House of Commons
CANADA

Standing Committee on Agriculture and Agri-Food

AGRI • NUMBER 044 • 3rd SESSION • 40th PARLIAMENT

EVIDENCE

Tuesday, December 14, 2010

Chair

Mr. Larry Miller

Standing Committee on Agriculture and Agri-Food

Tuesday, December 14, 2010

● (0850)

[*English*]

The Vice-Chair (Hon. Mark Eyking (Sydney—Victoria, Lib.)): Good morning, colleagues.

Larry's stuck in the snowstorm or.... He says he can't make it, but he might be back at a later time.

An hon. member: [*Inaudible—Editor*]

The Vice-Chair (Hon. Mark Eyking): I don't know what's wrong. Maybe they're not plowing the roads down there. At any rate, he can't make it. He asked me to chair the meeting.

Today we're starting off on our study on biotechnology. We're going to use up most of the meeting for witnesses and questions.

André, maybe during the last 10 minutes we can deal with your motion, if that's fine with you. You have a motion to put forward at the end of the meeting?

[*Translation*]

Mr. André Bellavance (Richmond—Arthabaska, BQ): That's not necessarily the case. We can talk about it, but—

[*English*]

The Vice-Chair (Hon. Mark Eyking): You don't need to deal with it? Okay.

We'll stick with the witnesses and our study today.

We have here Ontario Agri-Food Technologies, the University of Guelph, and the University of Victoria.

Come on up to the table, folks.

We have three presenters from across the country. Welcome, gentlemen. I don't know if this is your first time at committee, but just so you know how the routine goes, we're going to have 10 minutes of presentation from each of you, and then we'll open it up for questions.

Ian, from the University of Victoria, do you want to start off first?

Dr. Ian J. Mauro (Post-doctoral Fellow, School of Environmental Studies, University of Victoria): Sure.

I just want to thank the committee for inviting me here this morning. It's a pleasure to speak about my work.

I'm currently a post-doctoral fellow at the University of Victoria in environmental studies. The project I'm currently working on is on Inuit knowledge and climate change. In the new year, I'll be the Canada research chair in human dimensions of environmental change at Mount Allison University.

My work couples social and ecological systems, and I'm interested in holistic analysis of issues related to climate change, food security, and—the focus of our meeting—biotechnology.

My Ph.D. research, which took place between 2002 and 2008 at the University of Manitoba, is the largest farmer-focused study on genetically engineered crops that has ever been conducted. It was publicly funded by the Social Science and Humanities Research Council and Agriculture Canada through their Manitoba Rural Adaptation Council program.

The project involved 2,500 farmers from across the three prairie provinces. We were specifically interested in their local knowledge—their experience with genetically engineered crops in the fields at the farm level. I studied genetically engineered herbicide-tolerant canola in a post-release fashion and genetically engineered herbicide-tolerant wheat, specifically Roundup Ready wheat, in a pre-release fashion.

Once again, this is farm-level data collected through surveys and interviews spanning six years, as my Ph.D research. The research has been peer reviewed and published, and that forms the basis of my expert opinion and the written submission to this committee.

In Canada, the release of genetically engineered crops is an ongoing ecological and regulatory experiment with tangible impacts on human systems, specifically farmers. This living experiment, if you will, provides useful information about the benefits and risks of biotechnology and about how regulation can and should evolve.

Advantages associated with genetically engineered herbicide-tolerant crops are well known. My work further demonstrates their production benefits, specifically easier and better weed control for farmers choosing to use this technology.

Risks are less well understood, and this is where my research really provides new information. For both genetically engineered canola and genetically engineered wheat, the main risks, ranked in order of importance by farmers themselves, included markets, which were the top risk for farmers. They were concerned about loss of income. They were concerned about problems in the segregation system, that biology would leak into a segregation issue, which would lead to market harm.

The second issue of greatest importance to farmers was corporate control of agriculture. They were concerned about seeds being privatized and the associated lawsuits.

The third risk was agronomic “volunteers”—genetically engineered crops migrating across the landscape—and increased use of herbicides leading to weed-resistant varieties, which we are seeing in Canada today.

Fourth was contamination—gene flow. These crops move around the landscape, and they pose risks for farmers not using the technology. The key finding of my research is that gene escape from genetically engineered crops escalates into other risks, such as the agronomic, corporate, and market impacts that I just spoke about. Indeed, biology and socio-economics are inseparable when dealing with ag-biotechnology.

Importantly, the top two risk categories, as identified by prairie farmers, are market and corporate impacts, which fall outside of Canada's current science-based regulatory system.

The proposed introduction of Roundup Ready wheat showed the flawed nature of evaluating biotechnology using only narrowly defined scientific determinants, and thus put Canada's $4 billion to $6 billion annual wheat market at risk because of the unwillingness of international buyers to purchase genetically engineered wheat from any country growing it.

My research shows that over 83% of prairie farmers do not want to see Roundup Ready wheat introduced despite renewed industry interest in commercializing this very crop.

At the height of the controversy with Roundup Ready wheat, I was invited to numerous Canadian Food Inspection Agency meetings. Although they had knowledge of the socio-economic risks associated with this very crop, regulators were not allowed to consider these in their assessment.

Indeed, parliamentary intervention is required to expand CFIA's mandate to regulate biotechnology more effectively in Canada.

● (0855)

These market issues were identified by the Canadian Wheat Board officials in a 2003 presentation to this committee entitled “Closing the Regulatory Gap”, which proposed adding cost-benefit analysis to GE crop regulation. I highlight the need to include socio-economics in Canadian regulation for you again today.

Importantly, cost-benefit analysis and the farmer-focused risk analysis method that I have pioneered are quantitative scientific approaches that can be incorporated into the existing regulatory framework. Canadian farmers deserve holistic regulation that seeks their input and thus ensures their livelihoods are not being put at risk due to the introduction of GE crops and other types of ag-biotechnology. Arguably Bill C-474, currently being debated in Parliament, offers an opportunity to expand the regulatory framework and ensure market impact is considered. I believe this is an important and much-needed evolution in Canadian regulation.

I've spoken a lot about market harm, given its importance; however, farmers are also concerned about corporate control over biotechnology and how this affects their lives and agriculture as whole. This, as I have identified, is also outside of the current regulatory framework. Most notably, numerous non-GE and organic farmers who participated in my study had their land and crops contaminated by GE varieties. Some were sued by industry, and others attempted to sue the company for damages.

The corporate control over seed, the very basis of our food supply, is controversial and is something that should be given more attention by this committee and Parliament as a whole. Indeed, our food security as a nation is at risk if farmers are no longer able to freely use and exchange their seeds and plants due to contracts and patent laws. This corporate control is especially problematic when enforced over genetically engineered crops that move easily across the landscape, cross-pollinate in other genetically engineered and non-GE crops, and expose farmers to unwanted and unexpected risks. Indeed, it is now impossible to grow non-genetically engineered canola in Canada because of the widespread cross-pollination of GE varieties. This canola crop, developed with public funds, has become largely privately owned by the biotechnology industry.

Given the findings of my Ph.D., I believe genetically engineered crops are substantially different from their conventionally bred equivalents. Loss of markets, patented genes triggering lawsuits, organic farmers losing crops in their crop rotation due to cross-pollination: these are all differences that did not exist before ag-biotechnology. These impacts are real. Recognizing this in regulation is important and is of value to farmers, government, consumers, and industry. Indeed, updated regulations, based on our living experiment and associated experience, will ensure that ag-biotechnology is released appropriately and safely in the future. A safer food system with accountability, responsibility, and awareness of the costs and benefits of introducing new technology is innovative and good for Canada and the world.

It is my expert opinion that scientific and social impacts regarding biotechnology are inseparable and weave around each other metaphorically, like the DNA molecule itself. Canada's regulations must evolve like a genome in a way that holistically recognizes that ag-biotechnology has both ecological and social impacts that must be assessed. As both a social and environmental scientist, I assure you that both strands in this double helix of regulation, if you will, can be evaluated scientifically and with some modification will fit into the existing framework.

I look forward to discussing this with you. I appreciate your time this morning, and I would be pleased to assist you now and in the future. I'm happy to answer any questions.

Thank you.

● (0900)

The Vice-Chair (Hon. Mark Eyking): Thank you very much, Mr. Mauro. Your timing was good, and that was a very well-done presentation.

Dr. Ian J. Mauro: Thank you.

The Vice-Chair (Hon. Mark Eyking): We're going to move on to Ontario Agri-Food Technologies, and Mr. Surgeoner.

Dr. Gord Surgeoner (President, Ontario Agri-Food Technologies): Thank you, Mr. Chair.

I thank the committee for having me here to speak to you.

I am the president of Ontario Agri-Food Technologies. This is a consortium of our grower associations, our major farm associations of Ontario, universities, and private sector companies, from big multinationals to a lot of small Canadian, Ontario companies. I would say that my board is...half of which have to come from the farm associations, as they helped create the organization.

I'm going to be talking at a very high level to get some key points out.

First, in my opinion and our opinion, the Canadian regulatory system on biotechnology is not broken. We have arguably the best and most respected regulatory system in the world. There should not, therefore, be wholesale change, but we can, as with anything we do in society, continue to improve.

One thing I would like to emphasize is that the way we regulate biotechnology is not biotechnology, per se. In Canada we regulate the product, not how we got there. In other words, science can create herbicide tolerance through genetic engineering, mutagenesis, outcrossing. There are many ways that you can end up with a product that is novel and different. We actually regulate the product, not the process, which scientifically is the most valid methodology to do so.

In my opinion, the regulations have the ability to protect Canadians and global customers. I agree that we have to look at global customers, and in fact big companies—make sure they have to have a number of companies before they actually allow a product to be sold.

Plants with novel traits have been grown in Canada since 1995, so 15 years. To my knowledge, and again on a scientific basis, there are no validated cases of harm to either humans or the environment. I am, however, aware of lots of benefits—no till, reduced pesticides.

