on a label, then we have to take something away, because there is only so much space on a label.

Can you comment on the reason why you just stick to health and safety?

Mr. Paul Mayers: I can start. My colleague from Health Canada will want to speak.

In Canada, the labelling responsibility with respect to food is a shared responsibility between CFIA and Health Canada. All of the non-health-related and safety-related labelling considerations are managed by CFIA—and, of course, the enforcement of the entire labelling framework—while Health Canada sets the policies with respect to health labelling. On your point in terms of a diabetic having that important information on nutrition on the label, my colleague will speak to it.

There are a number of interests that consumers have in terms of information about products in order to make choices. We distinguish between mandatory label declaration, which includes things like net weight, the health and safety information, what the product is, the mandatory requirement to have a list of the ingredients—all of those things—and then a number of claims that can be made, provided they're truthful and not misleading, that are what we would characterize as information that supports consumer choice. If you're interested in understanding if a product is local or there's a claim with respect to the sustainable production of the product, those claims can be made provided they're truthful and not misleading.

In many cases, in order to have predictability in the marketplace, the Canadian Food Inspection Agency will work with businesses and consumers and elaborate on guidance, but it's not mandatory to make those declarations. This falls into that same category.

Mr. Francis Drouin: In terms of the truthfulness of statements on products, the CFIA does a verification on those?

Mr. Paul Mayers: Absolutely.

Mr. Francis Drouin: Is it on a complaint basis? Or if you're going to put it on there, is there an automatic verification?

Mr. Paul Mayers: We take a risk frame to that in deploying our resources in that regard, so for those generic claims where we've provided guidance, yes, it's predominantly complaint driven.

Mr. Francis Drouin: If a company says that something is a non-GMO product and labels it, you would look at it on a complaints basis?

Mr. Paul Mayers: That's correct. While if you were to say that it is a nut-free product, that's something we're going to pay very close attention to because of the health implications if that's not truthful.

● (1025)

Mr. Francis Drouin: Okay.

Sometimes there are third parties involved. I'm thinking of Organic Canada. Do you rely on those third parties as well to ensure that if you're going to put “organic” on it, it has to be non-GMO and it has to be X, Y, and Z?

Mr. Paul Mayers: CFIA elaborated an organic standard. In order to make the claim “organic” in Canada, there's a suite of rules. The claim is voluntary, but if you make the claim, you have to follow those rules. The framework that oversees this is a collaborative one between us and the organic certification bodies, which we recognize, so they are indeed third parties, yes.

Mr. Francis Drouin: Okay, thank you.

The Vice-Chair (Mr. Bev Shipley): Thank you, Mr. Drouin.

Now we will go to Mr. Gourde, for six minutes, please.

[*Translation*]

Mr. Jacques Gourde: Thank you, Mr. Chair.

Some producers say that the approving certain products in Canada takes place two, three or even four years after the same products are approved in the United States. In terms of grains, this means that there are American animals, be they pork or beef, that eat grains treated with phytosanitary products that are registered there, but not here. However, those animals come to Canada since we have an integrated market for both meat and grains.

Are there inconsistencies in terms of approval deadlines? Our producers say they are less competitive than the Americans in terms of some products because they don't necessarily have access to the same phytosanitary products. Is there a way to correct the situation?

[*English*]

Mr. Paul Mayers: We do have separate feed regulatory systems between the Canada and the U.S. There is a tremendous amount of collaboration, but they are two separate systems. It is possible for an animal feed to be approved in the U.S. that's not approved in Canada. With the issue of the approval of the feed, while the feed isn't eligible to come to Canada, our controls related to beef derived from the feeding of that product would be applied at the level of the beef product. If that feed, for example, were to result in residues in that product that we consider to be unacceptable, then that's the point where we would act. We conduct a comprehensive national chemical residue monitoring program, and it would be through that monitoring of residues in products imported to Canada—for example, a beef-fed additive in the U.S. that we don't permit in Canada—that we would control that issue.

[*Translation*]

Mr. Jacques Gourde: In trade with countries other than those in North America, could genetically modified products undermine Canada's competitive edge? For instance, could those countries be in favour of a free trade agreement, but establish a list of product residues that they don't want in meat, grains and so on? Could that be a new barrier to international trade?

