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Chair

Mr. Bev Shipley

Standing Committee on Agriculture and Agri-Food

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• (1530)

[English]

The Chair (Mr. Bev Shipley (Lambton—Kent—Middlesex, CPC)): I'd like to call our meeting to order, please.

This is meeting number 29 of the Standing Committee on Agriculture and Agri-Food. Pursuant to Standing Order 108(2), we are doing a study on innovation and competitiveness.

Committee, in the first hour we have with us, from Dairy Farmers of Canada, Mr. Bill Emmott, who is vice-president. Welcome, Bill.

By video conference from just outside my home in London, Ontario, we have, from Vineland Research and Innovation Centre, Mr. Jim Brandle, CEO.

Can you hear us, Jim?

Dr. Jim Brandle (Chief Executive Officer, Vineland Research and Innovation Centre): Yes, I can. Can you hear me?

The Chair: Yes, we're all hooked up. Thank you very much. We're just checking the video to make sure that everything is working the way it should, and it is.

We have one hour.

Mr. Emmott, I would ask that you open. You have seven minutes, please.

Mr. Bill Emmott (Vice-President, Dairy Farmers of Canada): Thank you for the opportunity to participate today in your study on innovation and competitiveness.

I am a fifth-generation dairy farmer near Brantford, Ontario, and my son is just coming on board to be the sixth generation. We have been cow cookies for a very long time.

Dairy farmers have long recognized that research and innovation drives efficiency, gains, and profit. The stability offered by a strong supply management program has allowed dairy farmers to reinvest in their industry on their farms through competitive and comprehensive research programs. Management practices, better technology, and better-quality products for consumers are always important.

Farmers, processors, and governments have worked together to improve and strengthen supply management and increase the diversity of dairy products offered to Canadians. There are more than 1,000 cheeses offered in Canada, various butters, milk with various fat contents—19, to be exact—DHA milk, yogourts, and many other products.

Dairy research is vitally important to it. You'll find inside your package a brochure that lists all our research, what we consider to be some of the most important things we have worked on in the past number of years. Take a look at it sometime at your leisure.

Last month, Dairy Farmers of Canada welcomed the government's announcement to invest close to \$945,000 under the agri-marketing program for dairy cattle traceability and to support an integrated on-farm research system called the proAction initiative. Also in your package you'll find a brochure that talks about proAction and what we're doing on farm with it.

These are all financed by dairy farmers as well as yourselves, trying to not only do what we're supposed to do, but also be able to improve it afterwards. Consumers nowadays want to be reassured that this is what happens.

Dairy farmers live and work on their farms every day, and so the environment is vitally important to us.

ProAction provides to us the best management practice, built on sound science derived from strategic and targeted investments in research. We innovate to make the best quality of milk possible. Our Canadian quality milk program is an on-farm food safety program designed to help farmers prevent, monitor, and reduce food safety risks on their farm. This program is based on the sound science that is designed to help farmers implement best management practices and keep records daily to monitor critical areas of food safety. One hundred per cent of our farms will be registered on CQM by the fall of 2015.

Forty years of investing in genetics has made our Canadian-bred cows renowned globally. We're producing more milk today with far fewer cows. In 1970, Canadian cows produced an average of 3,400 litres of milk. In 2012 this had increased to 8,400 litres of milk, or 143%. Demand for our cattle, embryos, and dairy cattle semen is strong worldwide. In December 2013, Minister Ritz announced that Vietnam's largest dairy wants to buy 10,000 additional Canadian dairy cattle valued at \$20 million to the Canadian dairy farms.

DFC's yearly investment in research is \$1.7 million. Provincial investments in Ontario and Quebec alone double that number. Since 2010, Dairy Farmers of Canada has partnered with the federal government under the agri-science clusters initiative to create the dairy research cluster with projects that address on-farm sustainability, animal health and welfare, genetics, human health, and nutrition.

By the end of 2018, investments in dairy innovation by government and industry will amount to close to \$30 million. That will be 71 research projects executed in 23 research institutions across this country. They will involve more than 200 research professionals and training for close to 300 students, our next generation of scientific innovators. These young professionals are being trained for jobs that currently exist and need to be filled with people from the agricultural sector.

We see this as a sign of optimism for the dairy industry. In 2010 the agrifood sector directly provided one in eight Canadian jobs. In Ontario there are more job openings than graduates to fill them. Three jobs are waiting for every agricultural graduate.

Science and innovation needs infrastructure, barns, equipment, land, and other facilities to test new products and to make our animals more comfortable or plant new forages and crop varieties for better feed.

• (1535)

Dairy Farmers of Canada recognizes and appreciates the investments made by the federal government in state-of-the-art dairy research facilities in, for example, Quebec, Saskatchewan, and British Columbia. Industry too is taking these investments seriously. In Ontario we're proud to say that we're investing in the construction of a new state-of-the-art dairy facility in Elora, Ontario, with the University of Guelph and with multiple partners from government, processing, and other businesses within the dairy chain.

We also invest in projects to provide best practices to reduce the impact on the environment and improve the sustainability and vitality of dairy farms. Best practices reduce the carbon footprint as well as save money on energy. One of our cluster studies found that the carbon and water and land footprints for Canadian milk production are among the lowest in the world. It also identified the areas for improvement on farms to allow us to target our best efforts in a more sustainable way. That's in another one of the handouts.

We are committed to drive innovation in dairy, but we need to keep working on strong partnerships with the federal government, building capacity in our sector, developing our research professionals and students invested and engaged in our industry, and ensuring the delivery of results to farmers for efficiency and profitability.

For dairy farmers, innovating to achieve excellence through such programs as proAction, the dairy research cluster, and Canadian quality milk enables strategic collaboration with our partners—the government, the industry, and some of the best scientists from across the country—to achieve our shared goal.

I'd be happy to entertain any of your questions.

The Chair: Thank you very much for your presentation.

We'll now go to Vineland Research and Innovation Centre, to CEO Jim Brandle.

Jim, you have seven minutes.

Dr. Jim Brandle: Thank you for the opportunity to speak, and thanks to the committee for your wisdom in conducting this study. Innovation and competitiveness in agriculture are so important to our collective prosperity.

As I understand it, to be competitive requires us to be innovative, so in that manner we'd be rapidly creating and deploying new technologies that keep us ahead. We're blessed in Canada with enormous natural resources, and the societal framework to be competitive. Now we seek to better develop the environment for competitiveness, and in particular the innovation element to that.

Why is all this so important, particularly in agriculture? I'd answer that by saying when you look ahead and see the world population growing to nine billion by 2050, and knowing that we need to feed them all, it's clear that we need to innovate. That said, I'm heartened by the fact that we're a rational species, and perhaps the committee might debate that after, but that's my thought. What we've done so far and what we'll continue to do is to think our way through our challenges. We did it thousands of years ago when agriculture itself was invented. Since then our collective innovation efforts in agriculture have allowed us to feed ourselves.

Now, with the burgeoning world population, globalization of markets, and climate uncertainty, our need for innovation in agriculture has never been greater. We need it to continue to compete and to prosper, and, as I said already, to feed ourselves. Simply said, innovation in agriculture is essential. It's essential for our economy, essential for our country, and essential for us as a species. Like the air we breathe and the water we drink, innovation in agriculture is worthy of public interest and, I'd argue, public investment.

If innovation and competitiveness are inextricably linked, then I'd have to say that if we are better innovators, we'll necessarily be better competitors. With that in mind, and seeing the Conference Board gave us our perennial D in innovation again this year, I'd agree we need to examine our circumstance and see if we can do better. It's really around the innovation element of the competitiveness equation that I'd like to share my experience with the committee.

It's important right at the start to understand the difference between research and innovation. Research is discovery and invention, and we do that well. Innovation is the implementation of those ideas to create new products and processes. It is there we need to do better, because innovation creates value for our economy and value for our society. It's also clear to me that part of being better innovators is ensuring that we apply the same resources to innovation that we apply to research, which doesn't mean that we need to reduce our investments in basic research. What it does mean is that we need to increase our investment in innovation so the two are equal.

With that investment must come a commitment to delivering outcomes, like the lower costs and differentiated high-value products that make us more competitive. Then we can transition from being the assimilators and adapters of the technology of others to being the converters of new knowledge into better products and processes. That then allows us to capture the dual benefits of agriculture, the production and processing of raw materials, and the creation of the genetics, the software, the traits, and the new markets that help us compete. After all, the technology base for our agriculture can create high-value jobs, high-value technology exports, and so that, along with all the crops we produce, is what we must also achieve.

I represent the Vineland Research and Innovation Centre. We're new and we work in horticulture—fruits, vegetables, flowers, trees, plants. Horticulture is about healthy eating and positive lifestyles. The farm gate is worth over \$5 billion to the Canadian economy. We are a purpose-built innovation organization, an example of the new investment I just mentioned. Of course, the Government of Canada has invested a lot in Vineland, and we appreciate their confidence.

As an organization, though, we aspire to deliver real results, and that means acres in the field and shelf space in the grocery store. We are one of over 160,000 not-for-profit organizations in the country, and that means we're stakeholder focused: we exist to support innovation in the horticulture industry, and their prosperity is our measure of success.

Setting direction and priorities is a shared responsibility. We bring the science and what's possible, and industry brings its needs and new opportunities.