Again, the thing I would also emphasize is that when 80% of the farmers in the prairies use genetically engineered technology, 70% of our soybean producers and about 60% of our corn producers are buying these products. Anybody who knows agriculture knows that farmers are not dumb people, and they look at the value to them. I do agree that we have to figure out systems to protect others. So I emphasize that from multinationals to NGOs, we have the same objective: to create safe products that provide value to producers and, importantly, value to consumers.

Regarding safety, we must recognize that there are no absolute guarantees. I will be flying home tonight, and my risk factor went up because of the weather out there today. It needs to be balanced with allowing innovation to occur, innovation that benefits society and employs Canadians. So in my opinion, terms such as the "weight of scientific evidence" and "does not represent unacceptable risk to human health and the environment" are the lexicon of the regulations that should be used with "there are no absolutes".

The other thing I have to emphasize is flexibility. Flexibility must be incorporated into the legislation and how it's managed. The probability of risk is very different depending on different products. For example, using this technology in Quebec, Medicago Inc. is developing new types of vaccines in greenhouse situations.

In Guelph, we have PlantForm that is developing new kinds of antibodies, where we grow them in plants. All of these are going to be maintained and produced in a greenhouse situation—containment. How we ensure that these do not get outside those greenhouses is the key, but that's part of the technology.

Similarly, right now in the Okanagan Valley we have Okanagan Specialty Fruits, which has developed a methodology for not having your apples brown—i.e., when you cut an apple and it turns brown, they prevent the browning.

In my opinion, that's not how things spread; it's a food safety issue. So the regulatory has to analyze the product and the risk associated with the use pattern.

Similarly, the next wave of this technology is drought resistance, frost resistance, salt tolerance. There I am concerned about weediness and how things move out, and whether or not these crops become more of a problem.

So we have to look at safety there, and we also have to look at environmental impact. A key message is that one size does not fit all when we analyze these products. You have to look at the use pattern along with the actual product.

We should share data. We are not the only country in the world that is analyzing and regulating these products, and I think we should share data, basic toxicology. There's a lot of standard information that should be shared between countries, and hopefully we don't have to continually reinvent the wheel.

● (0905)

We should have transparency. All toxicology and environmental data used by regulatory authorities to make decisions must be available to interested parties. I understand that there is certain proprietary information that may not be available, but I emphasize that for everybody to feel confident, the data should be available. A decision document describing the basis of the regulatory decision should be provided to any interested party that wants to see it.

The other key thing is to regulate novelty. In other words, the product is different. I guess the question that's not in the legislation is at what point something is no longer novel. If you look at soybeans in Ontario, 70% are, in this case, herbicide tolerant. We've been using them since about 1998 in very large numbers. In fact, the novel soybean is, by far, the most common soybean out there. Do we go 10, 15, 20, 30, or 100 years before we decide that it's no longer novel? That is a key question that I think is important.

Another one that's really interesting and that must be looked at is new uses. We are developing crops that do not have feed uses and do not have food uses, yet that is how we're regulating these technologies of change. There is camelina on the prairies and miscanthus for energy. We're looking at a number of products right now that we will not use for food or feed. They will be for industrial purposes. How do we regulate those crops, given current legislation?

There is another key thing that I think is important for Canadians and for the world. We always look at the risks, and I'm the first to stand up and say that all those risks must be looked at. But I think we should also look at benefits. Canola is a classic example. If I have a product that is trans-fat free—in our province of Ontario, obesity and type 2 diabetes are a $5-billion tax problem for our society in terms of health care costs—can we look at the benefits to Canadians as well as risks? I think that's important, particularly when we get into foods.

The other key thing is consistency. I've worked with industry for a long time. I've been a faculty member for 29 years. If investors are going to put money into these projects, many of them will last 13 or 14 or 15 years, with $10 million, $20 million, or $100 million invested to get a product to market. If our landscape is constantly changing its rules, and I don't know that landscape, it is difficult to get investors interested. I have to emphasize that if we want innovation and we want to continue to be excellent in this area, then consistency of rules, with flexibility for a particular program, is important to me.

We also want to learn from regulatory experience. We now have 15 years of experience with some of these crops. Can we have, for example, as we do in other regulatory areas, what we call minor uses? Some of the best, with the greatest environmental potential, are smaller-acreage crops. We cannot justify the cost because of the regulatory burden associated with them. In other areas, we say that's a minor use. We see what's happened in the large acreages. Can we, then, learn from that? We should incorporate some experience.

In agriculture, we are moving from input traits to what I call the environmental traits—the drought, the salt tolerant, and all that—and to the output traits for the consumers—healthy oils, fruit that doesn't turn brown, and so on.

In my opinion, our regulatory system has served us well. We must continue to ensure flexibility and transparency and to eliminate unnecessary costs if we are to continue to ensure the global competitiveness of our industry and the protection of our citizens.

Thank you.

● (0910)

The Vice-Chair (Hon. Mark Eyking): Thank you very much for that. The presentation was well within our time.

Now we go last, but not least, to the University of Guelph. We're well aware of the University of Guelph. We have an MP, Mr. Valeriote, who puts it front and centre many times. Our committee also visited your university. We're glad to have a representative here.

Mr. Yada, you have the floor for ten minutes. Go ahead.

Dr. Rickey Yada (Professor, Department of Food Science, University of Guelph): Thank you, Mr. Chair.

Once again, thank you to the committee for the invitation to come before you.

I'll take a little bit of a different tack from my colleagues with regard to biotechnology. I'll talk about biotechnology in the context of food.

Undoubtedly, some of the early adopters of biotechnology were the food scientists and technologists. If you think about cheese and the production of beer and wine, those were early uses of biotechnology. In today's world, biotechnology in the food area relates to such things as nutraceuticals, which are biologically active compounds isolated from horticultural food commodities that have a potential health benefit, and functional foods, which are foods that have elevated levels of these bioactive compounds that, hopefully, will produce a health benefit.

As an example of the kinds of things we're working on in the food area right now, especially in Canada, where I think we're doing some cutting-edge research, we're looking at new ways of delivering salt. This is in light of the salt crisis that Canadians and the global community face in regard to salt and cardiovascular disease. In addition, we're doing some very cutting-edge research on trans fat substitutes. Again, this is an issue that has come before the public and is a global problem, as it relates to cardiovascular disease and type 2 diabetes.

With regard to some of the things I've been charged with talking about by the committee, I'll talk about the regulatory framework. I'll say right from the get-go that an efficient and effective system is critical to successful commercialization and consumer confidence and acceptance. We've made great gains in Canada with regard to streamlining our regulatory system, especially with regard to clinical trial approval and product approval. However, there still are delays, and those delays result in lost opportunities and, probably, a lost competitive edge for Canadian companies entering the global market.

So what do we need? I guess we need enabling regulations that involve early and greater engagement of the whole stakeholder community, from the grower up to the consumer. They need to be involved right from the get-go in the projects and research being developed, not only at the university level but also in the industrial environment.

Part of our efficiency in the system now is a committee called the food regulatory advisory committee, a committee of Health Canada, of which I'm pleased to be a member. This is a broad stakeholder committee. Hopefully, through the input of that committee, we'll have an efficient and effective regulatory framework.

With regard to intellectual property, my colleague Gord Surgeoner talked about intellectual property and the return on investment. It's a critical factor to showing a return on investment. Whether it be through a grant program or through collaborative partnerships with university, government, and industry, or just a university-industry partnership, we need to show a return on that investment. As I said, one of the ways is intellectual property.

But there are some challenges with intellectual property. First of all, at the university level—the community I know best—most researchers are not interested in intellectual property; their passion is research. There are some very creative researchers, however, in university communities. The other challenge at a university is the general lack of recognition of the promotion and tenure procedures of intellectual property. So if a researcher does get a patent or a licensing agreement, his or her colleagues have a difficult time evaluating the worth of that patent or licence, as contrasted with a refereed scientific publication.

We also have non-uniform policies at universities with regard to intellectual property. At the University of Guelph, the intellectual property resides with the researcher, but a couple of years ago, the intellectual property resided with the university. There is no standard for intellectual property across Canada at universities, and this is something on which I think we need to work.

The other thing is that Canada has a wonderful small and medium enterprise community, and we need to be able to capture some of the innovative ideas at the SME level and support these ideas at the SME level. One of the ways we can do that is through university-industry-government collaboration. So we need to invest more in that aspect.

● (0915)

We also need to invest in what I would refer to as the "valley of death" gap, that area between a concept and a tangible product or a technology. We have wonderful ideas that occur at the bench, but a lot of them die at the bench because we don't have a mechanism to support that valley of death so that we can show utility of that good idea and bring it forward to an industry for utilization by the greater community.

What are some of the challenges of adopting new products and technologies by farmers and consumers?

I think this is a challenge with any new technology, whether it be biotechnology or an issue that we're dealing with right now, nanotechnology. We need greater transparency, and again I'll go back to the point of early engagement and input of growers and consumers in research from concept to the product and technology.

Again, as my colleague Gord Surgeoner identified, we need to identify the value proposition to the entire agrifood chain. We need to identify the benefits, but also the potential risks. Of course, a large part of this is that we need to develop effective communication and educational strategies in communicating this information.

Funding is the last topic I'll talk about. I think we need to get greater support—long-term, sustainable funding—for the agrifood nutrition and health community. It's interesting that agrifood nutrition and health does not appear on the federal S and T strategy list. We need to get it onto the S and T strategy list.

Part of that support for getting it onto the S and T list, or STIC priorities, is that we need to recognize that food can be one vehicle to promote wellness. As Gord has indicated, this would be a great avenue to reduce health care costs, which are burgeoning globally.

We need to get greater funding of the value chain from growers to consumers. Oftentimes we have segmented funding to various groups. We need to have integrative funding. We need to have greater support of the valley of death scenario, and to small- and medium-sized enterprises.

Finally, Mr. Chair, I'd like to make this comment. I am a scientific director of a research network called the Advanced Foods and Materials Network, which was part of the networks of centres of excellence program. We addressed some of the issues that I've discussed. Unfortunately, we were not successful in our renewal of the program and the network. Therefore, we need to look for alternative strategies, in light of this decision, to address the issues that I've talked about.

