HOUSE OF COMMONS
CHAMBRE DES COMMUNES
CANADA

Standing Committee on Agriculture and Agri-Food

AGRI • NUMBER 016 • 1st SESSION • 42nd PARLIAMENT

EVIDENCE

Monday, June 6, 2016

Chair

Mr. Pat Finnigan

Standing Committee on Agriculture and Agri-Food

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● (1530)

[*Translation*]

The Chair (Mr. Pat Finnigan (Miramichi—Grand Lake, Lib.)): Welcome everyone.

The meeting is called to order.

[*English*]

Today we're studying bee health monitoring in Canada.

I want to welcome back Madam Brosseau and Mr. Warkentin. I hope you had a good trip to China with our minister. Also, we have with us Peter Fragiskatos, who is replacing Francis Drouin today.

Our witnesses are here, and with us we have Ms. Andrea Johnston, director general, sector development and analysis directorate, market and industry services branch, Department of Agriculture and Agri-Food. Welcome, Andrea.

We also have with us, by video conference, Stephen F. Pernal, research scientist, apiculture, and officer-in-charge, Beaverlodge research farm, Department of Agriculture and Agri-Food. Welcome, Mr. Pernal.

We also welcome, from the Canadian Food Inspection Agency, Jaspinder Komal, executive director and deputy chief veterinary officer, animal health directorate, and from the Department of Health, Scott Kirby, director general, environmental assessment directorate, pest management regulatory agency.

We welcome all of you. We will start by giving you an opening statement for up to 10 minutes.

We'll start with Andrea Johnston.

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

On behalf of the Department of Agriculture and Agri-Food Canada, we appreciate this opportunity to discuss the department's ongoing work to help improve the health of honeybees and to provide you information on our diagnostic capacity for testing and measuring bee health in Canada.

[*Translation*]

Domestic bees are the main source of agricultural pollination around the world. Without them, it would be difficult and even impossible to produce a large number of crops. As a result, bee health is important to beekeepers, to farmers, and to Canada as a whole.

[*English*]

There are many factors that influence bee health.

Parasites and pests, such as varroa mites, impact bee health.

Healthy queens are important to maintaining vigorous productive hives. Queen health can be compromised by factors such as inadequate selection in mating and exposure to pathogens and pesticides.

Long harsh winters or cool extended springs can result in higher levels of overwinter beehive losses.

Management techniques vary among beekeeping operations and can influence honeybee health.

Bees can also be infected by unintentional exposure to agricultural pesticides used to protect crops and by pesticides used in hives to protect bees from parasitic mites and other pests.

Another factor that can indicate challenges to bee health is the magnitude of annual overwinter colony losses. Overwinter losses vary widely from year to year, place to place, and beekeeper to beekeeper.

In 2015 the national average percentage of colony winter loss was 16.4%. Overall, the reported national colony loss this year is one of the lowest since 2006-07.

A further indicator of bee health is honeybee population levels and productivity. The most recent numbers available show that Canada's 8,533 beekeepers produced about 95 million pounds of honey in 2015, and that's up by around 11% from 2014. Over the same period, the number of colonies increased by 3.6%.

Improvements to bee health require action from a wide range of stakeholders. AAFC established the bee health round table on March 25, 2014, to bring together a diverse group of stakeholders, including beekeepers, grains and horticulture crop producers, researchers, input suppliers, and provincial and federal officials. The bee health round table provides a means to allow for a national cross-sectoral dialogue to identify specific actions related to bee health.

● (1535)

[*Translation*]

Maintaining and improving bee health is a multidimensional, long-term issue. It requires a great deal of time and resources, and efforts must be coordinated.

[*English*]

The bee health round table members identified four pillars: a pollinator strategy with a vision for the future of beekeeping in Canada as a valued part of agriculture; a research strategy that identifies and addresses gaps and priorities for the beekeeping industry; products and solutions for beekeepers and other agricultural producers that are both effective and sustainable; and knowledge transfer between all stakeholders, including producers, beekeepers, regulators, researchers, and the broader public, to ensure timely awareness.

Within AAFC, scientists are supporting a variety of issues related to bee health across the country. In July 2015, AAFC and the U.S. Department of Agriculture began formal research collaboration to assess stressors causing bee population declines in North America and develop the necessary tools to detect widespread pests, pathogens, and parasites.

In addition, in July 2014, AAFC announced funding for a million-dollar four-year nationwide surveillance project to document the health profile of honeybee colonies in Canada. AAFC looks forward to continuing to work with stakeholders to ensure a sustainable future for beekeeping in agriculture.

Dr. Pernal will now provide further details on the work undertaken by AAFC as he explains the research under way and our diagnostic capacity to assess bee health.

The Chair: Thank you, Andrea.

Go ahead, Dr. Pernal.

Dr. Stephen Pernal (Research Scientist, Apiculture, and Officer-in-Charge, Beaverlodge Research Farm, Department of Agriculture and Agri-Food):

Good afternoon. I am Agriculture and Agri-Food Canada's lead scientist specializing in honeybee research. I'm here today to represent the science and technology branch.

Agriculture and Agri-Food Canada appreciates the opportunity to provide you with information on the important ongoing work we are doing to help improve the health of honeybees in Canada and to provide an update on our current diagnostic capacity for testing and measuring bee health.

AAFC has its national honeybee research program located in Beaverlodge, Alberta, which is led by me and employs two permanent technicians. A recent addition to our staff has been a new term scientist, Dr. Marta Guarna, who will be employed until March 31, 2017. Currently, three graduate students and one post-doctoral fellow are working on projects associated with our lab. During the summer of 2016, we're employing four co-operative education post-secondary students as well as two casual beekeeping technicians. AAFC also has a scientist working on native bees located in Ottawa, and native bee biologists in Kentville, Nova Scotia, and Calgary, Alberta.

AAFC is working on several ongoing bee-related projects. For example, we're developing recommendations for detecting and treating colonies infected with Nosema ceranae, a newly introduced parasite associated with higher rates of colony losses. In addition, we're developing techniques to disinfect beekeeping equipment exposed to this pest, and methods to detect therapeutic compounds that may be deposited in hive products.

We are also continuing to analyze samples for agricultural pesticide residues in honey, pollen, and beeswax throughout Alberta. Moreover, we're examining concentrations of products currently registered for control of diseases or mites of honeybees that may also accumulate in these matrices.

Analytical chemistry support for these activities has been provided through a long-standing partnership with the agrifood laboratories branch in Edmonton, part of the Province of Alberta's Department of Agriculture and Forestry.

In the last two years, AAFC has funded several new projects involving bee health. For example, we are currently in the last year of a project that examines the interactive role that certain risk factors, namely, Nosema ceranae parasitism, nutrition, and pesticides, have on honeybee colony survival within honey-producing and pollination beekeeping operations across different regions of the country. A second component of this project also examines diversity of wild pollinators in agricultural ecosystems and factors that may affect their abundance and overall health.