• (1540)

All of our projects are built to deliver real results. In order to do that, they need to have three parts. The first part is a validated consumer or client need that really creates impact. The second is great science, and great science partners. The third is business partners who can deliver the technology to the marketplace.

After all, we're an innovation organization. We're not a manufacturer; we're not a seed company; we're not a grocery retail store; so it's critical to have all three of those elements in place in each project. When you do, your probability of delivering the innovation and being successful are much higher. After all, the process is uncertain, and you want to set the odds in your favour.

Partnering is particularly significant because it builds the clusters that are so important to innovation. Those clusters are literally the place, and that's a virtual or physical place, where organizations can compete and collaborate and innovate.

We have over 160 partners, and that includes grower organizations, businesses, governments, universities, and it is the conversation between science and stakeholders that leads to innovation. The intersection between those two different cultures breeds better ideas and creates context for our work. An example of that work is the cost of production in horticulture, which we took on about three years ago. It's very high and it's largely because of labour issues.

We have programs that address the labour supply problem, but the labour cost problem remains. The solution really is automation. We need to automate horticulture processes, as the harvesting of grain crops was automated by the combine back in 1880. The innovation

is to lever Ontario's automation industry into horticulture and create robots that plant, harvest, and package crops in a way that best fits our industry and our production systems. This we have done.

With new models and new approaches, and actually setting out to build them so you have to do it, innovation can become Canada's competitive advantage, and it will be innovation that sustains our efforts in the long race that competitiveness is.

With that, Mr. Chair, I'll end my words.

Thank you very much.

• (1545)

The Chair: Thank you very much for your presentation.

Now we will go to the committee. Will go with five-minute rounds.

Madam Brosseau.

Ms. Ruth Ellen Brosseau (Berthier—Maskinongé, NDP): I'd like to thank both of our witnesses for their presentations and interesting comments.

I'd like to start with Bill Emmott. You mentioned the proAction initiative. I was wondering if you could go into detail and explain to us what that is, and maybe give us some examples on how farmers are innovating nowadays.

Mr. Bill Emmott: Certainly.

What happens with proAction, it's an on-farm kept process. It's a HACCP-like program. It's very hard to do HACCP on farm. It's hard to control all of your inputs, so it's HACCP-like. It's been approved by Ag Canada.

What you do on the farm is you write down each day what you've done, if you've had to mix a different feed ration, or whatever. You keep track of all of that. If you've done something that's different, you keep a protocol of everything that you do, an SOP, and if you've done something different, then why did you do that? How did you correct it if it was a problem? That's what it is.

ProAction would involve the environment, if you have an environmental spill or something of that sort. Another consideration is animal welfare. If you have a cow with a limpy foot, how are you going to fix it? How are you going to work with quality milk? It's all those sorts of things. It's just a record-keeping system on farms so you can prove that everything you say you've done, you have done.

Ms. Ruth Ellen Brosseau: Can you expand on some of the projects that are being studied in some of the new research facilities?

Mr. Bill Emmott: Sure, I'd be pleased to.

Dairy Farmers have done a great deal of work in areas of...well, one of the things we're doing in Ontario, which I know best, is that we're working toward how we can get more product out of the same raw products, how we would stretch the product. That happens a lot.

In British Columbia, they do a lot of animal welfare programs. What's best for the animals to lie on? What's best for their feed? What's best for their feet? In other parts of the country, we do things that are better for their local feed production, and what would fit into a cow's diet in a better way. It's simple things like that.

Ms. Ruth Ellen Brosseau: We've had witnesses at committee speak of a brain drain in Canada, where we have brilliant people leaving to go to other countries. I was just wondering if you have experienced that. I guess that question applies to both witnesses.

Mr. Bill Emmott: Sure. The brain drain does apply because we don't have nearly as many professorships, or that sort of thing. Some of the professors will move on to other areas. The universities are used to train the trainers and to teach our children, the next generation of farmers who are going to take all our places around the table. It's vitally important. Is the brain drain as great as...? I like to think that we're exporting knowledge and we're exporting people who can do the work. I think we're keeping the very best ones here.

Ms. Ruth Ellen Brosseau: Mr. Brandle, do you have any comments?

Dr. Jim Brandle: Yes, I do.

I'd agree that, again, we have kept the very best. Certainly in our organization we've grown from just one person to 86 over the past six years. A lot of those people have Ph.D.s and master's degrees. They're very smart and very capable and very entrepreneurial. They've come from across Canada and around the world. So there's a brain gain at the same time. I'd argue that we're doing pretty well. We may lose one, but we may gain a few more.

Overall, I think that's how science and research work: there's a constant flow of people back and forth. Again, that's what helps to keep things fresh and generate new ideas and bring things from other places in the world where they may have done it better or in a way we don't understand yet.

Ms. Ruth Ellen Brosseau: I really enjoyed your definition of research and innovation, how innovation is really the implementation of the research. I was wondering if you could comment on the agri-innovation program. Is it adopted in your sectors? Is that something your sectors use often? Is it accessible to everybody, or are there unsatisfactory delays within that program?

• (1550)

Dr. Jim Brandle: We have a number of projects that either are funded under that initiative or are being evaluated under that initiative. I'd say that it has done pretty well, that it is accessible, that we've managed to put the partnerships together. The requirements are reasonably stringent and you know they want to achieve results at the end of it. So in that sense, it has been very good.

Of course, everything could be done faster. It could have been done last year instead of this year, but it's on the way in. For most of us who have an operating line, we can continue our work and our focus knowing that the program is going to be delivered. We think it

has been pretty good. It's good for our organization and I think it's good for our sector.

The Chair: Thank you very much.

I'll now go to Mr. Lemieux, for five minutes, please.

Mr. Pierre Lemieux (Glengarry—Prescott—Russell, CPC): We did a study just before Growing Forward 2. I'd say we consulted very widely as a committee on what was working well in Growing Forward 1 and what should we carry into Growing Forward 2. Certainly, I'd say almost from every witness we heard that the idea of investing in cost-shared initiatives like the science clusters was a definite winner in Growing Forward 1 and it should be carried into Growing Forward 2, and if possible, increase the funding, because it was working so well. We did increase the funding, a 50% increase in cost-shared initiatives. As you know, Growing Forward 2 is very robust in terms of its focus on science and innovation to make our agricultural sector more competitive.

I'm really impressed by the number you gave regarding the Canadian dairy industry and what the average cow produces. If I remember, it was 3,400 litres and now it's at 8,600 litres. I can only assume that science and innovation played a role in that.

I was talking with some farmers just the other week, and we were talking about export of Canadian technology. They were saying it wouldn't be unheard of for the average production in a herd in another country, depending on the conditions, to be 2,500 litres, which is even below where we were many moons ago. This is why they're so interested in Canadian genetics and Canadian dairy products—not products in terms of, you know what I'm talking about, cows themselves.

Can you inform the committee about some of the initiatives that have led to such tremendous milk production increases by our dairy cows over time?

Mr. Bill Emmott: I think one of the outstanding things we've used in the last number of years is genomics. Instead of having to wait for the standard five years to see if an animal actually produces what her genetic potential is, through genomics we can actually scrape a few cells off an embryo and know what the potential might be coming up. Through research we've been able to verify that those numbers are exact and correct. So you move the generation along very quickly and that has helped tremendously.

Other than that, frozen semen—selective parenthood, as I like to call it on our farm—has tremendously helped, because we only use the very best bulls and we only keep the very best dams, so that moves things along quite quickly. We don't keep just a cleanup bull in the barnyard anymore. We know what everything is and we keep the records. All those things are vitally important to us.

Mr. Pierre Lemieux: You mentioned that we're actually exporting this now; this is actually a viable business opportunity to export these genetics.

Mr. Bill Emmott: Yes.

You're going to hear from someone from Semex, one of our exporters, in the next session. We export semen and embryos all over the world, because there are verifiable records, and people can rest assured that they're going to get what we've said they're going to get.

Mr. Pierre Lemieux: If it has been so successful, is research continuing in these areas of milk production and genetic strains?

Mr. Bill Emmott: Absolutely, and 8,400 litres sounds like a lot of milk, but my herd now does 11,000, and there are many herds that do much more than that. When you do the research on the feed you're preparing for them, I like to say that I have a nutritionist who prepares the rations for my cows and I depend on my wife to feed me.

Voices: Oh, oh!

Mr. Bill Emmott: But it's where we're going. Science is so tight now, and getting better—and will get better.

• (1555)

Mr. Pierre Lemieux: Good. Thank you.

Jim, let me turn to you and perhaps ask questions in the same vein.

What sort of science and research has greatly helped your industry over, let's say, the last 10 to 20 years? Has it been meaningful for the sector?

Dr. Jim Brandle: Yes, it has been meaningful, just to answer the last question first.

As to examples, I like to look at the greenhouse industry and to see how it has developed from a very small set of operations in Leamington and Niagara, in Ontario, as an example, into this burgeoning industry worth literally hundreds and hundreds of millions of dollars. It bristles with technology. It starts with what Bill just mentioned, with good genetics. You can imagine all those tomato varieties and all those cucumber varieties, the flower varieties that grow in those greenhouses and exactly how much work and effort has been put into those to absolutely optimize their performance in those houses.

Then there's the energy technology, the lighting technology, the skin of the greenhouse, the steel, the way the heat is distributed and how the air moves, and all of the research and all of the energy that's been put into that. This has been Canadian work and spillover work from Holland. I would say that in that space in particular we've done extremely well.