With that, Mr. Chair, I conclude my remarks.

● (0920)

The Vice-Chair (Hon. Mark Eyking): Thank you very much, Mr. Yada.

I thank everybody who has presented. I think you gave us quite a snapshot of the challenges and opportunities in the biotech industry.

We're going to now open it up to questions, and we're going to start off with the opposition. We're going to have seven-minute rounds.

Mr. Valeriote, you're up first.

Mr. Francis Valeriote (Guelph, Lib.): Thank you, gentlemen, for appearing today. It's terrific to have people of your calibre speaking before this committee.

I'm going to ask two questions. One is for Mr. Yada, and the other is for Ian and Gord.

Mr. Yada, you mentioned AFMNet losing its funding. Can you tell the committee the value of AFMNet? What exactly does AFMNet offer the government in respect of a better understanding of food research, innovation, and commercialization? We all know that healthier food means healthier people and lower health care costs. I've already had reaction from the private sector about AFMNet losing its funding in areas like the sodium research you introduced. So what does AFMNet offer, and why is it important in the absence of public research?

To the other folks, we've had quite an extensive discussion on Bill C-474 through Alex's bill. We've heard so many concerns—and you've repeated them, Ian—about biodiversity, contamination, the use of seed, and control by the companies.

I believe GMOs are here to stay. We have increasing global warming and we have to deal with that. We have to feed three billion more people over the next 30 or so years, and increase our food production by 70%. But at the same time, I heard Gord acknowledge that they have to forge systems to protect others.

Do you guys ever get together in a forum and sit down...? I'm not asking you to kiss and make up or anything, but is there an opportunity to create an organization in Canada where the two opposing opinions can actually get together and forge solutions to those issues that have been raised? Around this table it's almost impossible to make recommendations. We need those recommendations to come from the experts.

Mr. Yada, can I hear from you first?

Dr. Rickey Yada: Thank you, Mr. Valeriote.

AFMNet brings many contributions to this country of Canada. I'll start off with the human capital aspect. Presently we train 179 HQP, or highly qualified personnel. They range from undergraduates to post-doctoral fellows. So we train a number of people, and in different environments too. The whole thesis of AFMNet is to do research in a multidisciplinary way. We often have physicists working with food scientists who are working with social scientists to look at the acceptability and risk-benefit analysis of some of the research we do. So there's a huge amount of investment in our future leaders in the food industry.

We also support researchers, of course. We're supporting approximately 175 researchers from right across Canada. This literally goes from the University of Victoria to Memorial on the east coast. So there's that aspect.

There's also the aspect of helping Canadian companies become competitive in an ever-increasing globally competitive environment. We have members from Maple Leaf Foods, and Ocean Nutrition, which are world renowned in their areas. They need the kind of research we're doing in order to be competitive.

As you've indicated, we're looking at issues that affect the population of Canada and people globally, such as sodium reduction and trans fat, which are contributors to the global epidemics of type 2 diabetes, obesity, and cardiovascular disease.

We're also helping Canadians become entrepreneurs. We've spun off some of the companies from the research that our researchers and graduate students have done. Again, this is a wonderful thing.

We've also helped the small to medium-size enterprises—not as many as we'd like to, but there are some wonderful ideas that occur at that level, and Canada is largely an SME community at the food industry level.

Thank you.

● (0925)

Mr. Francis Valeriote: Thank you.

Gord.

Dr. Gord Surgeoner: Back in about 2000, exactly what you were talking about was done. There was a lot of controversy on GMOs. We were just learning about the technology, etc., so the Council for Biotechnology Information was created. It reported to Agriculture Canada, and we had the NGOs. I was not a member, but about 20 people were on that committee from diverse backgrounds, which I think is very healthy, and they worked on issues, exactly what you're talking about, and importantly, they got to understand each other. One good thing about Canadians is that we listen to each other and we try to find compromise that works: I have to emphasize, “works”.

That did occur. I'm not sure where that council is now. I haven't heard anything from it in a number of years.

Similarly, we had two solid years with the Consumers' Association of Canada and a whole bunch of NGOs. I was on that committee on the labelling side of the equation discussing if we should label and, if we labelled, what would it look like. That was the food industry, the consumers' associations, and again, what I have to emphasize is that you get to understand each other and your concerns. You try to compromise, if at all possible, but you understand each other, which is half the solution to the problem.

Dr. Ian J. Mauro: Thank you for the question.

I think your points are very valid. GMOs are likely here to stay and that is why a good regulatory system is ever more important.

The first thing that will derail biotechnology in Canada is problems associated with unanticipated risks that weren't regulated. Gene flow, escaping, segregation problems, market harm—all of that was caused by a regulatory system that didn't anticipate the risks and was incapable of dealing with them when they were confronted with them. We know Monsanto was holding the trigger around whether or not Roundup Ready wheat was going to be introduced, and the whole regulatory system and industry were sitting around wondering if this was the right approach.

For the most part, industry is looking for solutions that will allow them to have input. It doesn't mean that all crops will be turned away, because there's a market evaluation pillar within the regulatory system. It means that certain crops might not be ready to go to market or may never go to market, but not all of them. If you look at canola, for example, many important benefits were associated with canola that likely wouldn't have triggered the same kind of market problems that wheat did. There is diversity within the biotech crops, and I think the regulatory system can handle that, if it's set up correctly.

With respect to consultation, this is the work that I do: including stakeholders in the regulatory process. We got funding from Canada and the Social Sciences and Humanities Research Council to bring people from the farm level, from the kitchen tables and coffee alleys of western Canada, to engage a process that allowed the numbers to emerge and the views of these people to come up to a level that I can present to you and give you numbers and give you what people are saying. But this takes time—my Ph.D. took six years—and it takes money. Just because we set up organizations to consult doesn't necessarily mean that the real views of people on the ground are being heard, and we really need to cultivate that.

Mr. Francis Valeriote: Why aren't you guys working on this committee together, the committee that you spoke of?

Dr. Gord Surgeoner: I just hadn't met him before. We'll exchange cards and try to do that.

The Vice-Chair (Hon. Mark Eyking): Your time is up, thank you, Mr. Valeriote. There will be lots of time for another round.

We are moving on to the Bloc.

André Bellavance, you are up next.

● (0930)

[*Translation*]

Mr. André Bellavance: Good morning, gentlemen. Welcome and thank you for your presentations.

My first question is for Mr. Yada, but I am also addressing everyone else. Mr. Yada, you talked about nanotechnology. I'm not sure how familiar you are with this new technology. I use the word "new", but given the way our world works... Where I come from, in Quebec, we have a lot of agricultural producers. Some of them are forestry producers and they own private woodlots. The forest industry has had its share of difficulties over the last few years. The economic crisis hit the softwood industry very hard since construction has gone down in the U.S. There is not that much opportunity for trade with the Americans. So we are looking for new ways to use our wood.

In my constituency, we are building a pilot plant. I would like to discuss this with you since you are scientists. This technology is called nanocrystalline cellulose. Are any of you familiar with that?

So they are going to extract this nanocellulose from the wood and it will be used for many different things. It could be used for floor coating, paint, pharmaceutical products, and so on. This is perhaps a worthwhile option, but I am not very familiar with it. But I know that the pilot plant should be up and running by September 2011. I am somewhat familiar with the various possible applications because I have met with people who told me about them, given that the plant is in my constituency. Domtar, the paper company, FPInnovations, another Quebec company and the two levels of government, meaning Quebec and Ottawa, have all invested in this pilot plant.

Could someone give me more information about what this technology could do for our woodlot producers? We often have hopes, whether in terms of biofuels or other sectors. For example, we know that we are able to make this grow or that grow or that we are able to keep things growing. So we hope to have spinoffs, economic of course, which is not always the case. Is there anyone who could share their expertise with us?

[*English*]

Dr. Rickey Yada: Thank you, Mr. Bellavance.

I was at meeting last week in Washington with the United States Department of Agriculture on some of their projects. One of the projects they were looking at was nanocrystalline cellulose. We're also doing some research in that area, particularly in Alberta at the National Institute for Nanotechnology, based at the University of Alberta. There are applications being examined in the food area.

Currently there's a derivative of cellulose that's used as a thickener in various food products. It's called methylcellulose, and that thickens up products. They're now examining the use of nanocrystalline cellulose as a substitute or alternative for methylcellulose in various food products. It's still in the very developmental stage.

But I'll go back to my point. We need to have the community involved, the forest community involved as well as the food industry and the consumers, as we develop these projects. So it's completely transparent, or as transparent as we can make it, so that when we bring it to market, then the regulatory hurdles hopefully will be lowered and consumer acceptance will be much greater.

● (0935)

Dr. Gord Surgeoner: In terms of your question, yes, I am aware of it. I happen to serve on a board of directors called the BioAuto Council, and incorporating these types of fibres into any kind of transportation system is a huge asset, because they're lighter and stronger. We're testing products right now. It takes two to three years to get products through all the testing procedures before they will go forward.

There are even more exciting things. I'm working at a university level where we can actually start to do battery storage, electrical storage, using this type of cellulose technology. That's a long ways out.

But yes, it has great hope. If you look at aircraft, the Dreamliner, it's all carbon nanofibres now because of the strength and the lightness. If we can do it from your plant in Quebec, that is the way we should go forward. I would emphasize, too, that the discovery of that is actually a beautiful example of working jointly with the biotechnology centre in Montreal and industry to come up with products.

As Dr. Yada has said, find your customers early and start to work with your customers back and forth so you meet their standards, and then, when it is successful, they're ready to take it from you, rather than discover it, find it, and then go find the customer. You work with your customers, and we are—the auto sector, the aircraft sector; a perfect example is working with Bombardier out of Montreal.

Dr. Ian J. Mauro: It's a very relevant question. I think nanotechnology is at the tip of this whole wave of technology. When we start to go small, when we go into the atomic structure of material reality, the benefits are big but the risks are potentially even bigger. If you look at nuclear technology, we cracked the atom and all of a sudden we had the ability to create all types of new energy but also all sorts of new types of destruction.