With partners funded through the agri-innovation program, we've also assisted in the evaluation of probiotic bacteria as a novel control against honeybee diseases.

The department also recently approved a new internal project that, beginning this summer, will document the prevalence of newly introduced parasitic threats in Canadian honeybee populations, namely, Lotmaria passim and Crithidia mellificae, as well as their potential impact on bee health.

AAFC has also funded a national four-year honeybee surveillance project through the agri-marketing program's assurance system stream. This project was awarded to the Alberta and Manitoba beekeepers commissions, and is now in its third year. As active surveillance for honeybee threats is not performed by agencies such as the CFIA, this project is designed to provide a baseline of endemic and exotic disease and pest threats to Canadian bee populations.

AAFC's honeybee program has also been successful in garnering significant extramural funding from scientific and industry-led funding consortiums to address other concerns to the beekeeping industry. These include studying factors related to the viability of sperm in newly mated honeybee queens imported into Canada, as well as looking at the role that honeybees and native bees can play to maximize the pollination of canola crops.

In 2015-16 we embarked on a large-scale genomic project with several other research groups across the country to develop genetic markers to breed bees that are more resistant to mites and diseases. This is the largest collaborative project involving honeybees in Canada, and brings together experts from universities and government with many unique and complementary skills.

● (1540)

In terms of diagnostic capacity, AAFC operates a laboratory at the Beaverlodge research farm capable of performing basic diagnostics as well as more advanced microbiological and molecular biology techniques. Recently, our ability to provide diagnostics has substantially increased through a formalized partnership with our local post-secondary institution, Grande Prairie Regional College.

The college, receiving support from Western Economic Diversification Canada and the rural Alberta development fund, built the national bee diagnostic centre, or NBDC, at Beaverlodge farm in 2012. This custom-built diagnostic laboratory has been fully operating since the spring of 2013 and actively partners with our AAFC research program, thereby extending our diagnostic capacity. As an example, the diagnostic testing for the national surveillance project is performed at the NBDC. Existing and future AAFC projects will benefit from the use of diagnostic platforms made available at the NBDC.

AAFC has been working diligently to seek answers concerning bee health in Canada and in creating working partnerships to provide the diagnostic capacity it requires to engage in leading-edge research.

In closing, I would like to thank the committee for providing me this opportunity to speak to you today.

The Chair: Thank you, Mr. Pernal.

Now, from the CFIA, we have Mr. Jaspinder Komal.

Dr. Jaspinder Komal (Executive Director and Deputy Chief Veterinary Officer, Animal Health Directorate, Canadian Food Inspection Agency): Thank you, Mr. Chairman, and good afternoon.

[*Translation*]

My name is Jaspinder Komal and I am the executive director of the animal health directorate at the Canadian Food Inspection Agency and the deputy chief veterinary officer of Canada.

[*English*]

The CFIA is a science-based regulatory agency dedicated to safeguarding plants, animals, and food. Our work promotes the health and well-being of Canada's people, environment, and economy.

The CFIA recognizes that bee populations are essential to the health and vitality of the Canadian agriculture sector. However, since my colleagues at AAFC are responsible for measuring bee health, my remarks will focus on the CFIA's science-based approach to maintaining bee health.

[*Translation*]

The nature of commercial beekeeping operations differs across the country. Some beekeepers specialize in honey production. Others specialize in delivering pollination services, and many beekeepers combine both activities.

[*English*]

At the CFIA, we do comprehensive risk assessments of diseases and other factors influencing bee health, and we collaborate with partners to develop and implement options for risk management. While federal and provincial jurisdictions share responsibility for managing bee health in Canada, the CFIA works primarily at the national level. We do this by designating certain bee diseases as regulated and reportable, which means that specific disease control measures must be applied. We also provide guidance to the bee industry through the national bee farm-level biosecurity standard.

● (1545)

[*Translation*]

The national bee farm-level biosecurity standard was developed by the CFIA in collaboration with producers, industry associations, academia, provincial governments, and AAFC. The standard was published in 2013.

[*English*]

Development of the national standard was supported by Growing Forward funding. The objective of the standard is to facilitate a consistent Canada-wide approach to the implementation of biosecurity practices for both small and large-scale operations. The standard provides comprehensive practical guidance to prevent the introduction and the spread of pests in the three main Canadian bee sectors, namely, honeybees, alfalfa leafcutting bees, and bumblebees.

AAFC has also provided funding to the Canadian Honey Council to bring together best practices into one reference document for industry. The council produced the “Canadian Beekeepers' Practical Handbook to Bee Biosecurity and Food Safety” in 2015. This material has been translated into French and will be supported by outreach to producers.

The provinces work closely with industry to implement bee health management programs provincially. The provinces are also responsible for the interprovincial movement of bees to minimize the spread of bee diseases and pests.

In addition to its involvement in domestic efforts to maintain bee health, the CFIA also works to minimize the risk of introducing bee diseases into Canada.

[*Translation*]

The CFIA achieves this by monitoring the animal health status of trading partners, and by preventing animals or related products from coming into the country if they pose a risk to the health of Canada's animal resource base.

Bee diseases and pests can spread between countries through the international trade in bees, especially packaged bees.

[*English*]

A package of bees usually weighs one or 1.5 kilograms, or two to three pounds. The two-pound package contains about 8,000 bees, while a three-pound package contains about 12,000. The bees are shipped in a box with four wooden sides and screened material in the front and back.

Packaged bees are used by beekeepers to establish new colonies and replace winter losses. Canada closed the border to U.S.-packaged honeybees in 1987 because of an outbreak of parasitic mites called the varroa mites in that country. CFIA reassessed the situation in 1994, in 2003, and most recently in 2014. Currently, CFIA only allows the importation of U.S. honeybee queens and their attendants, which are worker bees that take care of the queen. This policy has been in place since the 2003 risk assessment.

Mr. Chairman, you may wonder why the importation of honeybee queens is being treated differently from the importation of packaged bees. This difference is that honeybee queens can be inspected for signs of disease before importation into Canada, whereas such verification is not possible with honeybee packages.

To receive stakeholder input, in 2013 CFIA conducted a one-month consultation process on the honeybee importation issue. A total of 174 responses were received from Canadian individuals, national and regional bee associations, provincial representatives, and even U.S. beekeepers. Seventy-two per cent of respondents were against opening the U.S. border to packaged bees. In March 2014, CFIA communicated the decision on U.S. honeybee packages to various stakeholders, including the Canadian Council of Chief Veterinary Officers and the Canadian Association of Professional Apiculturists, CAPA.

Diseases and threats are continuously evolving, and in the current context of globalization, Canada must remain vigilant in maintaining our bee health status. While the U.S. border remains closed to honeybee packages, CFIA is open to discussions with stakeholders, and will continue to work with the Canadian Association of Professional Apiculturists to find other sources of honeybees.