Mr. Pierre Lemieux: Yes, I was going to say I would imagine that....

Is that my time?

The Chair: Yes, I just wanted to let him finish.

Now I'll go to Mr. Eyking, for five minutes, please.

Hon. Mark Eyking (Sydney—Victoria, Lib.): Gentlemen, thank you for coming.

My first question will be for you, Mr. Emmott, about the dairy industry.

I read in the brochure that you sent, on page 3, "Examples of Innovation in Dairy", and you mentioned the thousands of cheeses that are developed and the yogurt varieties.

As you're well aware, there is a European trade agreement coming up, and your industry is going to be probably one of the hardest hit with this agreement. You're been informed that the federal government is supposed to offer assistance to help you get through this, because there will be thousands of tonnes of cheese coming in.

As part of that innovation, what would you be looking for? First of all, we have no knowledge that any money has been announced, so I'm asking you first whether any has been announced. What would you be looking for? If you had the money and the tools at your disposal, what would you be doing in innovation to help you adjust to the European...I don't know whether you call it the shock, but to what is going to happen with your industry?

Mr. Bill Emmott: There's been no money announced or any programs announced at all.

What we're looking for is something that's going to help create excitement in the marketplace so that the consumer will still be able to differentiate what is Canadian cheese and what is European cheese. We're not opposed to the consumer having a choice; they just need to have a choice that they know they are actually making, not one that they're making by mistake.

What we'd like to see is some way, whether through different packaging or otherwise, of differentiating it. Does there need to be more advertising? That remains to be seen.

We all know that most people like to buy local, and so we're looking to help the local artisans who have developed a lot of the specialty cheese market, both in Quebec and Ontario, to differentiate their product in the marketplace.

Hon. Mark Eyking: Thank you very much. Hopefully that happens and you guys can adjust to it and increase your production.

Mr. Brandle, it's good to see you. I had the pleasure last year of visiting your research station. I think every person in this committee and most Canadians should visit it. It's amazing what you do and the research you're doing there. I walked right through your facilities: the greenhouse, the vegetables, the orchards, and even the nursery crops. You do a lot of work on that.

After our tour, we had a meeting with some of your group. One of the key things that came up was funding. It is federal research.... I think what we realized is that you're a very key partner for southern Ontario for development of technology, and you have stated that.

There was a concern about the funding for your facilities—in the past, it has been declining, but also about the future. The demands are going to be greater for us to compete with the world, I guess, because it's what we're selling to besides Canadians.

Can you give us a snapshot about what you're facing in those terms? How has the federal funding been over the last few years? What is it now, and what is it going to be? How are you adjusting, and where does it all sit with you?

•(1600)

Dr. Jim Brandle: To be completely frank, we're doing pretty well. Recently, maybe it was last week, there was a joint federal-provincial announcement of \$26.5 million of federal-provincial funding for the next five years to take us to 2018. That provides for us half of what we need to operate. The other half we get out of—and I'll put it in quotes—"the marketplace". That means other research grants, other programs, such as the existing agricultural innovation programs, but provincial programs, and we bring in a lot of industry money.

We're operating right now at break-even. That's where a not-for-profit tends to like to be. I'd say the funding scenario looks pretty good for us.

Really, what the challenge is now is to really deliver the goods, to be better innovators and all of that. I would say, in our situation in our subsector, that it is reasonably looked after. The question is how we build it across the country and engage everybody else in a similar focus on research and innovation.

Hon. Mark Eyking: I was visiting some of the farmers in the area, and one of the biggest concerns at that time was climate change. It's either too hot sometimes, or they had frost damage and were trying to deal with it because the blossoms were coming.

What is your research station doing with helping that area adjust to conditions, whether it's frost or dryness or various conditions that they're facing, to adapt to climate change?

The Chair: Give a very quick answer, please.

Dr. Jim Brandle: I don't know whether this is a word, but part of it is what I'd call the "greenhouse-ification" of agriculture. One of the ways to mitigate against climate change is to put product under a controlled environment structure. We're starting to see, for example, more strawberries or other berries under tunnels and fruit trees under tunnels. We have a Cravo, which is a retractable roof production system. Those are made in Brantford.

As another way to mitigate against climate change, we have a genomics project in which we use a method called reverse genetics to create plants that are more resistant to drought, and ones that can grow at lower temperatures.

There's a bit of a thousand points of light. It depends on the particular industry as to what exactly the impact of climate change will be. Sometimes it's a question of water; sometimes it's temperature. We try to address those impacts from a production standpoint, bringing the genetics around to help adapt to those situations.

The Chair: Thank you very much.

Thank you, Mr. Eyking.

We'll go to Mr. Dreeshen for five minutes, please.

Mr. Earl Dreeshen (Red Deer, CPC): Thank you, gentlemen, for being here today.

Mr. Emmott, you were talking about the three jobs waiting for every agriculture graduate. I think we also tied that in to the discussion about the perceived brain drain perhaps being a brain gain as well. Of course, I think it's important that we speak about the concept of exporting the knowledge that we have as we work with

different countries and are able to bring all of those types of things together.

I'm curious as to whether you can talk about some of the programs you have seen and perhaps about the analysis of work that you have in the cluster, things that are international in scope, so that we can get a feel for what is happening in that regard.

Mr. Bill Emmott: There's a thing called mastitis, which is a disease of the udder. Part of the cluster is some of the scientists are in New Zealand, some are in the U.S., and some of them are in Europe, and with the magic of the Internet and everything now, they could quickly transfer this knowledge back and forth. I think that's one way they keep up on what's going on.

There are many professorships where they exchange professors and they learn on the job when they're in another country. There's nothing better than hands-on in another country to learn that what you're doing here is normal here but it's not normal everywhere.

When you get to see that up close and personal through these types of programs, I think it really does help you not only export your knowledge but import, as was said, the knowledge so that you get the best of all worlds.

•(1605)

Mr. Earl Dreeshen: Thank you.

Mr. Brandle, could you perhaps expand somewhat too on the cluster approach that you're working at, plus some of the international work that people in your field have been able to deal with as far as research is concerned?

Dr. Jim Brandle: Clusters, as you know, be they physical or virtual, bring people together to make innovation happen. It's an important thing that we're all together rubbing shoulders and talking and competing, and creating ideas and creating forward momentum. That's the concept. How you do it again depends on the organization, but it's important that you do it. Working in isolation is never the right way.

In terms of what we do that's international, I have a couple of particularly interesting examples. One would be sweet potato breeding. If all of you have been out for dinner to a restaurant in the last little while, you'll realize that sweet potato fries have become quite popular. Our production in Canada is not very high because they are not a crop that's well adapted to low temperatures. We do okay, but our quality is not great for processing, so we collaborate internationally to develop sweet potatoes that are adapted to production in Canada to try to capitalize on the opportunity that the huge boost in consumption has brought.

Another interesting element would be something we call feeding diversity, or world crops. As you know, there's a demographic shift in Canada based on new immigration patterns that has us with larger populations of people from India and China, who bring with them their own culinary traditions and needs for vegetables that they would normally eat at home. Of course we have broad international collaborations to try to bring in seed, material, and plants, and understand how to grow those crops so that we can again capitalize on the opportunity that immigration has created for the country.

Mr. Earl Dreeshen: Mr. Brandle, you also mentioned how we are doing well as far as research is concerned, but there needs to be more work done as far as innovation is concerned. I wonder if you could talk about the need for each of those components in a total research package.

Dr. Jim Brandle: The research part creates the discovery. That's where the real value is. It's something new, something better, something we've never seen before. You have that idea, that concept, and then now you need to do the work it takes to get it to the marketplace. There's adaptive research, applied research. There are all the partnerships you need to bring that kernel of a concept all the way along. We invest very heavily in that upstream part.

What I'm suggesting to the committee is that we should invest just as heavily in that second part. How we do it is part of the discussion. One of the ways to do it is to create a purpose-built organization like mine that's there to say, "Okay, you take those ideas and deliver them into the marketplace as best you can. Build the relationships, the science partnerships, the business partnerships, the grower partnerships in order to do that."

Mr. Earl Dreeshen: That's working its way through agri-innovation, and as different groups are working with them as well.

The Chair: Thank you very much, Mr. Dreeshen.

Now we'll go to Madam Raynault, please, for five minutes.

[Translation]

Ms. Francine Raynault (Joliette, NDP): Thank you, Mr. Chair.

I want to thank the witnesses for joining us this afternoon.

Mr. Emmott, in your brief, you mention that journalists who visited a robotic dairy farm were surprised at how popular the back scratcher was. The cows really enjoyed having their backs scratched by the automatic scratcher. I represent the riding of Joliette in Quebec. When I toured farms in the region, there was a dairy farm that had the same apparatus, and the cows seemed to like it.

A lot of innovation is at work. In that particular farm, the milking was done automatically. Cows didn't necessarily go based on their needs, because the robot recognized they had just been milked. If a cow was developing mastitis, the milk would go into another container, not the milk tank. It's a very innovative local farm.

What are your facilities like in Quebec, and what are your operations?

•(1610)

[English]

Mr. Bill Emmott: Well, 6,000 of our 12,000 members reside in Quebec, and they're very strong in our association. One of our vice-chairmen, in my position, is Bruno Letendre. He and I correspond it seems on a weekly basis. Some of the research that goes on in Quebec...the research farm is in Lennoxville. It's federally funded. It's a tremendously good, new facility. The cows are well cared for. I've been impressed with it the three times that I've been there. I'm quite jealous, as a matter of fact. It's a really good facility.