I think our lesson with biotechnology in agriculture is a good lesson for how regulation needs to be devised around nanotechnology. These types of technologies have an intrinsic leakiness to them; they can move around.

With nanotechnology there's all kinds of new research coming out where some of these atomic structures are crossing cellular membranes in ways that were not anticipated. There are all sorts of things, because of the size of the technology, that create new and unknown risks.

It's something we really need to get a handle on at the regulatory level so that the same mistakes with biotechnology are not made with this new sector, which could bring really important benefits to your community and other communities around the world.

[*Translation*]

Mr. André Bellavance: That brings me to the issue of research funding. University researchers were already looking into nanotechnology, this nanocrystalline cellulose. Unfortunately, due to lack of public funding, they had to stop their research. Fortunately, it was restored. But I can't help thinking about the fact that we had that lack of funding for a certain amount of time. We may not have been here today with a pilot plant. Eventually, more and more possibilities will open up to us. There was still that lack of funding. But this was a technology for the future.

I give you the floor. The importance of public funding in terms of research and new technology, without question...

[*English*]

The Vice-Chair (Hon. Mark Eyking): Your time is almost up, so the answers will have to be very quick.

Dr. Gord Surgeoner: In my opinion, public funding of research is absolutely critical to what we call Canada, both in the development of products but also in assessment of safety, etc.

There are two key things on that. I believe you go from the discovery research to capturing it. And when you capture that research, you'd better have your customers at the table, and you'd better have been working with industry right from the start.

I think historically in our public sector and universities, we did research and made it into perfection, but we were never talking to our customers or people who were going to use it. We have to understand that not only does it work and we can do it, but the competition, the price, and how we put in supply chains.

There's a lot more than just the discovery to ensure that we as Canadians build it here, make it here, and sell it to world. I think that's very important.

So public sector research is critical.

Dr. Ian J. Mauro: I want to make a quick comment. I think that with biotechnology we've seen a huge amount of industry dollars driving the research; we haven't seen the same amount of public money going to public projects to develop regulations or systems of accountability.

I think the same thing applies with nanotechnology. We need to have public money that allows for publicly funded research that is independent from industry, that allows us to have our own set of eyes and ears on the issue, and that we're not being spoon-fed information that doesn't have an analysis, that has public dollars and no attachment.

● (0940)

The Vice-Chair (Hon. Mark Eyking): Okay, we're going to go to the next round of questions.

We'll go to the NDP, to Mr. Atamanenko.

Mr. Atamanenko was very instrumental in bringing this discussion forward this year.

Alex, you have the floor.

Mr. Alex Atamanenko (British Columbia Southern Interior, NDP): Thank you, gentlemen, for being here.

I want to summarize the debate here, and what the discussion is about, in my own mind. We have very well-developed innovation and research in biotechnology in Canada. As far as I understand it, most of the traits, the successes, that we've developed in agriculture have been through non-GM. In other words, all of the hybrid varieties that we've developed have been the result of companies and government working on research.

The two GM traits, where we take a gene from one species and transplant it into another, is what this is about. My bill tackles the HT, the Roundup herbicide tolerant, and also the Bt, where we have resistance to pests. These are the two traits that are being used in Canada. Many countries are against this technology. If we wish to deal with them, we have to be very careful.

Mr. Surgeoner, you mentioned that we need to talk to customers. We've seen the example of flax. My concern, and the concern of many, is in regard to wheat and alfalfa specifically, but this does not negate any other research that's happening in the whole biotech industry.

The main concern—and Dr. Mauro, I believe you summarized it, based on your discussions with 2,500 farmers—is that they're worried about markets. They're worried about corporate control and the privatization of seeds. Tied in with this are agronomic contamination with volunteers and the gene flow, because the genes escape and escalate into other risks. I guess that's my main concern when I look at my bill, for example.

I look at the study that your colleague Dr. Van Acker has done in regard to contamination. Traits can move from crop to crop through pollen. They move through the equipment, human handling, farm equipment in the business operation, and people not even involved in this contamination.

Contamination has caused some problems in the United States, for example, where Starlink, a corn engineered to express insecticide protein, was approved. It was found in processed foods, and then we had the whole problem of how to get it out of the food chain. Recently, LibertyLink rice, where regulated rice escaped field trials, was found in many events in the commercial rice supply chain. The economic impact on U.S. rice farmers was $1 billion.

Then we look at the submission by Mr. Toews from the Wheat Board. He talked about how, in bulk handling of wheat, it's very difficult to contain. Organic farmers and others have talked about how alfalfa, if it were released, would be very hard to contain.

How can we move on with this industry without any regulations? Evidently the science base that we have is not quite enough. There has to be some collaboration and some control, so that if crops are developed, people would at least have an opportunity to make some money, whether it would be the company or the farmer.

Maybe I'll just start here and work down.

Dr. Ian J. Mauro: I worked with Dr. Rene Van Acker on my Ph. D. He was an adviser on my project, so I am very familiar with his work.

Rene's work and the work of other research scientists show unequivocally that genetically engineered crops move across the landscape. Even if they don't outcross at large distances, through the different handling methods, the segregation system, and the nature of biology itself, they reproduce, and we have these crops reproducing in fields on their own and moving around over time, and that causes the widespread adventitious presence that we are talking about, the contamination.

These impacts are very widespread. When you talk about introducing a market clause in regulation and that perhaps adversely affecting the industry, well, the impact of not looking at the potential market impact.... Take LibertyLink rice, and the billions of dollars spent in lost farm profits and the regulatory system, and trying to figure out how to deal with that; there are very substantial economic impacts from not trying to assess this up front. The wheat example is a perfect one.

Furthermore, there was a comment that there is no demonstrated environmental harm caused by this technology. I have to disagree with that. If you look at some of the landraces in Mexico that have been outcrossed by genetically modified corn, the actual landraces, the original maize varieties that created the modern corn that we have today, are increasingly contaminated by GMO crops, and those traits have unintended consequences in the genome that we might not know. Essentially, on those landraces, research communities around the world are trying to save them because those have germplasm and biological diversity in them that might be very important to future generations and our ability to create a sustainable food system. As we lose those landraces due to conventional breeding and loss of traditional varieties and outcrossing of these genetically engineered types, we are actually losing our genetic heritage.

This is a very serious issue. It is one that really needs to be addressed. You talk about this technology being here to stay. I think we can learn from our past. History repeats itself, and this committee needs to try to ensure that doesn't happen with respect to new types of biotechnology. If we're talking about pharmaceutical-trait crops, all it takes is for pharmaceuticals to get into the food supply for the entire Canadian food system to collapse.

Think about how much that would cost when all of a sudden there are pharmaceutical drugs in the food and all countries of the world aren't taking Canadian exports. These are the types of issues we're talking about when we talk about increasing our regulatory system to protect Canadians, and also to protect the very industry that is developing these crops, because as soon as that happens, Canadian biotech is over.

● (0945)

Mr. Alex Atamanenko: I have just one more comment before I have to move on.

Mr. Surgeoner, you mentioned the new apple in your presentation. Apparently the B.C. Fruit Growers have come out against this because they are afraid of contamination and cross-pollination.

Dr. Gord Surgeoner: I'd like to address a couple of issues.

We talk about corporate control in agriculture. The last I saw it, one of the most important things in agriculture is financing. I have about five banks I can go to in Canada, plus FCC.

If I talk about fertilizer—Potash, Agrium, Mosaic—there are about four fertilizer companies. If I talk about tractors, the last I saw it, they were green, red, and blue. If I talk about trucks, it's GM, Ford, the Japanese.

Those are all absolutely critical areas of agriculture, but we're familiar with them. We are down to about four to five choices that we, as producers, can make in all of those things that are absolutely critical to agriculture.

Look at railways. If I want to ship my wheat, I have CP and CN. That's down to two, and those are on the stock market. Every one of those are publicly traded companies.

So when we talk about corporate control in this area, it is, I should emphasize, absolutely no different from my wheat, my movement, my plowing, all of those things where there are four or five companies involved in it on the marketplace.

Second of all, when we talk about markets, one of the things I would emphasize on organics is that organic is about the process. Yes, I realize the organic farmers have set a standard where we will not accept certain amounts of cross-contamination, if we want to call it that. But if this is a process thing where I did not use that as one of my producers, but some came in, that is not.... They are making that standard, because it is a process standard that I did not make. We will accept pesticide residues in organic. So it is a standard that is self-imposed.

You may get Walmart or somebody else saying they insist on this, but at the end of the day, organic is about process, again, not product in that case.

So those are a couple of things, but I really have to emphasize that in almost everything we do in agriculture, we have about five or six suppliers, from money to tractors to trucks to rail, in all of those things. You may not like that, but that is the reality.

The Vice-Chair (Hon. Mark Eyking): Okay, Mr. Atamanenko, your time is up—unless there's something quick to add.

● (0950)

Mr. Alex Atamanenko: No, thank you.

The Vice-Chair (Hon. Mark Eyking): We're now going to go over to the government side, the Conservatives, and we're going to start with Mr. Hoback.

Mr. Hoback was also instrumental in getting this study under way.

Randy, you have the floor.

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

Thanks to all of you for being here this morning. It's always interesting to come to Ottawa when it snows and rains, right?

This study, I'm very excited about it, and with that excitement comes caution, just like with anything else. You see all the potential, all the future hurdles, and the problems we're facing now in our environment, in our ability to feed ourselves in the future. Then you look at the potential for farmers to grow not just food but also other things. There is such a variety of things to look at in my plate—yes, "plate" might be a good word—of what my options are with my land, what I can do, how I can do it, what I can grow.

You know, the days of growing corn in Saskatchewan aren't too far away. In fact in some areas they're growing corn now, where 20 years ago they would not grow corn.

So I look at it and I get really excited, but there are some questions we need to answer, and some hurdles. I want to see this industry grow. Regardless of what we think personally, it has to happen. If we want to feed our world, this is where we have to go.

Mr. Surgeoner, you talked about process, and that's a key in this whole equation. Process is often irrelevant, as long as the product is safe. That's the guide we have to use, as government, when we look at the food we're eating. If you want to use an organic process, if you want to use a conventional process, if you want to use a process of no-till farming, that's the freedom to farm. That's up to you, as a producer, to make those decisions. But the end use is up to us, as government, and the consumer is our main concern.