Currently, Canadian producers are allowed to import honeybees, queens, and packaged bees from Australia, New Zealand, and Chile.

● (1550)

[*Translation*]

The CFIA remains committed to a strong and healthy honey and beekeeping sector as part of a sustainable and competitive agricultural system. We will continue to support this goal through collaboration with industry and other government partners.

[*English*]

Thank you again for this opportunity to provide the CFIA's perspective on bee health in Canada.

[*Translation*]

The Chair: Thank you, Mr. Komal.

[*English*]

Now from the Department of Health, we have Mr. Kirby. You have 10 minutes.

[*Translation*]

Mr. Scott Kirby (Director General, Environmental Assessment Directorate, Pest Management Regulatory Agency, Department of Health): Thank you, Mr. Chair.

My name is Scott Kirby, director general of the environmental assessment directorate at Health Canada's pest management regulatory agency (PMRA). We are the federal regulator of pesticides and so we are very interested in all potential impacts of agricultural pesticides on health and the environment, including bee health.

As you may be aware, in 2012, a large number of honey bee mortality incidents were reported in Ontario, and following a detailed investigation, we concluded that they were related to the dust generated during the planting of corn and soybean seed treated with neonicotinoid insecticides.

In response to the incidents, PMRA has worked with growers and pesticide manufacturers to implement mandatory mitigation measures since 2014. These measures included the use of dust-reducing seed flow lubricants, the use of best management practices for safer seed planting, and adding enhanced warnings and directions on how to protect bees on the seed package labels.

[*English*]

With these mitigation measures in place, the number of incidents reported during the planting periods of 2014 and 2015 decreased by approximately 70% and 80% respectively from the numbers reported in 2013, which is a significant improvement. Corn and soybean planting in 2016 are essentially complete, and although we are still collecting information, we are cautiously optimistic that the positive trend we've observed in the past two years will continue.

As you are aware, bee health is a complex issue, and more work is required to understand non-pesticide related issues. We are continuing to collaborate with all stakeholders, including the provinces, and we continue to monitor bee incidents.

In addition to our work on bee incidents, we are also conducting a scientific re-evaluation of all uses of the neonicotinoid insecticides. This evaluation uses a new pollinator risk assessment framework, which was developed together with the United States Environmental Protection Agency and the California Department of Pesticide Regulation. This framework represents an advancement in how we assess the risks posed by pesticides to bees and allows improved pollinator protection in our regulatory decisions and risk mitigation measures.

Finally, the PMRA continues to participate in several national and international fora on bee health, including the bee health round table led by Agriculture and Agri-Food Canada, to address this important issue for Canadian agriculture.

Mr. Chair and committee members, I hope you have found my update informative. I look forward to your questions.

[*Translation*]

The Chair: Thank you, Mr. Kirby.

We will now proceed to questions.

[*English*]

We'll start with Mr. Bev Shipley.

You have six minutes.

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

I thank all of the witnesses for being a part of the discussion today.

I'm from southwestern Ontario. As you know, it has been one of the hot spots in terms of activities that have initiated some of the discussions and court actions regarding the use of neonics, etc.

Mr. Kirby, these numbers that have come out in 2014-15 are not new. The season, as you indicated, has just finished. It will be interesting to see, because actually we went into a very cool, wet spring and one thing that has been consistent is the wind, even when it has been dry over the last while.

The decrease of 70% to 80%—that's not 10% or 15%, but 70% to 80%—happened prior to the ban that Ontario put in place on the availability and use of neonics for planting. Is it all because of the working together in terms of the lubricant that has been used, the machinery manufacturers, and also the awareness of farmers? I have a number of farmers who continue to use neonics with bee producers right beside them, as they always have, and there's not the issue.

I'm wondering if you could make a comment about why there's that 70% to 80%. If it's another good year this year, there might even be an improvement on that. Why are we moving towards banning a product when it takes that working together to find out what the issues are?

● (1555)

Mr. Scott Kirby: Thank you for your question.

To speak to the issue of the decrease in the number of incidents over the last couple of years, I think you're right. I think it's not a single factor that's attributed to that.

I think it has been unprecedented, the amount of collaboration and co-operation that has been taking place between large numbers of stakeholders in terms of the amount of information that's being shared among growers, beekeepers and the agricultural producers. In general, the mandatory measures that were put in place seem to be having an effect, but also, I think good communication among stakeholders has also played an important part in ensuring that everybody is aware of, for instance, where the bees are and when growers are going to be planting corn.

With respect to the measures that are being put in place by Ontario in terms of the reduced availability of neonicotinoids, I don't really want to comment on another jurisdiction's regulatory approach—

Mr. Bev Shipley: That's fine, because I'm also going to run out of time.

Mr. Scott Kirby: —but suffice it to say that it's within their jurisdiction to do this.

Mr. Bev Shipley: Right, and it is an interesting issue. Obviously, not all the Ontario producers support the action, and out west it is not an issue of acknowledgement that is very high in terms of the numbers lost.

Andrea, in your presentation, you talked about how Canada's 8,533 beekeepers produced 95.3 million pounds of honey in 2015. That's up by 11.4% in one year and is a significant amount. The number of colonies increased by 3.6%. On another page, you talked about bee population declining in North America. How are we different in Canada from the total of North America? On one page, you're saying that we have an increase in the number of bees, the number of colonies, and the amount of production, yet the bee population seems to be declining in North America. Maybe you could clarify that for me.

Ms. Andrea Johnston: I will clarify in the sense that in Canada—and I haven't seen any benchmarks between Canada and the United States—the bee population is quite strong and healthy. You raised some of those indicators in terms of a strong beekeeping population and increase in terms of productivity per pound of honey. Earlier I mentioned overwinter losses. There are very strong indicators in Canada that we're moving forward with stronger bee colonies.

Now, we can't be complacent. We have to continue to monitor and watch these issues. As we indicated earlier, this is why the bee health round table continues to do surveillance and monitoring and the dissemination of best management practices.

Mr. Bev Shipley: There's something I always ask about. As livestock producers, we sold livestock that could travel great distances. We never shipped them to Australia or New Zealand, but we did get cattle into the United States and Central America. When you ship them, a lot of care and treatment goes into making sure the animal is healthy, and not only before it leaves; they need significant feed, water, and all that stuff as they travel through.

You're moving bees now, and they're coming back in from places like Chile, Australia, and New Zealand. What is required in terms of caring for the bees? I don't know how long the travel time is for the bees, but one of the concerns I've had is that those bees sometimes come in and they're not in great shape in terms of health. How does it work in terms of the feed that is required to give the bees nutrition?

The Chair: Mr. Shipley, your time is up. We'll have to move on.

Perhaps that can be addressed later.

Mr. Peschisolido, for six minutes.

● (1600)

Mr. Joe Peschisolido (Steveston—Richmond East, Lib.): Thank you, Mr. Chair.