[*English*]

Mr. Paul Mayers: We have seen important trade interruptions for Canadian products as a result of low-level presence. Low-level presence is the presence of a genetically modified residue that's approved in the country of origin, but not approved in the country of import. We have seen Canadian flax significantly affected for exports to Europe as a result of residues of an approved GM flax variety that was in production in Canada. It's no longer in production, but it was in production. The technology to detect is so sensitive that it may be as simple as the dust from a previous cargo that could impact Canadian exports.

We've been active, and led by our colleagues in Agriculture and Agri-Food Canada, in working with the international community to elaborate a more predictable framework for managing those situations, so as not to disrupt trade. It's our view that approved varieties should have prompt approval wherever the developers seek to pursue that approval. That's one of the reasons why the grain industry doesn't release new varieties until they have approval in their important markets, so as to avoid the problem you pointed to.

● (1030)

[*Translation*]

Mr. Jacques Gourde: Along the same lines, based on the major international trends, do Canada's new potential clients, Europe and Asia-Pacific, have the same understanding as North America about genetically modified products in general, or are those countries hesitant, which could cause problems for us in the short and medium term?

[*English*]

Mr. Paul Mayers: It's highly variable. As we've seen in the European Union, we continue to see approvals of GM crops. The pace at which those approvals take place is much slower than in Canada. Even though they apply the same scientific review process, they have another process on the end of that scientific review that requires all of the member states to agree, and that takes some time. Our colleagues in Japan apply the exact same framework that we apply, while in some jurisdictions they're not terribly open to GM products at present. That variability does have some implications for Canadian traders with market accessibility on a universal basis.

The Vice-Chair (Mr. Bev Shipley): Please be very short.

[*Translation*]

Mr. Jacques Gourde: I would like to go back to the imperfect vegetables.

Is it morally acceptable to modify products genetically just so that they have a nice colour or shape, with no consideration for their nutritional value? I am talking about vegetables.

[*English*]

Mr. Paul Mayers: The regulatory system makes no value judgment as to why someone pursued the genetic modification. We just look at safety. The marketplace will decide if a purely aesthetic modification is a worthwhile venture.

The Vice-Chair (Mr. Bev Shipley): Thank you very much.

We'll now go to Mr. Longfield.

You have six minutes.

Mr. Lloyd Longfield: Thank you, Mr. Chair.

Thank you to our colleagues across the aisle for allowing this fulsome discussion uninterrupted. I was really hoping we'd have time to have a full discussion today, and we're having that.

I want to explore the movement of Canadian intellectual property and the classification of the eggs that are going down to Panama. Just to put some context to it, I'm thinking of Semex in Guelph that ships bull semen. There's a classification of that as a food product versus as another type of product.

We had Ceva in Guelph that does antibiotics for chickens. They were bringing chickens in from the States for use on antibiotic development. It wasn't food product, but it's a chicken coming in, and they see a chicken as a food product. Semex ships semen. It's not a food product, but it's been classified as a food product, which limits their ability at the border sometimes. There are delays at the border.

I have a question about the classification of the eggs and the classification of our intellectual property that is not directly food product. With CFIA reporting into Health Canada and the work that we're doing with international trade, bridges are maybe not quite working there.

Are you aware of any of that or is there some kind of a correction? Are we applying a different standard for these eggs moving across than semen going around the world?

Mr. Paul Mayers: I'm not aware that there is any significant classification difference, but it does operate under a different regulatory framework. For us to certify products for export to Panama as germ plasm, which the eggs would be, would fall under the aquatic regulatory frame while semen exports, also under the health of animals, falls under the terrestrial animal regulatory frame.

Beyond that, I'm not aware of any other differences.

Mr. Lloyd Longfield: It's a lingering concern I have, and I'm just putting it down on the record because it was a concern expressed by Semex very recently and also over the last several months as they're developing their products to go around the world. Is the free movement of Canadian-developed intellectual property, whether it's coming through our university system or commercially, and the importance of that as we try to become number one in the world...? These eggs are going to Panama. Are we limited to Panama? If China wanted to develop fish in China, would we be able to ship it to another region of the world? Are we really limited by country?

● (1035)

Mr. Paul Mayers: We're not limited by country. Our limitations are by import requirement. If the company AquaBounty were to pursue production in another country, we in the CFIA would work with that country to establish the import requirements for that country so we could certify the eggs to them.

Mr. Lloyd Longfield: Okay, terrific, thank you.

I can share my time with any colleague who wants a minute and 20 seconds.