So maybe you've marketed yourself that organic's better, you've used a process, and you've used marketing to develop a market for your product. Now if you decide that you don't want to go through that process, that you want to be growing higher yields and have more options, then you use another process.

Is that a fair statement on how governments should look at this whole sector on the food side of things?

Dr. Gord Surgeoner: There are two things on the process side. One is that most people here are talking about biotechnology as genetic engineering, and what I'm emphasizing to you is herbicide tolerance can be by a mutation. Much of our new crops can be by mutational breeding. Are we going to have a science-based process to determine safety, to determine environmental impacts?

The market issues are important to everybody—I'm the first to agree with that—but at the end of the day, what kind of rules are we going to have around that? That's something that is absolutely critical to everybody. Only if you have a set of rules can you know whether to invest or not. If those rules are constantly changing, then, I'm sorry, people will abandon Canada as a place to put their money in this area—if we're constantly changing the rules.

Mr. Randy Hoback: So one of the first things we'd be talking about here is how to get a consistent set of fair rules that everybody knows and understands—they know the playing field, and they know exactly what they have to do in order to have a product move through the system.

Dr. Gord Surgeoner: Right.

Mr. Randy Hoback: How do you see a product for non-food use? Should that have the same standards as products for food use?

● (0955)

Dr. Gord Surgeoner: You have to look at each individual crop. Something like miscanthus right now is an "imported" crop.

I should emphasize for everyone in this room that we really have only four crops that are actually native to Canada. Wheat, corn, soybeans—all those are non-native. Miscanthus is a crop that came out of Japan. In Ontario, we hope to use it to get rid of coal-fired electrical generation. It'll support a lot of producers in firing those electrical plants.

It's a hard, woody stick, much like wood, so I don't see that there's any eating involved in that: do I need to do very intensive studies on the toxicology? We need some basics, yes. But we also learn by history. It's been in Japan for a thousand years, and to my knowledge, no animals, no people.... We can go back and look, but rather than force a massive cost process, learn from history. Learn from real-world experience, and add that to what I call logical regulatory oversight.

Mr. Randy Hoback: Mr. Mauro, you talked about your study on the Roundup Ready wheat. I remember those debates going on in the prairies when I was farming, and, boy, there was a lot of emotion in those debates. In fact, there was a lot of misinformation and emotion in those debates. It was really hard for an average farmer to actually sit back and sort through what was accurate and what wasn't accurate.

One thing I did know, which seemed to be the concern with Roundup wheat for a lot of guys, was the effect of Roundup in their rotation. By putting a cereal in there and not being able to spray Roundup on, let's say, Roundup canola, to get rid of that cereal that was going to create a problem.

So in your studies, did you sense the issue was GMO wheat or was it the fact that it was Roundup Ready wheat, that Roundup was the product that was going to be used to control...?

Dr. Ian J. Mauro: You're a farmer. You obviously know the issues, and that's a very good point.

With Roundup Ready wheat, you had two Roundup Ready crops in rotation in Canadian farms, and so when you're planting Roundup Ready canola—or you're not—those volunteers are everywhere. So even a farmer not growing LibertyLink canola has Roundup Ready volunteers, and all of a sudden they start putting Roundup Ready wheat in their seed drills, and they can't control the Roundup Ready canola volunteers in their Roundup Ready wheat, and the system doesn't work anymore.

For farmers, it was a no-brainer. You say there's misinformation and a lot of emotion. In my research for the published paper there were almost 2,000 farmers in that specific survey. Through the law of averages, you build a big data set and you start to get those salient facts in what people were thinking. Really there were ecological issues, as you're saying, combined with market harm. It just made no sense for Canadian farmers.

With respect to biotechnology, I agree with my friends here on the idea that it's on a case-by-case basis. There are some crops that aren't going to make sense in Canadian farm rotations, and in the marketplace there are other crops that might make sense. I'm not here to present the notion that all biotechnology is bad. I think we need to evaluate these technologies based on their merits as individual crops.

With respect to organic farmers and your question about process, we're on Parliament Hill right now. Democracy doesn't just happen. The product of democracy does not just exist intrinsically. There's a process required to get there. I think that both of these, the process and the product, are very important. If you abandon the process, the product doesn't make any sense. We need to—

Mr. Randy Hoback: I'll stop you there, because I have only so much time.

I guess when I'm talking about the process, I'm talking about the process the farmer uses to grow the food. As long as the food's safe, as long as the consumer knows that when the Government of Canada stamps it, it's safe.... We actually would look back and say organic is a safe process then. We would say conventional farming, no-till farming, is a safe process.

When we look back at the Roundup wheat issue, I often wonder, if Monsanto would have brought out a trait that would have reduced fertilizer by 30%, or if it would have provided an intrinsic health benefit to insert that gene into wheat, what the scenario would have been. Again, the market really is the market. In this case, Roundup wheat never did come forward.

Dr. Ian J. Mauro: It was a strategic debacle on their part. You know, if a different wheat had come forward, there might have been a different outcome, for sure.

I think the point is that farmers are also concerned about these technologies being designed at a biological level to sell more herbicides. They're very critical of that. Introducing Roundup Ready wheat didn't make any sense. It was about selling more herbicides, and farmers saw that.

Mr. Randy Hoback: Again, it's not a good example to take to the rest of the sector.

Dr. Ian J. Mauro: I agree.

Mr. Randy Hoback: I think you made that point very clearly.

I guess that's it, so thank you.

The Vice-Chair (Hon. Mark Eyking): You're all done unless the witness has something to add.

Thank you very much.

Okay, that's the completion of the first round. We're going to go to the second round now.

We're going to start off for five minutes with Mr. Easter.

Hon. Wayne Easter (Malpeque, Lib.): Thank you, Mr. Chair.

The study that this committee is doing is an extremely important one. But one of the difficulties I have with what we learned on the weekend, the government cancelling the AFMNet program, is that it almost makes a fallacy of our work that we're starting as a committee.

AFMNet sets up networks of centres of excellence, and the funding, I understand, is $5.6 million a year. Is that right, Dr. Yada?

● (1000)

Dr. Rickey Yada: Correct.

Hon. Wayne Easter: And it's the very area that this committee, in initiating this study, really wants us to move forward on. So you have a committee starting a discussion to talk about the benefits and the negatives of biotechnology, and at the same time, just as we start, the government cancels a very important program that has been in existence for a period of time. I'm really worried about that.

Dr. Yada, can you explain to me the funding around AFMNet, which is, I think, where we want to go?

Dr. Rickey Yada: Thank you, Mr. Easter. You're correct that AFMNet received $5.6 million a year. We acted as a granting council for Canadian researchers in the agrifood sector, also in the social sciences and humanities sector in relation to food.

As I indicated in my presentation, what this funding does is address the issues that I was asked to address on intellectual property, some socially relevant issues around sodium, trans fat.

The sad thing about the withdrawal of funding is that it takes so long to build up infrastructure and expertise, and then once funding is removed, regardless, it really erodes that ability to move forward in an expeditious manner. That's the sad thing about withdrawal of funding.

Hon. Wayne Easter: I looked at the projects in the Advanced Foods and Materials Network—that's the long form of AFMNet—and I understand it was a seven-year program.

Dr. Gord Surgeoner: Yes.

Hon. Wayne Easter: Under the “discovery research” projects, you're looking into four core areas that are extremely relevant to the farm community and this committee: nanoscience related to food and biomaterials; food, nutrition, and health; consumer attitudes and behaviour in conjunction with regulatory policy; and traceability and authenticity of foods and food ingredients.

Under that section alone there are 12 projects. What will happen to those 12 projects?

Dr. Rickey Yada: Well, unless we find other sources of funding, I would say that those projects will cease to exist. Again, the infrastructure that's been built up will erode very quickly without funding.

Hon. Wayne Easter: It just makes no sense at all. I can't understand why the government would do this, because the research that's in place will be lost. It's important to farm security, to food security, and to our future investment in research. And the government, just like that, cuts it off. It makes no sense at all.

The second area of projects is intellectual property. There are 18 projects under that area.

I've seen from past experience that when these programs are cut, not only do you lose the investment going forward, you lose the investment you've made in the past. You also usually lose researchers.

What will happen to the researchers and the coordination across the university system as a result of these cuts by the government?

Dr. Rickey Yada: Well, the coordination will probably dissipate because there are no moneys to support the networking.

The other thing that researchers will end up doing is they'll gravitate towards other funding envelopes, which may or may not be in their core area of expertise. So again, we'll lose some of that expertise and infrastructure that we've built up.

Hon. Wayne Easter: Thank you.

It's a sad day for the food industry.

The Vice-Chair (Hon. Mark Eyking): Thank you, Mr. Easter.

Did you have a short comment to make, Mr. Surgeoner?

Dr. Gord Surgeoner: I would just like to comment on this.

I think Dr. Yada put this point forward. In science and technology, everybody likes what I would call the sexy and exciting things, the IT and all of those things, yet food is so fundamental to us as Canadians. The other key thing that I have to emphasize is that it's probably our number one health risk right now, because of over-consumption in terms of calories.

So we should be putting an effort into that in terms of public health care. Forget the food side; it's public health care and how we put that forward. How do we have what I will call a "working together" community to figure out how we can get the health benefits from foods, not just the risks?

We have to get it up to the top of all of our agendas in terms of what we do. Right now in Ontario, 50% of all tax dollars are for health care; and when I see a $5-billion type 2 diabetes bill, I know that a lot of that is because of over-consumption of food relative to exercise.

● (1005)

The Vice-Chair (Hon. Mark Eyking): Thank you very much.

We're going to go back to the government side, starting with Mr. Lemieux.

Mr. Pierre Lemieux (Glengarry—Prescott—Russell, CPC): Thanks, Chair.

I want to take a moment to clarify how some government funding is delivered to programs such as AFMNet. I think Mr. Easter knows this, but he's playing politics with the issue, and I think he needs to be clear how the money is actually allocated.