To the witnesses, thank you very much. Your testimony has been extremely helpful to me in getting an understanding of the issue. In my view, and I would agree with Mr. Kirby, it is a complex issue. There seems to be a variety of variables.

We're here to figure out if there is an issue with bee health, and if there is, the degree of the problem. Is there an issue? For some folks, particularly from industry, there is. Some regions more than others tend to believe that bee health is a concern. From what I've read, from anecdotal conversations, and from folks coming in front of the committee, it seems that folks in Ontario are more concerned about bee health than the folks in Alberta, let's say, or Manitoba and Saskatchewan are.

I'll leave it to anyone to answer generally, and then I'll continue with our conversation.

Perhaps, Mr. Kirby, you'd like to begin.

Mr. Scott Kirby: Sure. Thank you for the question.

With respect to bee health writ large, I really can't speak to that. I can speak to the issue in Ontario and the link to corn and soy.

Beginning in 2012 we started to receive a large number of incident reports indicating bee mortalities at bee yards. They seemed to be adjacent to corn and soy operations. With respect to Ontario, we've made a link between those operations, neonicotinoid pesticides that are used to treat the seeds, and the emission of dust that appears to be contaminated with those pesticides. We've put in place measures to try to reduce the dust, and we've seen a concurrent decrease in the number of incidents.

There may be a variety of other factors at play as well, but from our perspective, the area of concern with respect to pesticides was southwestern Ontario and Quebec. We've put in place measures, and we're hoping that we'll continue to see improvements in outcomes for bees from that perspective.

Mr. Joe Peschisolido: Well, usually when you have factors, you say that one factor is more important than another. You weigh them, and if there is a problem, you create a narrative or a story. You identified a problem with one or two factors. Are there more linkages in these factors? Would pesticides, let's say, be impacting the health of the bees, which will then impact their ability to withstand some disease or other issues?

Mr. Scott Kirby: That's definitely a possibility. Our work doesn't look specifically at those linkages. We're looking at impacts of pesticides on bees directly. This new framework that was put in place earlier in 2013 to look at the impact of pesticides on bees is helping us do a better job of looking at that aspect.

With respect to the linkages in terms of weakening the immune system of bees and making them more susceptible to impacts from pests and diseases, there's definitely a possibility, but certainly that's not an area that we work in specifically.

Mr. Joe Peschisolido: Ms. Johnston or Dr. Komal.

Ms. Andrea Johnston: I would just add that bee health will always be a top-of-mind consideration for agriculture. They are critically important for many crops, such as orchard fruits, blueberries, and canola and hybrid canola seed. From an agriculture perspective, we need healthy honeybees. I'm not sure if it's a concern, but it always needs to be a top-of-mind issue.

We went through this and worked with the honeybee round table, and there really isn't.... We can't just focus on one issue. We need to focus on the parasites. We need to focus on disease. We need to focus on pesticides. We need to focus on understanding the research and the collaboration we can do within Canada and outside of Canada. It continues to remain a top-of-mind issue because it is critical to the sustainable future of agriculture.

Mr. Joe Peschisolido: Ms. Johnston, what's the relationship between honeybees and wild bees? There are a lot of wild bees out there. Do they also serve the purpose of going out and doing what they need to do for crops?

Ms. Andrea Johnston: Maybe I'll turn that over to Dr. Pernal for his interpretation.

● (1605)

Dr. Stephen Pernal: Yes, absolutely.

Maybe I'll preface my answer by answering your first question about whether we should be concerned about the bees and whether losses are a problem across the country: yes. Over the last nine years across Canada, we have an average rate of loss of 26%. Some of the more acute losses have been documented in Ontario. Just to get back to your first question, then, yes, honeybee health is an issue across the country, and I don't think there would be a beekeeper across this country who would argue that.

Perhaps to get to your native bee question, sure, there are many more species of native bees across Canada and in all parts of the world than there are honeybees. Native bees certainly contribute towards agricultural pollination. Their density and abundance are very dependent on the local flora in an area and in crop margins.

One way of thinking about it is that with the way agriculture is managed in most of the developed world, the honeybees are sort of our go-to managed pollinators. Those are the ones we domesticate most readily and that we move around most readily and can place most readily on crops to achieve the degree of pollination we need on most crops, but not necessarily all.

The Chair: Thank you, Mr. Pernal and Mr. Peschisolido.

[*Translation*]

You have the floor, Ms. Brosseau, and you have six minutes.

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

I would like to thank all the witnesses who are with us today.

We all agree that it is very important to protect bee health. I remember witnesses who spoke to the committee about this a few years ago. They spoke a lot about the losses they had suffered.

[*English*]

It was pretty devastating to have those apiculturists come to committee and talk about their losses. It was really devastating.

I think this is a complicated issue. There's no silver bullet solution for it. There are a lot of factors, I think, that contribute to the loss of honeybees. A few years ago when we lost a lot of bees in Ontario, there were tests done. I think they were done by Health Canada. They concluded that in Ontario 70% of those bees, I think it was, that died and were tested had neonics in them. In Quebec, it was about 80%. I know that the honeybee council said that our honeybee population has dropped by an estimated 35% over the last few years.

As for working together with industry, farmers, and federal and provincial governments, it's really important. It's important that we all work together to better understand bee health and solutions. It's important that we work collaboratively.

Ms. Johnston, you were talking about testing and monitoring. How long has the government been testing, monitoring, and evaluating bee health?

Ms. Andrea Johnston: That's probably a question for Dr. Pernal, since he's been the lead scientist in terms of surveillance.

Dr. Stephen Pernal: Thanks.

Certainly the federal government and Agriculture have always had concern over honeybee health. If you look over the long term, they have always been interested in looking at treatments for honeybee colonies whether for varroa mites, which are a long-standing problem in Canada and most other parts of the world, or other diseases and pests.

I would say more recently, though, that we've had a few larger-scale projects. One is now in its fourth year looking at interactive effects on honeybee losses in Canada. Also, notably, we're in the third year of a project looking at a national survey for honeybee health across the country. I think in more recent years, in the last three to four years, we've seen the government be more willing to fund and more proactively fund studies that have looked at some of these interactive effects, and look at very broad-scale studies asking us about the health of the industry across the country as opposed to perhaps studies that are much more discrete, which look at interactive effects on individual colonies themselves.

Ms. Ruth Ellen Brosseau: Is the data collected through a voluntary national survey? Is this information that was just given to you? I know you have some people in Beaverlodge, Alberta, and you have people in Ontario and Quebec, I think, or just in Ottawa working on bee health.

Dr. Stephen Pernal: We have people across the country working on bee health. In terms of honeybees, the primary site for working on that is here in Beaverlodge, Alberta. For some of the larger projects, we are working with partners across the country to give us the reach to study in different areas. Agriculture Canada has other professionals looking at native bees, including those in Ottawa, in Calgary, and in Kentville, Nova Scotia. We have professionals who specifically look at factors related to native bees and the health of native bees as well. We have professionals in several locations.