Quebec is a very strong supporter of the dairy industry in all of Canada. As you well know, there are about 400 robotic barns now in

Canada. It's becoming a significant player. It's not a large player yet, but it's a significant player.

[Translation]

Ms. Francine Raynault: Less than 5% of Canada's farms are robotic, but I have no doubt we'll see more and more of them over time, given the flexibility robotic farms offer families. Of course, it's very costly and requires a tremendous investment on their part.

Turning to cheese now, I heard you say in your presentation that we needed to do more to promote Canadian-made cheeses. Some people are quite glad to have more French cheeses coming to Canada, but at the end of the day, our cheese farmers are going to lose money.

What can we do to make our cheeses more popular?

[English]

Mr. Bill Emmott: I think it's quite simple in that most people want to buy local; they want to buy from somebody they know. If it's a producer who's in the next township, or in the next town, they're more likely to want to buy from them because they can say, "I support farmer Smith just around the corner." You have to get that across to them. They know what the standards are in Canada. There's never a question about our standards; they're very high here for the quality, in the way it's made, and all that. I think that the consumer will support Canadian product.

[Translation]

Ms. Francine Raynault: You're absolutely right. People want to buy their cheese from the farm around the corner. But what about supermarkets, where the products are all mixed up? How can people tell the difference between Canadian cheeses and imported ones? It's no problem when consumers buy cheese straight from the farms—which I have in my riding. But how can they tell Canadian cheeses apart at the grocery store or supermarket?

[English]

Mr. Bill Emmott: There has to be an agreed-upon branding situation between the processor and the farmer so that the consumer will readily know when they pick it up. In the ice cream program now we use what's called the blue cow. I like to think of her as a white cow with a blue background. When they pick it up, they see it says, "100% Canadian". The consumer will recognize that and pick it up. It's like buying a Ford car. On any car that's made by Ford, it says "Ford". It's just a brand so that people know what they're getting when they buy it.

[Translation]

Ms. Francine Raynault: Products have a very clear label, which helps people buy local.

Do I still have a bit of time, Mr. Chair?

[English]

The Chair: You are out, but it's a good question. Thank you, Madam Raynault.

I'm going to Mr. Zimmer, for five minutes, please.

Mr. Bob Zimmer (Prince George—Peace River, CPC): Thank you both for appearing before the ag committee today.

Following along the lines of what my colleague across the way mentioned about the dairy industry being the hardest hit by CETA, I guess it's the old lemons and lemonade analogy for me. Typically we see it as an opportunity, as opposed to lemons.

I just want to ask you, on the topic of research and innovation, what is your organization doing to target or specifically address that new potential market of 500 million people?

Madam Raynault mentioned our Canadian brand. Certainly it's a good brand, especially in the world. We all know it's a good product. There are certain cottage cheeses that I can only get in B.C. which I miss here in Ontario. We like our local brands, but certainly there's a market for it.

Can you respond to that?

• (1615)

Mr. Bill Emmott: One of the issues that we're facing is it's not only CETA, but there's also the World Trade Organization. Under WTO rules we are only allowed to trade a certain amount. We're still waiting for the final papers on CETA to see if we have to live with both sets of rulings, and we assume we do.

We're going to have to add full domestic price or some type of a domestic price to produce those super products. We used to have a product in Great Britain that was a raw milk cheese that was well known—it was a cheddar cheese—and highly sought after there. We're going to have to go back to developing those types of products for the European market.

Mr. Bob Zimmer: Is your organization doing that right now? Do they have a list of products that they're going to be embarking upon or studying, or is that something that's still to be determined?

Mr. Bill Emmott: It's still being determined. We just did a six-month update about CETA today that we're releasing to our producers. It all came out in October last year, so we're just working on our way through that. As I say, we have to see the final....

Mr. Bob Zimmer: Yes, I can definitely relate. You need to see what the final is before you can say.

Is there a move in your industry that's seeing this as a positive thing, like the way we view it? It seems to me we've seen this shift slightly: at first we realize it's a change, and many of us are afraid of change, but to see the potential all of a sudden, we see wow, it's big. Do you see that within your industry?

Mr. Bill Emmott: You have to remember that dairy is an industry that's very viable in Europe as well as here. They have geographical indicators in Europe as well. Almost all our cheese makers and all our cheeses are from Europe, so we're up against an issue there as well.

We see it as an opportunity, absolutely. You make lemonade when you get presented some lemons. We'll work our way through it, no question, but it's going to take some time. A phase-in period is seven to 10 years, and we're not sure of what that phase-in period is and how quick it's going to happen.

Mr. Bob Zimmer: It's good to hear.

Mr. Brandle, I have a similar question for your organization, too, with regard to CETA and again with the topic of research and

innovation. Is your organization targeting CETA and the potential that it brings? Have you realigned your research and innovation targets or aim to address that particular market?

Dr. Jim Brandle: I would say that we've always seen Europe as an opportunity, and of course many of our growers are, for example, Dutch, and they have already existing connections to European markets. So you'll see things like our Pixie grape, which is a miniature ornamental grape, moving its way into those European markets as we speak.

I think other opportunities for automation for varieties are certainly there. I would also say that we have an international science advisory body that works with our organization and we have a lot of European representation there. For example, the Dutch and the Belgians, the bio-control industries and greenhouse industries, we try to understand them pretty well so that these opportunities aren't just exclusively kept in Canada or kept small. We want them to be big, and big in the world. That's really how you make it work, and that's really what brings prosperity and competitiveness.

Mr. Bob Zimmer: What you're saying is you've already been doing this and you're well down the road to addressing the potential at CETA, and we see that.

Dr. Jim Brandle: That's right. You just needed to pave the way a little bit, make it easier.

Mr. Bob Zimmer: Perfect. Thanks.

The Chair: Thank you, Mr. Zimmer.

I'll now go to Mr. Garrison for five minutes, please.

Mr. Randall Garrison (Esquimalt—Juan de Fuca, NDP): Thank you to both of you for being here today.

Being from Vancouver Island, I want to focus most of my attention on the dairy question. One of the things that comes up quite often in discussions of Vancouver Island is the fact that until very recently, I guess about three years ago, Vancouver Island was self-sufficient in milk products, and now we're importing products from the mainland.

How important a question is that to people within the dairy industry and the dairy association? I know it's important to my residents. Where the milk comes from and where it is produced are very important questions locally for me.

• (1620)

Mr. Bill Emmott: It's always an important question to any farmer, that they want to produce for the market that's in their area, and I recognize that. Each of our organizations is provincially organized. I'm not as familiar with British Columbia. Our national president comes from the island, actually.

I assume that other opportunities came along, that the farmers have left the island or retired. That's always a problem. There are many farmers who are my age or older. We're investing in robots, as was questioned before, on our farm. The next generation of my family is interested in coming into the business, so it's pretty exciting.

Your Island Farms was sold, I think, to Agropur, which is a farmers cooperative, which will still give the farmers some control over what happens there. I have great hope for what's going to happen there in the future.

Mr. Randall Garrison: Part of the debate about local food on Vancouver Island is always about people saying that in terms of fresh fruit and produce, grocery stores are in trouble after three days. For us, with the ferry service, that would be very much a reality.

One of the things we've seen in the last few years is a very rapid development of artisanal cheese makers on Vancouver Island. I think it probably first came to the attention of the rest of the country in, I think, 2011, when cheese makers from the Comox Valley, up island, and the Parksville-Qualicum area won the top three prizes in the Grand Prix cheese competitions.

One of the complaints I've heard on the island is that the orientation of Agriculture Canada is toward larger industrial production. My question for you is, how much of the research and innovation work being done is directed at support for more artisanal producers, who are producing for the high end of the cheese market?

Mr. Bill Emmott: On a national scale, I couldn't get you the complete numbers, but we could certainly get those for you, and we'll get back to you with those.

I know that artisanal products in Ontario and Quebec, and in most provinces now, are very high on the list. We're doing some research on what can be done on farm, but they do need to meet the same safety standards everywhere, no matter who makes them. Food safety is number one.

Mr. Randall Garrison: I don't think anybody disagrees with that, but oftentimes what I hear from the local cheese producers around the island is that sometimes those standards are developed in an industrial context. They're very difficult to apply to an artisanal operation, which still may be producing quite safe cheeses.

I would apply the same question to Mr. Brandle from Vineland Research, in terms of the support for artisanal or smaller scale production, where we see a lot of people in western Canada, particularly on Vancouver Island, getting involved. How much of your research would be applicable to those artisanal producers?

Dr. Jim Brandle: The way we get engaged in a research project is we have a process we call an opportunity analysis. It's not really about the size; it's really about its potential to create impact and the potential for growth. Artisanal cheese turns into bigger cheese making and into industrial-scale cheese making. Cheddar cheese was probably an artisanal cheese 200 years ago. That's the way we look at things.

I talked to you about world crops recently, and if you look at it on the ground, it's an artisanal opportunity. There are a number of small producers, but when you look at the demographic, you can see there's the potential for literally thousands and thousands of acres of these crops. We can start small with these guys and help them grow. We get engaged in those kinds of projects. I mentioned the Pixie grape. That tends to be a smaller opportunity for an individual grower, as an example.