This year our government is providing a record amount, $11.7 billion, in science and technology. This of course is going to create jobs. It's going to improve the quality of life for Canadians. Some of that money gets invested in agricultural research programs.

The most important element of this, though, is that AFMNet is funded through the Networks of Centres of Excellence, the NCE. The NCE receives money or funding from the federal government, but the NCE is an independent, arm's-length agency based on a peer review board.

Mr. Easter, you're shaking your head, but you would know this quite well. The funding for AFMNet started back in 2003, so you should have been aware of this.

The decision to fund AFMNet is not made by the government. The funding decision is made by NCE, the Networks of Centres of Excellence, based on the applications they receive. They are independent. They are third party. They are at arm's length.

The Vice-Chair (Hon. Mark Eyking): [*Inaudible—Editor*]...a minute and a half.

Mr. Pierre Lemieux: I'll use my time appropriately.

This is an important point to clarify.

The Vice-Chair (Hon. Mark Eyking): No, no, but it would be preferable if you directed your questions to the witnesses. That's why we brought them here today.

Mr. Pierre Lemieux: Thank you. I will continue.

Let me ask the witnesses, then, the following.

Are you aware that in fact these decisions are made by the Networks of Centres of Excellence, the NCE, and not directly by the government, and that our funding flows to the NCE, and the NCE receives your submissions and other submissions, and they make their decisions accordingly?

Dr. Rickey Yada: Yes, we acknowledge that there is a peer review system.

Dr. Gord Surgeoner: Absolutely.

Mr. Pierre Lemieux: Perfect. Well, thank you.

I just wanted to clarify, because Mr. Easter had it all wrong.

Mr. Richards, over to you.

The Vice-Chair (Hon. Mark Eyking): Mr. Richards, are you—

Hon. Wayne Easter: Mr. Chair, on a point of order, Mr. Easter never "had it all wrong".

The fact of the matter is that money has been cut. The government is ultimately responsible. They like to claim they're responsible, and they're responsible in this regard. The government, if it wants to make a decision, I'm sure can have this changed.

I don't know why the government would allow this research to be lost.

Mr. Pierre Lemieux: That's not a point of order, Chair.

An hon. member: What's the relevance?

The Vice-Chair (Hon. Mark Eyking): Okay, we're going to go to Mr. Richards.

Mr. Blake Richards (Wild Rose, CPC): Thank you, Chair.

Yes: it would be the first time ever that Mr. Easter would ever think he was wrong—in his own mind, anyway.

The Vice-Chair (Hon. Mark Eyking): You only have a couple of minutes, Mr. Richards.

Mr. Blake Richards: Certainly I do appreciate all of you being here today.

I'm actually going to go back to the very simple basics here. When I talked to farmers and others about the fact that we were going to be doing this study on biotechnology, people would say, "Well, what is biotechnology? Tell me a little bit more about exactly what it is you're going to study."

Obviously, I think I have a pretty basic understanding of what biotechnology is. I mentioned GMOs to them, innovation in crops, and things like that. Really, though, I found that I actually struggled to explain, in about 30 seconds, what biotechnology was.

I've been listening to the three of you this morning, and I think if anyone could answer that question succinctly and wisely in about 30 seconds, it would probably be each of you three gentlemen.

So that's what I want to ask you: can each of you define for me, in about 30 seconds, what biotechnology is?

Dr. Rickey Yada: I'm probably the least qualified to answer that question, but in the eyes of a food scientist, it would be the use of a biological system to produce a product.

Now, that process may be through genetic manipulation of a product, through genetic engineering, or it may be through traditional crossing or breeding. I go back to my point about cheese and beer and wine. We used a biological system, in that case a yeast or a bacteria, to produce a product.

In my mind, that's what biotechnology is.

Mr. Blake Richards: Thank you.

Dr. Gord Surgeoner: And that's the general overall: the use of biological organisms for the betterment of humankind. Within that, it's how we have a good environment and all those other things. There are many, many tools, as I'm trying to explain, that can be used to do that.

● (1010)

Dr. Ian J. Mauro: That's like a question from my Ph.D. defence. Thank you.

Voices: Oh, oh!

Dr. Ian J. Mauro: I published on this with an article for a definition of biotechnology and ecological risk. The terminology is muddled. Effectively you have biotechnology as an umbrella term that means different things to different people. As my friends here have said, biotechnology can include fermentation and beer-making all the way through to genetic engineering. Clearly those are not the same processes.

Academics have tried to discern them. So you have traditional biotechnology, which includes things like conventional breeding, and then you have modern biotechnology, which would include genetic engineering and other forms of precise gene manipulation using modern scientific techniques.

So within the broad term "biotechnology", there are sub-domains: that kind of conventional biotechnology and the modern biotechnology.

The Vice-Chair (Hon. Mark Eyking): Very good.

That now ends the time for the Conservatives.

We're going back to the Bloc.

Ms. Bonsant.

[*Translation*]

Ms. France Bonsant (Compton—Stanstead, BQ): Thank you, gentlemen.

I would like to go back to what Mr. Mauro was saying about GMOs. Just like you, I am in favour of GMOs, but only if they are smart choices. Some GMOs are good and some are not.

I've recently read in scientific literature that GMOs have become stronger and stronger over the past 10 years. Some children are born with respiratory problems, and allergies to peanuts, milk and cheese are on the rise.

In your post-doctoral study, have you looked at the impact of GMOs on the life of a fetus and on the first 10 years of a child's life?

[*English*]

Dr. Ian J. Mauro: My work is focused more on social and environmental research as opposed to health research, although I am familiar with the literature—and it's an emerging literature around associated health impacts.

Initial studies indicate that there could be potential issues. Allergenicity is one that has been looked at. I have heard of these respiratory issues specifically in communities growing Bt products. The bacillus thuringiensis appears to, in some of these initial studies, have potential respiratory impacts, but all of this stuff is not conclusive. I think it points to the need for more research around health issues related to the introduction of genetic engineering.

Once again, this is a new technology. The way in which we regulate it says that these crops are substantially equivalent to conventionally bred crops. The national research centres in the U.S. are saying that even for conventionally bred crops, as well as genetically engineered, we need to reassess how we study these things, because there can be these additional health issues associated with any type of biotech, traditional or modern, and it requires a whole new way of thinking around this. It empowers the research community to go out and ask those hard questions and try to find out more information.

Dr. Gord Surgeoner: I would indicate that allergenicity is one area that's always put in a toxicological evaluation. Now, that does not mean something can't.... But people should be aware that one of the key theories right now as to why we're seeing more allergenicity is that we're living in such a clean society. Our children aren't exposed to the sandbox and the dirt and all those kinds of things that we tended to be, so their immune systems don't get properly set. There's strong evidence if you look at East Germany and West Germany.

There are many theories on allergenicity and what happens. You know, I'd never disagree with good science, but those areas of allergenicity are tested with these crops as one of the absolutes that they have to look at.

[*Translation*]

Ms. France Bonsant: Just recently, companies have tried to add scorpion venom to a tomato gene to prevent it from freezing during the night. Personally, if I were to drink scorpion venom, I would get some sort of reaction. That's why I asked you this question.

A conference took place in Nagoya on biodiversity. It says here that the new Nagoya-Kuala Lumpur protocol has established a liability scheme for GMO producers and a redress scheme for environmental damage.

Do you know what happened? The newspaper doesn't give us all the details. What is the impact on the environment of all those pesticides and those things that are not natural and are released into the soil? Do you know what the actual impact is on biodiversity, on arable land?

● (1015)

[*English*]

Dr. Ian J. Mauro: I'd be happy to talk about that.

My work spans agricultural communities but also Arctic communities. When I live in the Arctic, work in the Arctic, and study the Arctic, I see that the Arctic is the world's dumping ground for chemical pollution. A huge amount of chemicals that are used in agriculture in the south migrate on dominant winds, get locked into the Arctic because it's cold, get into the food supply, and right now, if you want to talk about health impacts, breast-feeding women are giving huge contaminant loads to their babies. And it's affecting all sorts of well-documented studies showing all kinds of neonatal problems associated with chemical loads being passed on through the food chain to women, all the way to their babies, and a lot of it has to do with agriculture and the use of chemicals in the environment.

So when we start talking about herbicide-tolerant crops, for me as an ecologist, my thinking is that we need to get away from using herbicides. Herbicides have well-known impacts. As my friends have said, there are health issues associated with obesity and all kinds of things, but there are also well-linked studies to cancer and whatnot. And so modifying life forms to make them more susceptible to herbicides and resistant to herbicides, it makes no sense from an ecological perspective.

[*Translation*]

Ms. France Bonsant: What do you have to say about what's happening to the bees? They are dying off. In Quebec City, they are keeping bees in the Château Frontenac to pollinate the flowers on the balconies, because there are fewer and fewer pesticides in the city and more and more in rural areas. Do you think that what is happening to the bees is the result of all the pesticides some farmers use?

[*English*]

Dr. Gord Surgeoner: I'm pleased to say I'm an entomologist by scientific training, and I've worked with my bee people at the University of Guelph for a long time.

The number one reason is actually biological organisms. There's a number of mites, actually tracheal mites, that get into the respiratory systems, that have been introduced. And I would emphasize that the honey bee is not native to North America either. So it's primarily biological organisms.

The other one is actually maybe things like climate change, where the bees aren't setting down as well. We get very mild winters, so they use up a lot of honey because it's warmer, and then they get weaker because they're more active, whereas they were supposed go into suspended animation, per se.

So there are many factors. To my knowledge, pesticides is not one of them. It's mainly biological organisms like tracheal mites and varroa mites that are causing the problems.

The Vice-Chair (Hon. Mark Eyking): Thank you very much.

We're getting lots of good questions today, and good answers.

Now we're going to go back to the government side.

Mr. Shipley.

Mr. Bev Shipley (Lambton—Kent—Middlesex, CPC): Thank you, Mr. Chair.

Thank you, witnesses.

We've been talking to a number of people in agriculture, and I think this has been one of those critical points. My colleague asked about biotechnology and the definition of it. But I think the complexity of it actually lays out the format in which agriculture is, I believe, in one of those incredibly opportune times in history right now.