● (1610)

Ms. Ruth Ellen Brosseau: What kind of work happens in Ottawa?

Dr. Stephen Pernal: Most of that is systematics, although there is some disease-related work as well. At the central experimental farm in Ottawa, where you are, you have certainly the Canadian national collection of insects, and we have a systematics expert looking at native bees and diversity, abundance, and factors that may be affecting their health as well.

Ms. Ruth Ellen Brosseau: When we lost the bees in Ontario, I think it was due to a few factors, but I think it was the dust, and now I think we've taken care of that because there's a type of treatment that helps mitigate the dust getting into the air and then affecting the bees.

[*Translation*]

I know the Commissioner of the Environment and Sustainable Development tabled a report in 2015 about pesticide safety, in which she found that, for over a decade, the pest management and regulatory agency had authorized the use of certain neonicotinoids without first confirming whether the risks were acceptable.

Do you know if the government will conduct other studies to ensure that all the risks are acceptable?

[*English*]

Dr. Stephen Pernal: PMRA is intensively reviewing neonicotinoids and risks associated with them. Certainly the PMRA also has some internal studies looking at the risks of neonics to honeybees. So in terms of risks to honeybee health, I think the PMRA is in a better position to answer that question, although within AAFC we are looking at relative residues of insecticides in hive products and in crops, and by simply looking at the levels present, we can also do a cursory evaluation of how available they are to bees in realistic field settings.

[*Translation*]

The Chair: Thank you, Ms. Brosseau.

[*English*]

Thank you, Dr. Pernal.

Now for six minutes, we have Mr. Peter Fragiskatos.

Mr. Peter Fragiskatos (London North Centre, Lib.): Thanks very much.

I represent a very urban riding, but around my riding is an area that is rich in agrifood and plenty of farmland, so my interest in this issue comes largely from that.

This has been hinted at, but just to be clear, a number of factors have been pointed to as being responsible for the decline in the bee population that we've seen over the past few years: parasites, habitat loss, loss of food supply, queen bee quality, weather, general hive management, and exposure to pesticides. Can you rank these factors in terms of responsibility? Is there any information, any data on that list of factors to indicate a descending order of responsibility?

Dr. Stephen Pernal: If I knew the answer to that question, my job would be a lot simpler.

Mr. Peter Fragiskatos: I don't mean to be so simple about it, but I'm saying do we have any information at all on key factors, key variables that are responsible?

Dr. Stephen Pernal: I think we know what key factors interact, and I think their interactions are very much dependent on the region, the severity of weather, for example, the crop systems, but the facts that you mentioned are essentially the leading culprits. We have a very complex system now of introduced diseases and parasites, which are more difficult to manage. Canadian beekeepers do have tools to use them, and by and large if management is good, that does quite a lot to try to keep these parasites and pathogens in check.

Certainly, exposure to pesticides is very much dependent on the crop system, the region of the country, and that can have a greater or lesser extent on colony survival, as does nutrition. We can have bees in areas of the country which have good nutrition most of the year and others that don't. I think the key is trying to elucidate, as you suggest, the interaction of these factors, which is perhaps the biggest push, if you will, towards colony survival, especially over winter.

Within AAFC, we're actually running a study like that right now, trying to look at the interactive effects of supplementary nutrition on honeybee colonies and disease treatment to see which of those two factors may in fact be the biggest influence in colony survival, particularly over winter.

● (1615)

Mr. Peter Fragiskatos: Thank you very much.

I have a question about wintering loss. There's a great deal of variation. In 2006-07, we were at 29%. In 2014-15, it was all the way down to 16%. In the years in between, we're talking about 35% in 2007-08, down to 25% in 2013-14. There's huge variation here.

Why is there so much variation? Are there particular variables that are responsible for this that you could point to?

That question goes to anybody.

Dr. Stephen Pernal: I'm assuming I'm supposed to speak to this, and somebody else can join in if they wish.

Certainly, there are many factors affecting survival, and a huge one is weather as well.

In a year that we have particularly high losses, my observation has been that it can be related to the severity and length of winter, which can be very regionally dependent within Canada, of course. It is also, to some extent, the ability for some of our effective disease and mite controls to bring down this disease and mite levels to acceptable levels before winter. Inevitably, a colony which isn't well treated and isn't well fed going into winter will experience a high loss. There are certain environmental factors that can affect that, which again can be the inherent weather, and also some of the forage availability to bees in the fall if they're not well supplementally fed.

We will experience swings. What I would point to is that we now have nine years of very good data looking at winter loss, and there are swings. Overall, if we look at the level of loss, it's still on average fairly high compared to our long-term losses, which would be around 15% over winter. We're still a good 10% above that, but perhaps the trends indicate we're moving in the right direction, and we have to continue to do so.

Mr. Peter Fragiskatos: I have one more question, Chair.

There are, of course, different types of neonics. A recent EPA study in the United States and a recent pest management regulatory agency study looked at neonics, and the results vary. The EPA study was negative in the use of cotton and citrus, but no real risk when it comes to corn, berries, and tobacco. The PMRA study showed negative impact when we're talking about tomatoes and strawberries, but no risk with corn, soybeans, melons, pumpkins, blueberries, and the list goes on.

With a particular type of neonic, the most common being imidacloprid, can we say there are particular ones that are more likely to cause problems? Is that beginning to become clearer in the research? Do you have any information on that?

The Chair: We're going to have to push that question to your next turn. Thank you, Peter.

Mr. Peter Fragiskatos: Yes, I guess I tried to make it a little too complicated.

The Chair: We'll move to the next round.

Ms. Lockhart, you have six minutes.

Mrs. Alaina Lockhart (Fundy Royal, Lib.): If you'd like to go ahead and answer that question, go ahead on my time.

Mr. Scott Kirby: I'm the one who would be answering that question.

The answer to that question is that at this stage we don't know. Right now, we're doing a targeted re-evaluation of all three Canadian neonicotinoids. We released our preliminary assessment on imidacloprid just this past January. As you've pointed out, both Canada and the U.S. showed different impacts, depending on the crops.

That's not because it's a different chemical being used, because in all cases from the imidacloprid it has to do with how the product is being used and on what it's being used, so the differences are not necessarily about different neonics. It could be about what you're treating with. In some cases, those were seed treatments, so again, there's less material out in the open and being sprayed about so the bees get exposed. In other cases, such as tomatoes, with foliar sprays, there is more potential for exposure for the bees while they're foraging. We found during our preliminary assessment that the mitigation measures that are on the label now to protect pollinators from spray drift from foliar uses, such as on tomatoes, are adequately protecting bees as it is.

Next year we'll be publishing preliminary risk assessments for the other two neonicotinoids that are registered in Canada, which are thiamethoxam and clothianidin, and then we'll be able to see whether there's a big difference in risk between those products.