We also work on things like robots, trying to solve big problems for everybody who is engaged in the industry who has labour cost issues.

I wouldn't say we'd actively exclude anybody, but they need to be able to present their opportunity as one that's going to drive growth and create prosperity for lots at the end of the day, which may be years down the road, but we need to be able to see it.

The Chair: Thank you very much. Your time is up.

We are going to take around five minutes off the end of the next round, so I'm going to take a chairman's privilege and ask a short question. This one may go to, I think, Mr. Emmott.

I was interested because I was in dairy. It just astounds me, the increase in production. As we know, genetics doesn't just increase the production, because you have to build the body around that. When we're talking about the research—and this may be a question for Semex when the time comes, also—I'm wondering about the time for and the significance of developing those genetic upgrades, not only for milk production, but there's feet and legs and all those things that go with it. I might just save that for Semex.

You mentioned CETA. A question was asked about whether there is funding in place. I think, clearly, the agreement talks about.... That follows, as you mentioned, the five to seven, or ten years after....

I'm interested in getting a bit of a handle on the amount of dollars that have been going into the research that would actually turn into the innovation part. I like the definition Jim gave us for clarity of understanding. Has that changed? Now it is not just about the European market. I think, Bill, what it is about is that this research and innovation part—particularly now the research—is the relationship with the processors, as the part of that cluster to develop the research. What is happening with the amount of dollars that would be going into that, and with being able to develop the Canadian cheeses that would meet the satisfaction of what we continually talk about, our domestic market and the local market, which is clearly a Canadian market? How is that working to come together? Do you have any of those numbers of potential increase in the budget, as to what has been in the budget for that type of research?

• (1625)

Mr. Bill Emmott: We'd have to go looking for those numbers as well. When it comes to specifics, I have staff to do that.

I do appreciate the difference between research and innovation, but the thing we need to think about is communication back to the producers and getting those new activities onto the farms and into the barns. That's a vital piece of all of this, as is how we communicate it. We're doing some studies on that: how we get that into usable information that farmers will actually pick up and read and then make into whatever will be their next stage of life.

The Chair: Yes.

It might be—I know that some of your staff are here—that if we were able to garner some of those dollars, then we could see what could go into that type of research, basically to drive your own domestic markets.

I want to thank the witnesses very much for coming in.

We'll take a two-minute recess while we bring in our next round of witnesses.

Thank you very much.

• (1625)

(Pause)

• (1630)

The Chair: If we could get started again, I would very much appreciate that.

Members, for our second hour we have with us, from Semex Alliance, Jacques Chesnais, senior geneticist. Welcome, Jacques.

By video conference from Winnipeg, Manitoba, we have from Pulse Canada, Peter Watts, the director of market innovation. Welcome, Paul.

I will start with you, Mr. Chesnais. You have seven minutes for your opening remarks, please.

Dr. Jacques Chesnais (Senior Geneticist, Semex Alliance): Mr. Chair, thank you in particular for inviting Semex to appear before the committee.

We have three specific recommendations from Semex to bring to the committee, but before turning to them, I'd like to first explain what Semex is and then talk about the environment within which Semex is working in terms of research and innovation.

The Semex Alliance was created about 30 years ago to market Canadian dairy genetics. It is owned by three organizations, le Centre d'insémination artificielle du Québec, Eastgen in Ontario, and Westgen, which is based in British Columbia.

Semex markets dairy and beef genetics in more than 100 different countries. It's mostly bull semen and embryos. We have been quite successful. Our market share outside of Canada has been increasing in recent years. We have about 70% in Canada and 20% worldwide.

We benefit from the fact that Canada has a very good reputation in livestock genetics throughout the world. Besides export, I should mention too that genetic improvement is a key for the dairy industry, because it accounts for 60% to 70% of productivity gains over the long term. Genetic improvement is slow, but it has a huge impact on our industry.

Semex relies a lot on research and innovation. We invest in research in particular for genomics, genomic evaluation methods, resistance to disease, and reproductive technologies. I've provided in the brief a few examples of success stories for the research that we've undertaken. In particular, we have been one of the pioneers in the application of genomics in dairy cattle.

We invest in research directly or we invest through the Canadian Dairy Network, which is a consortium of organizations that are interested in dairy cattle genetic improvement. Then we fund some NSERC projects, NSERC being the Natural Sciences and Engineering Research Council. We also support positions in universities.

For us, research is essential, because without it, I don't think we could keep ahead of the competition. We have research partners both in Canada and outside of Canada, but for this presentation I would

like to talk about our Canadian partners, which are primarily governments and universities.

In terms of government, there is very little left in the research branch of Agriculture Canada in this crucial area of livestock genetics and genomics. The branch considerably reduced its involvement in livestock genomics over the last 20 years, particularly in 1994 and 1995 but also since then, with the expectation that the Canadian universities would pick up the slack.

Last year, in fact, the research branch cut the positions of two scientists working with the industry, including one scientist who had just received a prestigious international award. So there is relatively little left in the research branch in our field.

On their side, Canadian universities have been in a financial bind, apart from a few exceptions. In fact, we are facing a brain drain in the area of livestock genetics research in Canada, contrary to what we had maybe 15 years ago, when scientists came from all over the world to universities such as Guelph, for example.

I have given some specific examples of this brain drain that has appeared in the last five years. As a result, the ability of the industry to do research in Canada has dwindled. This is a problem for two reasons. In order to participate in international research consortia you need to bring something to the table. The other reason is that it's difficult to have an edge on the competition with something unique, if the only research you do is in cooperation with other countries. You want to have something different in order to do well in the market. So we need some domestic research capability.

• (1635)

On the positive side, the industry has been able to take advantage through Dairy Farmers of Canada—you just heard Bill Emmott—of the dairy cluster research program, which is part of the Growing Forward 2 initiative. The program will allow the industry to initiate research for new traits in genomics for the next four years, but it's still very far from what is required to compete with our main competitors in the U.S. and Europe. That's where our main competitors are located, and the lack of scientists available in Canada to carry out these projects is really a big handicap.

Finally, Genome Canada, to their credit, contributed in 2004 to the international bovine sequencing project, and that was a very good decision; however, since then they have supported very little in dairy cattle genomics. We are concerned by this lack of support, because we think that in the longer term it will reduce our capability to innovate.

We have three recommendations to make to the committee.

The first one is that Genome Canada should start again to invest in dairy cattle genomics research in cooperation with the industry, particularly in research for novel traits, such as feed efficiency, greenhouse gases, cow health, and properties of milk for human health. All of these areas are very important for the future of the industry, and there is a great potential to make progress in them with genomics.

The second recommendation is that there should be some joint planning between industry, universities, and governments to ensure long-term funding of livestock genetics and genomics research and to stop, stem, or reduce the existing brain drain.

Finally, in our opinion, the federal government, in cooperation with provinces, should put as much emphasis on programs to help attract, hire, and retain high-quality personnel for research and teaching in Canadian universities as it does on programs to support bricks and mortar in those universities. Although there is nothing particularly wrong with doing that, it would be useful to have a better balance. Perhaps university access to Canada Foundation for Innovation grants, for example, could be tied to a university's maintaining or increasing the research staff necessary to take full advantage of the new infrastructure. This doesn't necessarily mean more money, just a better balance between infrastructure and grey matter.

I thank the committee for having me here as a witness. I'd be happy to answer any questions you may have.

The Chair: Thank you very much. I appreciate your presentation.

Now we will go to Pulse Canada, Mr. Peter Watts, for seven minutes, please.

Mr. Peter Watts (Director, Market Innovation, Pulse Canada): Good afternoon. I'm Peter Watts with Pulse Canada, the national association representing the growers, traders, and processors of pulses, that is, peas, beans, lentils, and chickpeas in Canada.

[*Translation*]

Thank you for inviting Pulse Canada to speak to the committee today. I would be happy to answer any questions you have after my presentation.

[*English*]

It's not an overstatement to say that the ingredient, food processing, and food retailing sectors in Canada, in North America, and in fact globally are undergoing a revolution of remarkable proportions. For many years the global food manufacturing sector relied heavily on tried and true products that often contained high levels of fat, sugar, and salt. These foods have been central to the epidemic of such diet- and lifestyle-related illnesses as obesity, heart disease, and diabetes. Today nearly 10% of Canadians have diabetes or pre-diabetes, and that is true for many countries around the world. In addition to health issues, the environmental "food print" of the food sector has come under scrutiny. Together, health and environmental issues have pushed governments, the health industry, food manufacturers, NGOs, and consumers to look carefully at the foods that are offered to consumers on grocery store shelves and at food production systems.

While governments have responded with important legislation aimed at tackling some of these issues, such as the ban on trans fats, today's consumers want to know exactly what's in their food and how it's made. They read nutrition labels like never before. Even cornstarch that is modified raises eyebrows these days. When they see something they don't like, consumers now have the power, through social media, food bloggers, or online petitions, to force companies to pay attention.

Today's consumers are opting for foods that are healthier, such as those with higher levels of protein and fibre, or products with the absence of something perceived as negative, such as gluten- or GMO-free foods. In addition to all of this, consumers want foods that are deemed sustainable, fair trade, and ethically produced. All of these consumer demands have forced the hands of the food sector to introduce healthier and more sustainable foods, either in the form of new products or reformulated versions of the existing foods.