This brings us forward to the point, though, that as we move ahead in terms of development, whether it's nanotechnology, biotechnology, or all the things that come together, there really has got to be a transparency and an evolvement of industry in, industry out, markets, the health issues, and all those things that come along.

One of the concerns obviously that will come about is that when those organizations or people have the input, we sometimes get—I'm not sure that this is the right word—"trapped" by some very small, powerful, special interest groups that actually are looking out for a particular interest rather than the best interest of an industry or of Canadians as a whole, that being in the assessment of benefits and risks.

I agree totally that this part of the analysis has to be both sides. It doesn't matter...it's just as urgent as you said. You're jumping on a plane on a crappy day today. I'm assuming you're going to get on the plane. The assessment of risk comes because of all the science and technology that has gone in ahead.

We're committed, I believe, as a country into GM and mutation and, quite honestly, many people don't understand the difference between a GMO and a mutation, and I might ask you that in a minute. You talked, though, about novel traits. Would you put a recommendation forward, and at what time? You said, well, you know, we've been doing these since 1998. But when you have the huge amount of product that is used, when does that become a novel trait, and when doesn't it? Can I have your thoughts on that?

Second, a lot of research is done, obviously, whether it's on GM foods or mutated foods and on organics. Is there actually scientific data that comes forward that says if you're going to have foods that are GMOs, you're going to have foods that have been changed—this will sometimes come from our organic producers, and I have a lot of respect for them because I have enough of them in my riding—if you've got these trait-changed foods, actually now we've created a number of issues around health?

Those are the two questions.

● (1020)

Dr. Gord Surgeoner: The first question was on novelty. Again, I have to emphasize flexibility, because you could have something that's registered that has very small use in a very minor area. You can't suddenly say, even though it may be a long time, and something is very widespread.... You don't have to look just at Canada. Look at the U.S. Look at Brazil. Look at other nations where this has been occurring for a long time. In my opinion, it's based on animal feeding and a whole analysis; time is one factor, but there is exposure, and all those other things. Not finding any documented, validated risk is a key thing.

One other point that I think needs to be made when we talk about this technology is that a lot of it is actually at the analytical stage. I'm not sure if you're aware, but right now, the way we're selecting our Holstein cattle is by their genomes. We look at their entire genomics, and we say that these are the genes related to milk production, and those are the ones related to health. We can now select the best calf or the best bull not by rearing it out and doing all those records but by looking at its genes. Canadian companies are leading in that as well. It's also very much a tool for progress rather than, necessarily, a product. I think that's important to talk about.

On your next question, I'm sorry, novelty...?

Mr. Bev Shipley: In terms of the modified crops that end up becoming food, whether it's for livestock or human use, is there scientific evidence that it actually becomes a health concern because it has now been changed?

Dr. Gord Surgeoner: To my knowledge, there would be no health concern. That's why we have a regulatory system. It goes through all kinds of studies. In my opinion, it would not be a health concern.

Again, I have to emphasize that I'm very much for supporting organic food, but as for proving that it has better health benefits for a person, I can't find documented evidence. I can see all kinds of studies that say there is no difference, which is fine, but there is very much a difference in the process.

Mr. Bev Shipley: What becomes the critical tipping point between...? Somebody says that you have to come to a consensus. I guess that's why we have lawyers, one on one side and one on the other side.

Dr. Gord Surgeoner: You never get a consensus with lawyers.

Mr. Bev Shipley: No, I'm just using that as an example, because that's what happens. I suspect that in this business, we will always have two sides. And at some point in time, somebody makes a decision based on what is safe, what is healthy, what is best for Canadian farmers, and what is best for the industry. The complexities keep going.

How do we move ahead, and how do we make those decisions so that we actually know that Canadians are protected?

Dr. Ian J. Mauro: I'd like to take a crack at that.

With respect to health issues, there are peer-reviewed published studies that indicate that there are possible health implications. Árpád Pusztai published very well-known papers about rat-feeding trials. There's all kinds of other related information that has shown that there might be potential problems. That information hasn't really been acted on. We know that there is initial evidence showing that there could be potential harm, and we need more research to investigate those things in a science-based way. I totally agree. We need more information from an epidemiological perspective. You need multiple human generations to test what the long-term impact will be on human health, but you also need long-term environmental monitoring.

On the issue of what defines novelty, if we abandon the idea of novelty at, say, 10 years from when a crop is introduced, and we stop looking at it as a new introduction, in 50 years, if there are potential problems, and we've abandoned that monitoring process of what is new in the environment, we will have no idea how to backtrack and figure out if it's causing harm. From an epidemiological perspective and from an environmental monitoring perspective, we need long-term studies to actually get at whether there is a risk. Without that, we have no information. We're flying blind.

● (1025)

The Vice-Chair (Hon. Mark Eyking): Thank you very much.

Mr. Yada.

Dr. Rickey Yada: Mr. Chair, I'll just add to that.

I don't dispute what's in the literature with regard to certain studies. I'll tell you that the challenge we have with any of these kinds of studies is that we need to have replicated trials with standardized protocols and standardized end points. I think that happens in the food area when we talk about clinical trials and the benefits of certain ingredients. We'll see results that may actually benefit the consumer, may have a neutral effect, or may even be detrimental. The problem is that we haven't standardized our protocols.

Dr. Gord Surgeoner: I would just like to comment on the study.

That's why I use “weight of scientific evidence”. People looked at that. Scientists looked at that. They went back to see if they could repeat it. They found issues with the study, and it was looked at over and over again.

So you end up with one saying this and 40 saying that. At what point is the tipping point? I guess that's the question.

And you have to look at the validity of.... You know, both were peer-reviewed studies, but if some are saying that we can't find it, and somebody else is saying they could, you have to look at it. The weight of the scientific evidence is one of the things I indicated, and I think that's important when you go forward.

The Vice-Chair (Hon. Mark Eyking): This last spring our committee travelled around to look at the future of agriculture. We were at some pretty advanced dairy farms.

You mentioned a calf. Let's say we have a hypothetical situation where a cow is putting out really good milk and somehow has omega-3 in the milk. You say, okay, this is the future cow.

Are you saying that we...? What would a farmer do? What would the university do? Would they try to develop from the egg of the cow—you're talking about the calf—to make a duplication of that animal? How would that happen?

Dr. Gord Surgeoner: First of all, I would emphasize that omega-3 in milk, for example, is something that had to go through the novel foods act, because we didn't normally have omega-3—

The Vice-Chair (Hon. Mark Eyking): There is such a thing as omega-3 in milk?

Dr. Gord Surgeoner: You don't drink Dairy Oh! in Ontario? I drink it. But it's added.

The Vice-Chair (Hon. Mark Eyking): Yes, I know it's added.

Dr. Gord Surgeoner: It's not in the cow.

My point is that it had to go through the same regulatory process of novel foods. I know Rickey has been working with the company a lot. At that point—there is cloning and all those kinds of things—you would start to breed more and more of those animals, again, if there was a market.

The other thing I would emphasize when we talk about following crops is that we are constantly looking at crops from elsewhere in the world, just natural crops that come from Russia, from Europe, from areas similar climatically to Canada.

I have to emphasize that wheat is not native to Canada, and corn, soybeans. Soybeans weren't even in Ontario until about 1954. So we would have to do that for every one, bok choy and a whole bunch of vegetables that we're looking at right now.

At what point do we say, yes, we look at these ones and not the others? I think the novelty is the key trigger on that.

The Vice-Chair (Hon. Mark Eyking): Thank you very much.

We're going to go to the Liberal side with Mr. Valeriote.

Mr. Francis Valeriote: Thank you.

As I listen to the discussion and I listen to the answers, I see a lot—you'll forgive me for the use of this word—of "fertile" ground where common interests could be achieved. I really do.

Ian, you spoke of the hazards related to the farming industry as a result of biotechnology—seeds and contamination, etc.—and those very risks, as you've said, also create risk for the biotech industry.

We have to make recommendations to the government as a result of this study. I am wondering if you see or you envision a round table on organic and biotech being created by the government, involving all the stakeholders from both sides of the equation coming together and coming up with solutions.

Would you make that as a recommendation? If so, or if not—and I'm asking all of you, Gord, Ian, Rickey—what other recommendations would you make going forward from this point?

Dr. Ian J. Mauro: I think bringing stakeholders together to see eye to eye is always a good idea. With respect to organics, there's been a lot of mention of it, but we haven't really had it out. I think this technology is very tricky for that sector.

When you talk about gene flow and you talk about biological organisms self-replicating in the environment, for the most part it appears that containment is difficult. Regulators have not been able to contain this technology; industry itself has not been able to contain this technology. You look at Triffid flax. I'm sure you've heard of it. If industry and the regulators themselves cannot contain it, it means that coexistence in the environment is going to be difficult if not impossible.

Taking that into account, it means that one industry, the biotech industry, the conventional farming methodology, is going to impose their way on another industry. Organics is the fastest-growing sector in the Canadian agricultural economy. Consumers are demanding it, but because of the way the technology works, intrinsically, it appears that one is going to step on the other.

So dialogue becomes very difficult when the technology facilitates dominance of one way of growing food over another.

● (1030)

Mr. Francis Valeriote: Do you see a way where, in consultation with one another, solutions can be developed by communication?

Gord, you can answer this too.

Dr. Gord Surgeoner: I can't guarantee it one way or the other, but I can tell you that we should try. At the end of the day, there may be certain areas that we agree on and certain areas that we agree to disagree on. But a face-to-face conversation and working on these things is always better. You both come out better than you went in.

There are no absolute guarantees, and I'm the first to say that, but at the end of the day we're all better for it.

Dr. Ian J. Mauro: In terms of recommendations, there are other jurisdictions that are doing really interesting things.

I met with people in Denmark, and they actually have monitoring programs. You find out where people are growing GMOs and where people aren't growing GMOs, and with spatial mapping you can figure out where risk areas are. If neighbours know what their neighbours are growing, which for the most part they do, you can actually map out where refugia might be possible for farmers to grow non-GMO crops. And if they can't, they can at least be aware of the risks that exist.