The Vice-Chair (Mr. Bev Shipley): Thank you, Mr. Longfield. It was a fulsome discussion and I really appreciate that.

I see a blank at the bottom of the page, and I think that's for the chairman to maybe have two or three questions, if that's open to the committee.

First of all, I want to say thanks for the detailed and the complete breadth of the questions the committee has been putting forward. I want to expand a bit on a couple of them.

In terms of the approval process that is undertaken in any GMO—in this particular case we're talking about animal—the basic principle takes us back to 20-plus years of approval processes. You mentioned earlier that it is a seven-to-10-year window to meet not only the preamble but the registry part. Could you tell us how that compares to the approval of a conventional product? For an example of that we have to go back to seed production, quite honestly. Is it more stringent? Is it about the same length of time? Is it a shorter time?

For everyone at the table here, quite honestly we're trying to figure out how we are going to build the confidence of the consumer out there. That consumer is largely the consumer who puts whatever it is on their plate, but actually it's much broader than that. If you don't have the consumer as a producer onside either, then we have to make sure that their marketing opportunities are filled.

Maybe you can help us with that question.

Mr. Paul Mayers: Thank you. I can start.

It's important to understand that for traditional varieties—and I'll use plant varieties because we only have the one animal—we don't carry out for a new plant variety all of the safety assessment steps that we take here. This is in addition to and on top of what would normally happen for a new variety to come into the marketplace in Canada.

New plant varieties are considered by recommending committees. Then the final stage CFIA undertakes, which is the variety registration, is acting on the advice of those recommending committees. They take into account the plant variety parameters for that particular variety. If it's canola, then they look at seed shattering and all of those parameters that meet the criteria for the variety. If it meets that, the recommending committee will recommend the registration of that new variety.

The plant breeding steps of that traditional crop also take a number of years to go through the back-crosses that are necessary in traditional plant breeding, and then there's the field trialling in order to generate the data for the recommending committees. That, too, is a lengthy process. GM crop has, on top of that, the safety assessments that we described, which aren't a requirement for the traditional crop.

● (1040)

The Vice-Chair (Mr. Bev Shipley): Thank you very much.

In talking to organizations and people, is it your experience that products get labelled GMO when they actually aren't? I know my colleague brought up, for example, the double muscle in pork from China, which I'd not heard of, but I certainly am familiar with double-muscling in the beef industry. People will say it's genetically modified, when in fact it's genetics, in terms of the breeding that has brought that about.

You have such broad consultations. Do you get concerned, or do you hear that aspect where there is a lack of knowledge, I think, between what GMO and what conventional breeding is?

Mr. Paul Mayers: We don't see that happen. I think, in part, while the perception is from a consumer perspective, the technology continues to be portrayed in the media, often negatively. It's unlikely that someone would seek to claim anything as genetically modified when it's not.

The Vice-Chair (Mr. Bev Shipley): I'm thinking maybe I didn't explain myself very well.

A public perception by the public that something is GMO—

Mr. Paul Mayers: Yes, yes. We—

The Vice-Chair (Mr. Bev Shipley): I'll give you an example.

Yellow maize is a food product—I was familiar with it in Zambia—that many would say is genetically modified. It is nutrient fortified, but it isn't modified. When we're talking about consumer acceptability, people talk to me about GMO and ask me to explain what a GMO is, or explain what a hybrid or conventional breeding is. In our marketing that becomes the challenge.

One last thing—and I'm almost out of time—is in terms of the labelling. We've had a lot of discussion about labelling. When a product comes in, and I go to the grocery store and see something that is organic and that it has come from Thailand, China, or somewhere, how do we know that it is actually organic and meets the criteria? How do we know how it was grown in those countries to be labelled so it's sitting on our shelves?

Mr. Paul Mayers: Within the framework of the Canadian organic regime, in order to have the claim of organic, it is has to meet a suite of criteria. Certifying bodies are obligated to conduct audits of the production in order to demonstrate that they align to the requirements of the Canadian organic regime in order for that claim to be made.

The Vice-Chair (Mr. Bev Shipley): Great.

Thank you very much.

We are wrapped up, folks.

Again, I want to thank our witnesses for taking the time and being so well prepared to present to the committee.

To the committee, thank you for your great questions and your thoroughness that we've had today.

With that, we'll see you on Tuesday.

This meeting is adjourned.