The challenges for the food sector are many, and eventually these challenges make their way back along the food value chain to the production and primary processing levels. This is where Canada faces some of the biggest challenges and also opportunities. The agrifood sector in Canada has to respond to the wants and needs of its customers, including food companies and consumers, if it wants to stay competitive.

In the pulse industry over the last eight years we have been focused on addressing these opportunities and needs through knowledge creation and knowledge dissemination. Under knowledge creation, we are focused on consumer drivers of nutrition, health, and sustainability, as well as the needs of the food manufacturing sector to better understand processing and utilization techniques and technologies. This type of work has been supported by such initiatives as AAFC's agri-innovation and science cluster programs.

In the area of health, with support from AAFC funding, Canada's pulse industry has been investing in human clinical trials that have shown the benefits of pulse consumption in relation to cholesterol lowering, satiety, and blood sugar control. Pending further research, the industry will move to secure health claims in these areas in Canada as well as in the U.S. and Europe. Official health claims are highly sought after by food companies, so this work is creating value and important market opportunities for pulses.

In the area of processing and utilization, the pulse industry just completed a four-year research program at the Canadian International Grains Institute in Winnipeg, funded collaboratively with AAFC, where researchers looked at how to mill pulses into flours that will be functional in food applications. The addition of pulse flours will help companies boost the nutritional profile of foods and reduce their environmental footprint, paving the way for product labelling claims.

Through another initiative at Pulse Canada, we are leading a consortium of stakeholders in the Canadian agricultural sector that is developing a sustainability calculator tool to allow farmers to measure and quantify their environmental footprint in relation to carbon emissions, energy use, soil quality, and soil-use efficiency.

Once new knowledge has been created, to have value it has to be disseminated to such end users as food companies, retailers, and consumers. For these initiatives, the pulse industry has relied on matching support provided by AAFC under the agri-marketing program and other programs such as agri-flex.

• (1640)

Outreach to the food industry through conferences, symposia, face-to-face meetings, technical journals, and print, web, and social media have allowed the pulse industry to communicate and promote the findings established through our research and development initiatives.

How do we know we're on the right track? We have some good evidence. Today, major food companies, from General Mills and Kraft to Campbell's, President's Choice, PepsiCo, and others, have dedicated teams focused on developing foods with pulse ingredients. If you ask these companies if they've heard of Pulse Canada, my guess is that they will invariably tell you yes.

In summary, Canada's pulse industry has benefited enormously over the years from programs such as AIP, the science clusters, agri-flex, and AMP, all of which have provided support to allow the industry to develop and disseminate knowledge, creating value for the sector, particularly in higher-risk pathfinding areas where producers in the primary processing industry are not comfortable investing, or at least not on their own.

This support is coupled with a world-class research infrastructure in Canada, where scientists are looking at new ways to process Canadian agricultural products that meet the wants and needs of food companies and consumers. With these programs and this infrastructure, Canada has the resources and expertise to be the world's preferred supplier of agrifood products.

Support for R and D through AAFC, including programs such as the AIP, the science clusters, and the agricultural marketing program provide much-needed support for research, innovation, and marketing for Canada's agrifood sector. Governments in Canada should ensure these programs continue to be well funded, as they allow the Canadian agriculture sector to innovate, to adapt new techniques and technologies, and ultimately to be competitive in an increasingly complex and demanding global food marketplace.

Two years ago, Galen Weston called pulses the "food of the future". At Pulse Canada, we firmly believe this is true, and with the Canadian government as our partner, Canada's pulse industry can move confidently into the future to create value and profitability for our sector.

Thank you.

• (1645)

The Chair: Thank you very much, witnesses, for your presentations.

Now we will move to questions from our committee.

We'll go first to Madam Raynault, please, for five minutes.

[Translation]

Ms. Francine Raynault: Thank you, Mr. Chair.

My question is for Mr. Chesnais.

In the April 2nd edition of *La Terre de chez nous*, it says your company is one of the top three in the world. That's wonderful. Congratulations.

You said that, in Canada, the dairy market is protected, but not the genetics one. Could you kindly explain why the genetics market isn't protected in Canada?

Dr. Jacques Chesnais: Genetics is completely open to competition. In fact, Semex competes with everyone, the Europeans, the Americans and so forth, because there's no quota restriction in place for genetics. Semen and embryos are very exportable and easily shipped from one country to another. The market is fully open to competition, which is fierce, so we have to be very competitive to be successful.

Ms. Francine Raynault: That isn't always easy.

Dr. Jacques Chesnais: It isn't always easy, but we try. For a country our size, you'd be shocked at how well we've done in the dairy genetics market relative to our cow population. We have 1 million cows out of a total population of about 10 million in Canada. In Europe, they have even more, but nevertheless, we have 20% of the global market. So we're managing quite well, as you can see.

Ms. Francine Raynault: Semex's board of directors has four members from Quebec. The *La Terre de chez nous* article also mentions the fact that you have to make some incredibly difficult decisions when it comes to divvying up the genomic semen of young bulls between Canada and other countries. Could you please elaborate on that?

Dr. Jacques Chesnais: Today, thanks to genomics, instead of selling only the semen of proven bulls, we also sell the semen of young sires whose genomic selection is based on the genotyping of 50,000 DNA markers. This was a fairly fast-moving development in dairy cattle.

Young bulls don't produce a lot of semen because they're young, so we have to make a choice. When we have the best bulls, there's tremendous competition for them, because both Canadian and foreign farmers want their semen. So we have to decide who gets the semen of the best bulls. And that means we have to make decisions that don't necessarily make everyone happy. We do try, however, to give our owners, the CIAQ, WestGen and EastGen, priority.

Ms. Francine Raynault: Agriculture and Agri-Food Canada has significantly reduced its involvement in genetic research over the past 20 years. The thinking was Canadian universities could be relied on to fill that gap and do the research, but they have financial troubles as well and are victims of the brain drain.

How do you see the future in this field?

•(1650)

Dr. Jacques Chesnais: That is indeed a problem for us, and we've tried to tackle it. Agriculture and Agri-Food Canada opted to work on plants and decided that universities would deal with animal genetics or genomics. But it's not that easy. The fact is a good many universities have cut their capacity, including the University of Guelph, which had long been a pioneer in the field. It cut its faculty size by 30%. The situation isn't good, with senior researchers leaving Canada. Some have left the University of Alberta for New Zealand. Others have gone to Australia and so forth.

On the research front, our situation isn't what it was five or ten years ago. Semex is trying to combat the problem. For instance, industry decided to hire the researcher whose position had been cut by Agriculture and Agri-Food Canada. In situations like the University of Guelph's, where positions were not renewed, we try to offset that through financial investments, but we would still like to see things working on both ends.

Ms. Francine Raynault: What is the biggest reason for our researchers wanting to work in New Zealand, for example?

Dr. Jacques Chesnais: In my view—but I could just as easily talk about “our view” since we have a consensus on this at Semex—a more comprehensive and long-term policy on research is needed. If we want to attract leading researchers, they need to feel they will have long-term support, either from Agriculture and Agri-Food Canada or from universities. We need to build critical masses in research.

Research is paramount to us. The committee is studying innovation, and in the world of animal genetics, things move along quite quickly. When research leads to practical technologies that can be implemented profitably, progress happens fairly fast. In genomics, for example, back in 2008, we were able to start applying research findings we'd obtained that same year. A year later, Canada had formal genomics testing practices. It all happened pretty quickly.

On our end, the problem has more to do with research than innovation. We have a pretty solid tradition of innovation when it comes to dairy cattle genetics.

[English]

The Chair: Now I'm going to go to Mr. Hoback, for five minutes, please.

Mr. Randy Hoback (Prince Albert, CPC): Thank you, witnesses, for being here this afternoon.

I'm confused and hope you can help me out.

I look at the amount of money we've put into the clusters. We have the beef cluster, and the dairy cluster. The beef cluster has received a 61% increase in funding. It went from \$8 million to \$14 million, and the dairy cluster went from \$7 million to \$12 million.

Why aren't the clusters grabbing these people? Why aren't they funding these projects through the university? Why isn't that happening? What are the clusters doing with this money?

Dr. Jacques Chesnais: In the case of the cluster, part of it was used for genetics and genomics; some of it was used.

Mr. Randy Hoback: But Genome Canada received some \$65 million.

Of course, Genome Canada and the clusters, again, you have to keep in mind—

Dr. Jacques Chesnais: We feel that Genome Canada should actually try to invest in our industry because that's an industry that has done very well in terms of using genomics. In fact, that's one of the leaders in livestock.

Mr. Randy Hoback: Again, the process there isn't to come to government; it's to go to Genome Canada with a proposal that basically it's time to get together to pick priorities and where they're going to go.

Wouldn't it be better to let scientists...? That's what the idea behind the cluster was. That's why a lot of farm organizations wanted to go the cluster route; they wanted to have more hands-on control. If we take the money and we put it into the clusters....

You say you lost two positions, but you gained some \$26 million in research dollars. So do you want the two positions or the \$26 million? You have control. You have the cluster. The money is yours. Why are you letting this happen?

Dr. Jacques Chesnais: Essentially, out of the cluster, the dairy cattle breeding industry was able to.... We put in \$600,000 and Agriculture Canada put in \$1.8 million. That's a total of \$2.4 million over five years, which is not that much to do research on all the topics I've mentioned, particularly feed efficiency, animal health, and so on.