There are all kind of new ways to think about how we can grow food in a way that might facilitate coexistence. We can't guarantee it, but there are certainly much better approaches to what we currently have.

Mr. Francis Valeriote: Okay.

Thank you, Mr. Chair.

The Vice-Chair (Hon. Mark Eyking): We're going to have a couple of questions from people who didn't get a chance.

I think we're going to go to Brian first.

Mr. Brian Storseth (Westlock—St. Paul, CPC): Thank you very much, Mr. Chair.

I'm going to ask some questions, and I'll split my time with Mr. Shipley so he can finish off with his.

I have one question for you, gentlemen. And thank you very much for coming. It was a very good discussion today.

For the record, could you state the difference between genetically modified and mutated? I think it's something that needs to be clarified.

Dr. Gord Surgeoner: I'll take a try at that.

Evolution is occurring all the time, so "genetically modified" is actually a wrong term. If you look at dogs that started off as wolves, and now we can go from a Chihuahua to a Great Dane—cattle is another one—we have been separating breeds for eons. In so doing, we are genetically modifying by our selection. It's what I will call the "old" biotechnology, if you like.

I think it's actually a misnomer. Almost every bit of food, unless we're eating it wild, is genetically modified by man. We used to call it physiological cattle yield—Holstein versus Jersey was how we did it. But they're all because of genetic modifications selected by how the animals perform in some cases. That's always been going on.

Dr. Ian J. Mauro: I agree with my friend here. There are mutations that have occurred. Humanity has created the crop biodiversity we see around us in modern fields right now through conventional breeding.

However, genetic engineering is quantitatively different and qualitatively different. We're talking about intervention in the genome of life using precise scientific techniques that allow for the insertion of foreign DNA into an organism.

As another person said in the meeting, we're talking about species from one organism being introduced into another organism. That has never occurred in the history of plant breeding, or in the history of life as we know it. We're talking about a new approach that requires new thinking and new regulations to ensure that those introductions of foreign genetic material are not causing adverse harm within the genome, ecologically, and for people's health.

● (1035)

Dr. Gord Surgeoner: I would emphasize that humankind has been deliberately doing mutational breeding. We expose genomes, plant material, to radiation or to chemicals that cause lots of mutations. Then you try to "till" it, as we say, and find something that has better.... But you don't know nearly as much about that, which is mutational breeding, as you would from genetic engineering.

I think you should be aware that some of this is done deliberately to create new diversity for a gene pool that we then select out.

Dr. Ian J. Mauro: I think one of the important things is that the science of genetic engineering, when regulation was created worldwide, is very different from what it is today. We have learned a huge amount about genetic signalling, epigenesis, all kinds of factors that genomes have that do not fit with our current regulatory model.

Right now the genomes of organisms do all kinds of things that aren't linear, the way the regulations are set up.

Dr. Gord Surgeoner: It was indicated that we'd never had genomes move between species. We have them move between closely related species all the time. Triticale is a classic example of that. We took wheat and rye and we created a crop called triticale. A mule is an example of that. Strawberries are an example; we've taken a variety of species from the west and a species from the east to get bigger strawberries that taste better.

So we have been, I would emphasize, very much been doing that. If you look at wheat, the best we can tell is that's a genome of three species of grasses that all came together naturally to create the starting point of wheat.

Mr. Bev Shipley: I think we've just heard why that must have been an interesting meeting when all of you got together.

Voices: Oh, oh!

Mr. Bev Shipley: Canada is not only an export nation, a huge export nation, but we also import very much. One of the things we're concerned about is the regulatory processes we go through.

I had a motion, which was accepted by Parliament, so that we can actually parallel some of the registration and the registration of products, whether it's pesticide or fertilizer uses. The other part of that is that we need to be competitive. We import now foods that are going to be GM...mutated into Canada.

If we don't stay on the edge of actually keeping competitive in terms of our regulatory regime, then obviously not only does agriculture lose but industry loses, and I might say that consumers will lose also.

What I'm asking, then, because we don't necessarily have the same regime...and yet my Motion No. 460 is actually working with that. I want to thank the CFIA, the PMRA, and the veterinary drug directorate for coming along and being very a much supportive initiative for this.

What can we do, then, in terms of regulatory changes, in terms of biotechnology, that will help us stay competitive, stay in it for all industries? That includes agriculture, because this is our industry. What do we need to do to stay on the cutting edge so that we will remain competitive, recognizing the challenges that are ahead of us in biotechnology?

The Vice-Chair (Hon. Mark Eyking): You'll have to make it quick. We're way over time.

Dr. Gord Surgeoner: It's a very complex question, I would emphasize.

Working with other nations is absolutely critical. Communications is absolutely critical as well.

But I have to emphasize this: to stay on the cutting edge, investors and people who are going to go into this area need to know the rules, and to know that the rules they start the process with aren't going to be changing every year.

If they're constantly changing, then I'm sorry, they will go to another jurisdiction.

The Vice-Chair (Hon. Mark Eyking): Mr. Atamanenko.

Mr. Alex Atamanenko: I have just a final question.

My bill, Bill C-474, sounds like a very simple bill. It looks at what effect the potential economic impact will have on farmers if we introduce more GE crops.

As I understand it, the main argument against it is that it's not science-based, that it's going to stifle innovation.

We had the potential release of GE wheat, I guess in the nineties, and the reason that it wasn't released was because there was an outcry by farmers. One of the reasons was that they figured their markets would have been stopped.

That didn't stop us from continuing science and innovation. We're still moving. We have cutting-edge technology in this country even though this look at the market there stopped GE wheat.

My question is that if the markets were to say that we should not be introducing GE alfalfa now, or GE wheat, how would that stop science innovation in our country? It would seem to me that it would still continue going along, in spite of the fact that we may have protected farmers in these two areas.

● (1040)

Dr. Ian J. Mauro: Well, this is my area of expertise. Basically you have conventional risk assessment, which is science-based. It's quantitative, probabilistic models of gene escape, nutritional toxicology. There is a narrowly defined way in which biotechnology is currently regulated in Canada.

I've been working on creating methods that are quantitative, that are scientific. I'm funded by the Social Sciences and Humanities Research Council of Canada. It's a science, the way you can engage people, include stakeholders, put numbers to it. Those numbers can be traded internationally—you can share that information. It can be used to create generalized models of understanding and information for regulatory bodies all around the world. It is a science. These methodologies would fit within the current framework if it were broadened to include them.

Let's look at cost-benefit analysis. The Canadian Wheat Board, in the regulatory gap document that they submitted to this committee in 2003, outlined, with their industry partners, how to include an economic analysis in the current regulatory framework in a way that would allow for market harm to be assessed.

These are quantitative methods; they're science-based. They can be done in a way that isn't political, that isn't emotional, that allows for a good assessment of the technology.

With respect to innovation and competitiveness, I think in Canada, if we can say that we are taking responsible action to ensure that our farmers are safe.... Look at the way in which Canada's farm economy is going right now. People are hurting. Farmers cannot afford to have their bottom lines torn out from under them by the introduction of Triffid flax into some sort of scientific regulatory system in the EU that all of a sudden shuts down their markets. We can't afford that. The industry can't afford it. Consumers can't afford it; they want to know what they're eating.

I think your bill is an important step. I think it's an important first step. We need to be looking holistically at these things. The work that I do is risk analysis. It includes science as well as cultural, social, and legal issues in an overall assessment. This is increasingly being called for by governments all around the world as a way to look at this technology.

If we think that biotech has only scientific risks, that is a political statement and action in and of itself. It's value-laden to say biotechnology causes only scientific risk. You're excluding people; you're excluding their lives; you're excluding many other factors from the introduction of this technology. That is not just inappropriate—it's irresponsible. I think Canada can step forward through this action, this study, and say, “You know what? We're innovative. We're doing important things for this country.”

That is a competitive edge in and of itself. It shows that this country is doing important things to make its biotech sector viable and competitive.

Dr. Gord Surgeoner: Using your example of wheat, if we had a technology, whether it's by genetic engineering or mutation, that would eliminate nitrogen costs in the production of wheat, we would significantly reduce the input costs of producers. If people wanted to invest, I'm pretty sure they would pick it up. Not only is it good for the farmer's input costs, it's also good for the environment. When you look at how we make nitrogen from fossil fuels, this would pick it out as micro-organisms like soybeans do. But I would not invest in Canada, because I don't know what the rules are, and I have to wait for France to make the decision. That's my concern.

The Vice-Chair (Hon. Mark Eyking): What a day. It's been a good one.

We've had a great start to our study. We may have another meeting on Thursday, and we'll definitely have lots of meetings in February.

Thank you for coming, and thank you for the educational answers and your insight into the biotech industry.

Before I hit the hammer here, guys, I don't know how it's going to roll here on Thursday. I don't know if we're going to be on deck or not. If we're not, then have a happy holiday, everybody.

The meeting is adjourned.

Published under the authority of the Speaker of the House of Commons

SPEAKER'S PERMISSION

Additional copies may be obtained from: Publishing and Depository Services
Public Works and Government Services Canada
Ottawa, Ontario K1A 0S5
Telephone: 613-941-5995 or 1-800-635-7943
Fax: 613-954-5779 or 1-800-565-7757
publications@tpsgc-pwgsc.gc.ca
http://publications.gc.ca

Also available on the Parliament of Canada Web Site at the following address: http://www.parl.gc.ca

Publié en conformité de l'autorité du Président de la Chambre des communes

PERMISSION DU PRÉSIDENT

On peut obtenir des copies supplémentaires en écrivant à : Les Éditions et Services de dépôt
Travaux publics et Services gouvernementaux Canada
Ottawa (Ontario) K1A 0S5
Téléphone : 613-941-5995 ou 1-800-635-7943
Télécopieur : 613-954-5779 ou 1-800-565-7757
publications@tpsgc-pwgsc.gc.ca
http://publications.gc.ca

Aussi disponible sur le site Web du Parlement du Canada à l'adresse suivante : http://www.parl.gc.ca