Mr. Peter Fragiskatos: Thank you very much.

● (1620)

Mrs. Alaina Lockhart: Dr. Pernal, you mentioned that you have a new term scientist, Dr. Marta Guarna, working with you. Is there a specific study that she's working on now? Could you expand on that for us?

Dr. Stephen Pernal: Yes. Dr. Guarna is spending her time on a couple of studies, but one she's particularly taking the lead on is looking at the quality of queens being imported into Canada. The Canadian honeybee industry is very dependent on importing large volumes of queens, particularly from the U.S., and one of the consistent reasons cited by beekeepers in terms of concerns for the colony losses has been the quality of queens, their longevity, and their performance. She's looking at factors associated with the transport of queens and how this may affect the viability of sperm within them.

Honeybee queens are mated in flight to many drones, and we find, by actually destructively analyzing many queens, that the per cent of sperm that is viable inside them is sometimes quite low. We know this affects colony performance, so she's trying to look at factors about why that may occur in certain instances. It may be temperature extremes in shipment. It may also be related to the hive environment they're reared in and perhaps to exposure to pesticides within them.

Certainly, Dr. Guarna is helping with a few projects, but that is one in particular that she's taking the lead on.

Mrs. Alaina Lockhart: Okay. That's great.

Also, I am from Atlantic Canada. Last week, we had Dr. Kevan here from the University of Guelph. One of the things he talked about was the Atlantic tech transfer team. I'm wondering if any of you have any insight into that team or where we may be going with that on a long-term basis.

Dr. Stephen Pernal: I just met the Atlantic transfer team in P.E.I. two weeks ago, so I can speak to that as well.

I think you have two great individuals who are well trained and very eager to serve Maritimes beekeepers. I think this is a wonderful step forward in developing the industry and perhaps really looking at ways of implementing latest findings or developing practices that may be more specific to the Maritimes to improve the success and vitality of that industry.

As you're probably very well aware, the lowbush blueberry industry is looking at increasing in size over the next few years, and one limiting factor there is the number of bee colonies necessary for pollination. Currently, many colonies are brought in from Ontario and Quebec to pollinate blueberries in the Maritimes. It's certainly an open question as to whether the industry in the Maritimes can have a large enough in-house industry to partly meet that demand.

Mrs. Alaina Lockhart: Okay. Very good.

You say that we have about nine years of monitoring now that we can solidly look at. Are there any other regional considerations that you're seeing, whether that's in Atlantic Canada or the west? Where are the big differences regionally?

Dr. Stephen Pernal: I think there tend to be differences year to year just in looking at large geographic biomes of the country. Things on the Prairies tend to be similar in terms of concerns and influences. That often differs from other provinces such as British Columbia, Ontario, Quebec, and the Maritimes.

We're a very regionalized country, so it's hard to make sweeping statements, but weather patterns, cropping practices, use of pesticides, and the sheer number of colonies certainly can vary differently within Canada regionally. All of these factors, I think, contribute to success outcomes and perhaps to the development of better management practices to improve overall survival and health of bees.

Mrs. Alaina Lockhart: Great. To that end, then, I'm very happy to know that we have studies going on in Ottawa, Kentville, and Calgary.

Thank you.

The Chair: On that note, we'll conclude this portion of the panel.

I want to thank all the witnesses for taking the time to shed light on this very important issue concerning our beekeepers.

We'll take a short break and be back in a few minutes.

Again, thank you very much to the panel.

● _____ (Pause) _____ ●

● (1630)

The Chair: Let's get going with the second portion of our meeting.

On video with us this afternoon we have representatives from Grande Prairie Regional College in Alberta: Carlos Castillo, applied scientist, and Bruce Rutley, director of research and innovation.

From the Ontario Beekeepers' Association, we have André Flys, second vice-president.

We will start with a 10-minute opening statement from Carlos Castillo of Grande Prairie.

You have the floor, Mr. Castillo.

Dr. Bruce Rutley (Director, Research and Innovation, Grande Prairie Regional College): Good afternoon, Mr. Chair. This is actually Bruce Rutley speaking. I will read the presentation to the committee, if that's okay, and Carlos will join me during the Q and A section.

With your permission, may I proceed?

The Chair: Yes, you can go.

Dr. Bruce Rutley: I'm the director of research and innovation at Grande Prairie Regional College. Formerly, I was the dean at Fairview College for agriculture technologies and with responsibility for the commercial beekeeping program. I'm currently responsible for the National Bee Diagnostic Centre, of which Carlos Castillo is the applied scientist manager.

Bees and other natural pollinators are essential in order to maintain healthy and diverse ecosystems. The commercially raised honeybee is the most important pollinator in our food production systems, contributing well over $2 billion to the Canadian agriculture sector by means of improved yield and quality.

In the last 10 years there has been a well-documented deterioration of the health conditions of both commercial and wild bees. Beekeepers are reporting higher than expected colony losses during the winter and there is significant reduction in the presence and numbers of native bees.

The high honeybee losses are affecting the beekeeping industry and their services to the agrifood sector. A complete understanding of what is producing this decline has yet to emerge. However, the scientific community agrees that losses cannot be assigned to one single cause. There is a complex of conditions and factors, including but not limited to, and in no particular order, hive management practices, monoculture crop production systems, habitat loss, exposure to pesticides, weather conditions, endemic and exotic diseases, pests and parasites, as well as poor-quality queens.

The National Bee Diagnostic Centre was created by Grande Prairie Regional College in response to requests from the regional beekeeping industry for more robust diagnostic capacity and services. GPRC built the National Bee Diagnostic Centre at the Agriculture and Agri-Food Canada Beaverlodge research farm specifically to facilitate collaboration with the national honeybee management program led by Dr. Steve Pernal. The Beaverlodge research farm and the NBDC are located in the county of Grande Prairie adjacent to the town of Beaverlodge, 40 kilometres west of Grande Prairie, Alberta, in the Peace Country, one of Canada's leading honey-producing areas.

The National Bee Diagnostic Centre is the only comprehensive laboratory in Canada focused exclusively on the diagnostics of pests, pathogens, and parasites affecting honeybees. It uses microscopy, microbiology, and molecular biology techniques in order to achieve its findings. Its primary objective is to provide independent, confidential diagnostic services and analyses from which evidence-based decisions can be made in order to contribute to both a healthy, competitive, profitable, and dynamic beekeeping industry and to food security concerns.

The NBDC was the first initiative to result from an April 2010 memorandum of understanding between GPRC and Agriculture and Agri-Food Canada's science partnerships directorate. The Beaverlodge research farm-based initiative was supported with investments from the Rural Alberta Development Fund, Western Economic Diversification, and GPRC. Construction started in November 2011 with completion in December 2012. While the laboratory was being commissioned, the college was able to secure a technology access centre grant from the Natural Sciences and Engineering Research Council college and community initiative fund. Thus the NBDC began operations in April 2013 with an expanded mandate as a technology access centre.