Research in genomics is relatively expensive because you need to do the genotyping, which is still fairly expensive, and you also need to collect data on these new traits. This is relatively expensive.

•(1655)

Mr. Randy Hoback: Again, as a taxpayer because I'm spending taxpayers' dollars, I look at what the taxpayer is putting in for this research, and that's fine, but who is getting the end benefit? In your situation, you're selling the semen around the world, so you're putting in some research dollars. I know that when I worked for Flexi-Coil and Case New Holland there would be tax credits and offsets, but the research was ours. We put in the money for all the research. Where's the private sector in all of this?

Dr. Jacques Chesnais: Whether it's in the clusters, NSERC projects, or the Canadian Dairy Network, there's always industry money. In fact, we always participate in research projects. There's no research project where we don't put in industry money, so—

Mr. Randy Hoback: Okay, so the percentage on your part is—

Dr. Jacques Chesnais: Semex, for that matter, has a policy of using at least 3% of its gross revenues for research. We in fact use more than that. We do contribute to research. We don't expect the government to pay for everything, of course. We think it's very important for us.

Mr. Randy Hoback: That's where I get confused, because you say you want the cluster money, but you want the research positions. You want more and you want more. At the end of the day, there are only so many dollars that taxpayers are willing to spend. How do you prioritize?

Again, we've given you the tools to prioritize in the clusters. We've pulled it away from us, which is what you asked us to do. Now you have the priority, and you're saying that you're not getting what you need out of it. Is that a set-up problem in the clusters? What is it?

Dr. Jacques Chesnais: What I'm saying is that we did get money from the dairy cluster for our genetics and genomics, but it's a limited amount. It's very small compared to what our main competition is getting, whether it's in the U.S. or Europe. We need more sources of funding to be able to carry it out, to be competitive. That's where we think it would make sense for Genome Canada to carry out projects in the area of dairy genomics. That's essentially the message.

Mr. Randy Hoback: As I said, Genome Canada received some \$65 million in last year's budget, and they were very, very, very happy. There were no complaints from Genome Canada. I just find it interesting that now.... I guess that's what happens: you have so many people looking for their projects and saying that they need more, they need this, they need that, and there are only so many dollars to go around.

Again, you look at your business model and you say that if you need more research and development to maintain your leadership edge, whether it's semen, tractors, or air seeders, you realize how much you have to adjust your percentages in research and development to get that, because that is your business. If another business is out-competing you because they're spending more money on research and development, I don't know if the taxpayers are necessarily supposed to be there for you. They're there to help you, but in the same breath, they're not there to pay all your research and development bills.

Dr. Jacques Chesnais: Well, I totally agree with that. As I said, we don't expect to have.... We expect the government to match, maybe, the money that we provide for research.

Mr. Randy Hoback: To match it? Again, in a lot of sectors, they won't even match. They're not even close.

I'm a taxpayer, and I am pushing back, but it troubles me when I see an increase in spending in research and development. I look at the \$12 million and the \$14 million. There's \$26 million there. There's \$65 million at Genome Canada. That's what I know about just by looking quickly. I'm not looking at tax credits, and I'm not counting all the incentives sitting there that are also available to different corporations and groups.

Do you see what I'm saying? Okay, we lost two positions, but you know what? You had every opportunity to hire those people or support their research through the clusters and you didn't do it. Why?

Dr. Jacques Chesnais: Because they have other priorities as well. The Dairy Farmers of Canada have priorities in terms of health. They have priorities in terms of nutrition, human nutrition in using their products, and priorities regarding animal nutrition, and so on. When you divide this among all the areas, there is not that much left for

genomics. Really, for genomics, it would be fairly logical that Genome Canada would be involved.

Mr. Randy Hoback: Okay. Thanks.

The Chair: Thank you very much for your time and questions.

Mr. Eyking, please, for five minutes.

Hon. Mark Eyking: Gentlemen, thank you for participating with us today.

I'll go first to Pulse Canada and Mr. Watts.

Recently I was in Regina at a research station. They were saying that one of the crops was fenugreek. It's pretty popular. Is that a pulse crop?

Mr. Peter Watts: Fenugreek is a pulse crop. That's correct.

Hon. Mark Eyking: I'd never heard of it before, and they were telling me how they were selling it in the Middle East. It has been quite lucrative, although it's a little harder to grow.

Can you tell me a little bit more about it?

• (1700)

Mr. Peter Watts: It is a pulse crop. It's very small. There's a very small amount of it produced. It does not fall under the mandate of Pulse Canada, not yet, anyway.

Hon. Mark Eyking: Do you see that as one of the growing crops, or does it just have a very small niche market and that's it?

Mr. Peter Watts: It's a pretty small niche market.

Hon. Mark Eyking: Okay.

Your other products, your other crops are peas, beans, and lentils. Most of these crops are good for the soil too. I guess that makes them a so-called crop of the future. Lentils, for example, put nitrogen back into the soil. It's easier on the soil than some of the other crops, I guess.

You mentioned that Galen Weston said that pulse is the crop of the future. Most of these pulse crops are also in big demand in the Asian countries, where there are going to be more consumers. Can you tell me a bit about the so-called new market, how we in Canada can adjust to the new markets that are out there, and how you can adapt to that with research?

Mr. Peter Watts: That's a great question.

In 2013 China was the largest buyer of Canadian peas for the first time in history, up until now. Of course India has been our largest export market for pulse crops, taking primarily peas and lentils, with typically between a million and a million and a half tonnes a year. That's about a quarter of our total production in Canada. It's a huge market in India.

However, I think what you're alluding to is the growth and opportunity in the east Asian market, China in particular. We've seen massive growth and exports of peas to China. Your question about how we can tap into that market in the future is a great one.

I'll give you one example from Saskatchewan, the biggest pulse-growing province. The Saskatchewan Pulse Growers recently invested nearly half a million dollars in a research project in China to try to incorporate pulse ingredients into such staple Chinese food products as steamed buns, noodles, and baked biscuits.

That's how we have to adapt to the new and changing marketplace. We have to invest in R and D to help Canadian processors sell into these markets and also work with the importing markets to help them use these ingredients in their food products.

Hon. Mark Eyking: It's not only your variety; it's also adding value to your products to make them easier to sell or more adaptable to the new markets, is it?

Mr. Peter Watts: That's right. Exactly.

I mentioned that we had a project at the Canadian International Grains Institute in Winnipeg. We received matching funding through the agri-innovation program over the last four years to look at how to mill pulses into flours that can be used in food product applications. We can take that technology to companies like General Mills or Kraft in North America, but we can also take it to the big food companies in China and other markets around the world to help them use Canadian ingredients in their food products.

Hon. Mark Eyking: Thank you.

I will turn now to Semex. You were talking about many of the products you sell to, I think, New Zealand and Australia. Many of the countries have the same climate we do, so it's probably easier to adapt. I have a couple of questions.

First, with regard to most of the embryos or the semen you sell, is that from Holsteins?

Second, we know that Asia is becoming a bigger consumer of dairy products, but Africa and Central America are also increasing. How do you deal with those warmer climates? Do the cattle have to be a different breed, or a different...? Do you have research stations helping you with that? Or are they markets at all, those two?

Dr. Jacques Chesnais: In answer to the first question, yes, the main breed we export is Holstein. Ninety-five per cent of the cows in Canada are Holstein anyway. We do, however, sell semen from some breeds like Brahman, for example. Brahman are adapted to tropical countries. We also have them in Brazil. For example, we opened Semex Brasil, and we are using some of the breeds in Brazil because they are better adapted to the climate.

In China, we have Semex China. We opened Semex China in a couple of years. We have our own installation in Semex China. There are mostly Holsteins there because it's not necessarily a tropical climate.

We've also started doing buffalo, for example. We source water buffaloes in Italy, because they are used to produce mozzarella in Italy, and we are selling that. We now have a market in India for these water buffaloes. We work with the Italians on the selection of the water buffalo, and we sell the semen.

• (1705)

The Chair: Thank you, Mr. Eyking. You're well over the time.

I'm going to Mr. Maguire now.

Mr. Larry Maguire (Brandon—Souris, CPC): Thank you to our presenters, Mr. Chesnais and Mr. Watts.

Peter, I wonder if I could ask you a question with regard to the pulse area and the opportunities you see. Earlier today we heard from Mr. Brandle from Vineland about how there will be nine billion people by 2050 and how the opportunities for expansion in the pulse industry in your area are growing.

I remember the innovation and research from the days when I was farming. Can you elaborate regarding the sustainable and ethically produced areas that you talked about in your presentation? I liked your last comment about Canada being the world's preferred supplier of food products. Can you elaborate on the opportunities you see, not just in terms of the nine billion people but particularly with regard to the trade agreements that have already been signed?

Mr. Peter Watts: I'm not quite sure how I can tie environmental sustainability in with the trade agreements specifically, but we are seeing that food companies are increasingly interested in environmental sustainability, and they are putting more and more requirements on suppliers of ingredients. They want to know how crops are produced. As you probably know, they're now coming up with questionnaires for producers so they can respond to requests from their consumers about how crops are grown.

The pulse industry has a great story. Earlier a gentleman mentioned that pulse crops fix nitrogen, so we have a great sustainability story in Canada now with about 15% of the area in western Canada being sown with pulse crops each year. We're getting close to about a one-in-five rotation. That's primarily peas and lentils, of course.

The sustainability story is very strong. It's several years behind health and nutrition. That's still the big focus for the food companies, but companies like Unilever have committed to 100% sustainable sourcing by 2020. Retailers like Walmart are leading the charge. They just held an expo last week in the U.K. with 150 manufacturers and retailers from around the world. It was called the Sustainable Product Expo.

We're going to see more and more requests for information about environmental sustainability, and Canada has a great opportunity to capitalize on that.

Mr. Larry Maguire: So you see the sustainability coming from an accountability through just record-keeping and that sort of thing with regard to the type of production the farmers are doing today and then following it through the processing chain.

Mr. Peter Watts: That's right, but you need to be able to quantify that sustainability measurement. That's what we're trying to do at Pulse Canada. We're working with all the partners, the other associations, and the Canola Council, as well as with flax, wheat, and barley growers, to try to come up with tools to quantify the environmental impact of agriculture in Canada and to demonstrate what a great job Canadian farmers are doing in the area of sustainability. They're already doing a great job, but we can get better. That's going to be one of the big demands of the food companies in the future.

•(1710)

Mr. Larry Maguire: I will turn now to Mr. Chesnais from Semex. Congratulations on your company's involvement in world trade as well, and the innovation that you've shown.

You indicated that you have, I believe it's 70% of the Canadian market in research areas in the dairy industry.

Dr. Jacques Chesnais: Yes. We have 70% of the genetics market and about 20% of the world market, in terms of our market share.

Mr. Larry Maguire: You talked about hundreds of countries.

Are you exporting into—

Dr. Jacques Chesnais: Of course. In fact, we've grown quite a bit in the U.S. We have a higher percentage of the market in the U.S. than we used to. I think it's probably a bit less than 20% in the U.S., between 10% and 20%, I would say.

Mr. Larry Maguire: What percentage would be in the EU?

Dr. Jacques Chesnais: In Europe, it depends on the country. We're doing very well, for example, in Spain, Germany, U.K., and some countries, such as Poland, and so on. It depends on the country, actually.

Mr. Larry Maguire: What types of opportunities are you seeing there? What types of genetics are they looking for? Is it just in milk production, or also in livestock?

Dr. Jacques Chesnais: We feel that we've reached.... In Europe, it's going to be harder to increase our penetration of these markets, so we've turned more toward China, India, Brazil, and also some other markets, the Middle East and in other places.

The Chair: You can wrap up, if you have a final comment. The time is up. Did you have any further comments to make?

Dr. Jacques Chesnais: No, that's fine. Thank you.

The Chair: Madam Brosseau, for five minutes, please.

Ms. Ruth Ellen Brosseau: Mr. Watts, I'm a vegetarian, so I'm a big consumer of pulses, chickpeas, beans. My son often tells me, "I don't want any more beans, Mom. Let's fire up the barbecue." He's tired of it.

I am wondering if you could comment on the programs that the government has in place right now, agri-innovation, agri-marketing. We've heard from some other witnesses that they would hope there would be more of a long-term vision. The programs are a few years right now. We've even had some witnesses talk about maybe a 10-year vision. I wonder if you could comment on that.

Also, maybe you could comment on what's up and coming in the world of pulses, what is hot in the world of beans. What kind of research and innovation needs to be done in certain cultures more than others?

Mr. Peter Watts: To begin with, I'm glad to hear that you're a big supporter of the pulse industry. That's great to hear.

Canadians get less than 2% of their caloric intake from pulses, compared with around 20% from cereals and 20% from meat and dairy products. We have a long way to go in terms of increasing pulse consumption here in Canada.

As some of you may know, in 2013, we had a record grain crop in Canada, and that included a record pulse crop. We had six million tonnes of pulses grown in Canada, nearly four million tonnes of peas, and two million tonnes of lentils. We have lots of pulses. Farmers like to grow them because they work well on a rotation and they are getting good prices for them these days.

What's hot is that more and more companies are looking to pulses, as a source of protein in particular, as well as fibre. As you probably know, pulses are about 25% protein, which is two or three times that of other cereals like rice, corn or wheat. Many companies are looking to pulses as a source of protein, and that's why companies like General Mills are incorporating pulses into their food products.

There is a new company in the U.S. called Hampton Creek that's making egg substitutes out of vegetable proteins. Their primary ingredient is pea protein. That's going to be a very small substitute for the one billion eggs they use every day in the U.S., but it's a very important market opportunity for Canadian pulse producers. It's that type of research and innovation.

Our Canadian producers and processors need to be able to meet the demands of these up and coming innovative companies that are emerging in North America and in Europe, but also in countries like China and India where consumers are very concerned about health. We talk about it in North America, but if you go to China, consumers are very knowledgeable about the importance of the link between diet and health and wellness. I think we have a great opportunity, not only in North America to expand pulse consumption, but also in markets like China.

•(1715)

Ms. Ruth Ellen Brosseau: My office is situated in Louiseville, Quebec. Every year we have a buckwheat festival, and two years ago, I was *la présidente d'honneur*. Buckwheat is something that we produce a lot of in my area. It's very important.

I was wondering if you could comment on climate change and how important it is, or on what kind of work you guys do for research and innovation, because we do see more and more unpredictable weather.

Mr. Peter Watts: As I mentioned, we have a project under way now with a consortium of Canadian agricultural organizations to develop a sustainable calculator tool. We're also working with companies. General Mills, for example, is involved in this project. So is Cargill, and so are a number of other companies and associations.

The reason these companies are interested is that they can see that consumers are looking for products that have a lower environmental footprint. Pulses fix their own nitrogen, and as a result they have lower energy requirements and a lower carbon footprint, so incorporating pulses into a rotation helps to lower the overall carbon footprint of your cropping system. What we're working towards is being able to quantify the sustainability of our cropping systems in Canada so we can provide that information to the food companies that are looking for it.

The Chair: Thank you, Madam Brosseau.

I'll now move to Mr. Dreeshen, please, for five minutes.

Mr. Earl Dreeshen: Thank you very much, Mr. Chair.

I'd like to go back to what Mr. Hoback was talking about. There does seem to be this interpretation as far as research dollars are concerned. As we heard with the previous panel, they feel that what we are doing is exporting our knowledge. They don't look at it as though one of our researchers going somewhere else is a drain, because we have this reciprocity, and they're feeling that they're keeping the very best here.

I guess that's part of it. If we can manage to get this relationship that works properly between the clusters and the other dollars that are going into various areas, that's the way to go with it. I certainly appreciate that.

There's another area that I would like to talk a bit about. Perhaps, Mr. Watts, I'll go with you as a pulse producer.

I'm quite aware of the advantages we have as far as having pulses in our rotation is concerned. One of the things you mentioned, though, was the concept of the food processors and how they're going through this revolution of epic proportions in regard to some of the concerns we have on health, the new diets, and those sorts of things, as you mentioned, and how there are great advantages.

I don't deny the advantages, and I respect that, but when we talk about making sure that we let the consumers kind of tie in and we base everything on that, I relate it back to some of the issues that I see there. Of course, when we have situations where fruit, vegetables, and meat are considered to be more of a GMO concern than canola is—and there are studies that have shown this—we start to get the idea that perhaps there's a lot more being said about some of the things we produce than is actually accurate. So we do have the concerns that are associated with it.

I'm also a wheat producer, and you hear people suggest that you need to have these gluten-free diets and all of those things. If you have a gluten intolerance, then I agree, but some people are looking at fad diets, and they're taking some bad advice, in my estimation, in order to work this through.

Also, I'm afraid that when we look at it entirely from that perspective, we might find when we are making trade deals throughout the world that some of these things can also turn on it. Whether it's GMOs or blackleg in canola or rapeseed, sometimes

these things are also used against us. I just want to make sure that as we go out and market to the nine billion people that are going to be in this world, we make sure the proper balance is there.

Could you perhaps comment on some of those issues?

• (1720)

Mr. Peter Watts: Sure. We would agree completely with you that there's a lot of misinformation that's out there about agriculture and about the agriculture sector, about how food is produced in Canada and elsewhere. You know, it's very easy for somebody to post a blog that's taken as a truth about the farming sector, and we all know that most consumers don't have a very good grasp of farming and of agriculture in Canada.

That's part of the reason, for example, we are working with this consortium of agricultural associations and companies in Canada to put information out there on how we're producing our crops in Canada. They're being produced in a very sustainable manner. Farmers have made a lot of advances and changes over the last 25 years, and that's not being recognized, so we want to make sure to get that information out there.

I completely agree that the gluten-free thing has gone way beyond where we might have expected it to go, to the point where people who really don't need to be on gluten-free diets have chosen to go on them, but that's the choice of people and consumers, and we have to respect that. We have an opportunity in the pulse industry to meet the market demand for gluten-free products, and for non-GMO products, in this case. We don't take the position, obviously, in the pulse industry against or for GMO products in particular, but there is an opportunity for the industry to meet these consumer demands. But we do want to make sure that the proper information is out there, and we are trying to do that as an association.

The Chair: Thank you very much, Mr. Dreeshen.

I want to thank the witnesses for taking the time out today. Mr. Chesnais from Semex, and Mr. Peter Watts from Pulse Canada, thank you for your time and for your interventions.

We will take about two minutes while we move in camera.

[Proceedings continue in camera]

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