Since then it has been providing comprehensive, reliable, accurate, and timely diagnostic services as the NBDC as well as applied research and innovation services, training, and outreach as a TAC. This dual mandate enables the NBDC, which I will refer to for this presentation, to serve beekeepers and the beekeeping industry, industry professionals, government, and university researchers from across the country. In 2014 and again in 2015 the NBDC increased its diagnostic capabilities through specialized equipment grants from NSERC. The NBDC is guided by a national-level industry, government, and university advisory committee sponsored by NSERC. It is one of 30 technology access centres within the emergent NSERC-sponsored Tech Access Canada network.

● (1635)

Within its applied research mandate, NBDC has established relationships and collaborations with researchers at Agriculture and Agri-Food Canada, Alberta Agriculture and Forestry, and the University of British Columbia, and it has an emergent partnership with the University of Saskatchewan.

As in the case of the national research project on sustaining and securing Canada's honeybees using “omic” tools, led by UBC and York University, NBDC provides the diagnostic services critical to the research agendas of these scientists. However, the primary applied research relationship is with the beekeeping industry, which receives diagnostic services and support for its research needs.

The most significant industry project, the Canadian national honeybee health survey, is currently being conducted on behalf of commercial beekeepers. The Alberta Beekeepers Association is leading on behalf of the industry and its government funding partners. The Canadian national honeybee health survey is a four-year initiative that started in 2014. It's aim is the design and verification of country-wide sampling procedures in order to establish a country-wide baseline of endemic pests, parasites, and diseases affecting honeybees. In addition, apiaries will be sampled for exotic pests considered to be high risks to the beekeeping industry. Pesticide residue analyses are scheduled for year four.

The NBDC is currently operating beyond its initial capacity targets, growing from 1,800 diagnostics in year one, to 8,000 in year two, to over 20,000 in this year, year three. Staff complement has doubled to five full-time employees, and depending on the time of year, the NBDC is host to students, interns, visiting scholars, and bee professionals.

Additionally, it has established relationships with leading international honeybee diagnostic scientists and laboratories in Europe and the U.S. Recently, Grande Prairie Regional College has initiated steps to expand the facility and its capacity to meet this growing demand for service. It envisions a national centre of excellence for bees in collaboration with existing and additional industry, government, and university partners in order to serve the critical needs of Canadian beekeepers and Canadians.

Thank you, Mr. Chair.

● (1640)

The Chair: Thank you, Mr. Rutley.

Now we go to André Flys for 10 minutes.

Mr. André Flys (Second Vice-President, Ontario Beekeepers' Association): I'm André Flys. I am vice-president of the Ontario Beekeepers' Association, as well as a commercial beekeeper here in Ontario. The Ontario Beekeepers' Association thanks the chair and honourable members for inviting us to present to the House of Commons Standing Committee on Agriculture and Agri-Food.

The Ontario Beekeepers' Association, or OBA for short, is an agricultural association incorporated under the Government of Ontario's Agricultural and Horticultural Organizations Act. Our mission is to ensure a thriving and sustainable beekeeping industry in Ontario. To that end, we support honeybee health research, promote the value of Ontario's honey, and deliver practical training and information to Ontario beekeepers.

While Ontario's honey production, at $33.9 million, represents only about 15% of the value of Canadian honey, Ontario's beekeeping industry plays a significantly larger role in the pollination of Canada's fruits and vegetables. Fully 37% of Canada's produce is grown in Ontario. More than any other province, Ontario's honeybee industry is not only responsible for much of the fresh food that Canadians eat, but contributes nearly three-quarters of a billion dollars to the Canadian economy through the pollination services we provide to Ontario fruit and vegetable growers, and to the blueberry and cranberry growing regions of Quebec, New Brunswick, Nova Scotia, and Prince Edward Island.

The OBA accepted the opportunity to present to the Senate Standing Committee on Agriculture and Forestry in 2014, and appreciates the progress that has been made following the committee's report and recommendations last year. We particularly appreciate the fact that the PMRA has discontinued granting conditional registrations to new pesticides. However, there is still much work to be done.

In the spirit of collaboration and the importance of managed and wild pollinators, the OBA submits the following comments and recommendations for your consideration.

Number one, now is the time for the Government of Canada to take a leadership position on systemic pesticides. The much publicized threat from the overuse of neonicotinoid and other systemic pesticides has not abated. This year, reports of bee kills in Ontario have continued at the same rate as last year. Canada must step up its efforts to significantly reduce or eliminate improper use of pesticides as a preventative measure. Our food security depends on a reliable and viable source of insect pollinators.

PMRA has stated that they will evaluate the U.S. Environmental Protection Agency's position when making decisions on pesticides. However, the EPA action or non-action should not be the primary determinant of decisions relevant to Canada, particularly when the EPA is under such intense pressure from the agricultural industry and is under threat of disbanding from partisan forces.

Number two, we are asking for an independent panel of bee health experts to provide oversight for the review of all systemic pesticides. Pesticide manufacturers have pushed new systemic pesticides into the pipeline in reaction to restrictions on the use of neonicotinoids in Europe and some North American jurisdictions. In some cases, they have been granted restrictions after the cursory public consultation. The criteria for new registrations refer to LD50, based on short-term exposure to pesticides. Substantial evidence now points to chronic exposure from systemics as a major cause of bee mortality.

Even low concentrations can put bees at risk. Neonicotinoids are thousands of times more lethal to bees than older insecticides like DDT. Research shows that bees experiencing sublethal effects encounter complications such as changes in foraging behaviour or delayed development. As well, it is important to stress that neonicotinoids are not separate from other problems facing honeybees, such as varroa, viruses, and nutrition. Exposure to these pesticides make other problems worse by compromising the bees' immune systems, reducing navigational skills, and destroying habitat.

Ontario has been particularly hard hit by the overuse of systemic pesticides. Since 2007, coinciding with the extended use of neonicotinoids on soy and corn, Ontario beekeepers have lost an average of 30% of their colonies each winter, compared to an average of 15% prior to 2007. However, this does not reflect the full impact.

● (1645)

Colonies weak from exposure to toxic pesticides cannot recover from winter damage. Ongoing exposure to even sublethal doses causes colonies to decline throughout the spring, summer, and fall. Bee losses now have to be assessed year-round. Despite these losses, Ontario beekeepers have managed to maintain their inventory by purchasing queens and bees, and dividing surviving colonies. However, these hives are less populous and less productive for the season. As well, the additional cost associated with this practice erodes the ability of beekeepers to make a living.

We need to trust that our regulators have the scientific capacity to conduct independent assessments. We urgently call on the ministry to support Health Canada and Environment Canada to revamp PMRA and the process for assessing and approving pesticides. We need a systematic approach to assessing pesticides that is open, transparent, and independent of industry.

Number three, Canada must maintain the policy of a Canadian border closed to imports of U.S. bees into Canada. OBA supports the conclusions of the Canadian Food Inspection Agency's most recent assessment that stated, “There is still a high probability of introducing diseases and pests into Canada due to importation of honeybees from the continental United States.”

Specifically, we are most concerned about three areas.

One is Africanized honeybees. The CFIA considers Africanized honeybees a threat to public and animal health, as well as to the Canadian beekeeping industry because of the significant impact on productivity and potential trade issues with live honeybee material. The introduction of Africanized bees could serve to dilute, if not destroy, the generations of non-defensive, productive honeybees bred by Canada's beekeepers.

Two, American foulbrood is a worldwide bacterial disease of the larval and pupal stages of bee development. Treatment with antibiotics will destroy the vegetative bacteria, but it will not kill the spores. According to the CFIA, American foulbrood occurs in the continental United States and Canada; however, strains resistant to oxytetracycline or antibiotic treatments have been widely reported in the United States, leading the CFIA to consider the import of U.S. bees a potential hazard.

Three is treatment-resistant varroa mites. Although varroa mites are widespread in both the continental U.S. and Canada, mites resistant to fluvalinate and amitraz are present in the United States where there is an intense migratory beekeeping industry with no interstate controls on honeybees. Given the prevalence of varroa mites in colonies, it is reasonable to expect that imported bees will carry varroa, including those resistant to miticides.

We believe that opening the border to the U.S. bees will compromise the stability and future sustainability of the beekeeping industry in Ontario and other provinces. We agree with the risk assessment undertaken by the CFIA in 2013, and see no reason to reopen this issue.

Number four, we call on the government to reassess the mandate and mission of the bee health round table assembled by the former minister of agriculture.

Although Ontario has the largest number of beekeepers in Canada and the highest rates of bee mortality due to neonicotinoid pesticides, the OBA was excluded from the round table while seats were given to representatives of the agricultural chemical industry and to the Grain Farmers of Ontario. In addition, environmental NGOs have also been left off the round table, despite their knowledge and expertise in the area of non-managed bees.

We believe a reconstituted round table that reflects the full range of societal interests and expertise would be more likely to chart a positive and long-lasting course for bee health in Canada.

We believe our recommendations support the ministry's mandate “to help Canada's agriculture sector be innovative, safer, and stronger”. When it comes to “safer”, we include pollinators, the environment, Canada's water supply, and our food system.

On behalf of the Ontario Beekeepers' Association, I thank you for this opportunity to present to the committee, and I welcome any questions.

● (1650)

The Chair: Thank you, Mr. Flys.

We will now go to the rounds of question, and we will start with Mr. Warkentin, for six minutes.

Mr. Chris Warkentin (Grande Prairie—Mackenzie, CPC): Thank you.

Dr. Rutley and Dr. Castillo, it's great to have you here. You're some distance away, but it's close to home for me.

I should tell the committee that I have a bit of a vested interest in that both of you are constituents, but that's not why I'm going to spend a fair bit of time bragging about your work. What you've done in Grand Prairie and in Beaverlodge is truly remarkable, and we thank you for your work.

Bruce, you spoke to the number of samplings that you're doing on an annual basis. Could you repeat that to make sure committee members have heard it? When the facility was built, I guess you had an estimate of how many samples you would undertake to review every year. What are the numbers looking like now, and where are those samples coming from? Could you run through those numbers for us?

Dr. Bruce Rutley: Thank you, Mr. Chair.

In year one, which was 2013-14, we did 1,800 diagnostics. In year two, we did 8,000. In this current year, which we just finished, based on the 2015 production year, we will have completed over 20,000 diagnostics.

The growth in samples has come from industry through applied research and through our partnerships with scientists like Dr. Shelley Hoover in Lethbridge with leafcutter bees and Leonard Foster at UBC through the BeeOMICS project.

Mr. Chris Warkentin: The samples you're receiving for diagnostics are coming from across the country. Is that correct? What percentage is coming from outside the province of Alberta?

Dr. Carlos Castillo (Applied Scientist Manager, National Bee Diagnostic Centre - TAC, Grande Prairie Regional College): Of the 20,000 diagnostics, probably half of them are research samples coming from Manitoba, from Ontario, from Alberta, and from B.C. Half of them are coming from beekeepers from Newfoundland and Labrador through to New Brunswick, with some from Quebec.

● (1655)

Mr. Chris Warkentin: It is truly pan-Canadian, the work you're doing in Beaverlodge. Certainly there seems to be a demand for the services you're providing. We know that many of the samples you're receiving are from industry, from beekeepers, and those who might identify that there's a problem happening within their colonies. Many times when you're sent samplings it's because beekeepers are not sure what's happening with the health of their own bees, and obviously there's a desire by these beekeepers to find out exactly what's going on, if in fact there's a disease, or a parasite, or some type of environmental factor impacting their bees.

From the time you're sent a sample to the time you're able to give some feedback to the beekeeper, what's usually the time frame for giving some information to the beekeeper?

Dr. Carlos Castillo: Our policy is that as soon as the sample arrives in our lab, we have a two-week period to report back to the beekeeper. We have been able to provide the results in an even shorter time, around 10 days.

Mr. Chris Warkentin: Obviously, we've established at this committee, and I think everybody around this table understands, that bee health is important and that the information is empowering to the beekeepers and those who study bees. In terms of your facility, is there any other facility in the country that provides similar services to yours, and the way you do it?

Dr. Carlos Castillo: There are several facilities around the country. A laboratory in Abbotsford, B.C., provides some services to B.C. beekeepers only. There are some facilities in Quebec that provide services only to Quebec beekeepers. I believe the University of Guelph also provides services to the beekeepers and the provincial apiculturists from Ontario. The difference with us is that we provide services to beekeepers from any place in Canada, basically.

Mr. Chris Warkentin: In terms of the 10-day turnaround time you're able to undertake right now, with the 20,000 diagnostics that you're doing on an annual basis, do you believe those numbers will grow? That's the first question. Second, if those numbers do grow, with the capacity of the facility, do you believe you'll be able to maintain your current service-level provisions? Do you believe there's room for growth such that you'll still be able to meet those objectives of providing diagnostics within two weeks?

Dr. Carlos Castillo: Right now we are a full operation, with a normal shift of 8:30 a.m. to 4:30 or 5 p.m. The capacity is there and the equipment is there to provide additional services, if needed, but of course we would need additional staff if we had different shifts.

Dr. Bruce Rutley: Mr. Warkentin, may I add a quick supplemental?

The Chair: We have to move on to the next questioner. You may be able to add information further on.

Dr. Bruce Rutley: Okay. Thank you.

The Chair: Thank you, Mr. Warkentin.

Thank you, Dr. Castillo.

[*Translation*]

Mr. Breton has the floor for six minutes.

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

I would like to thank each of the experts here today.

Our role as a committee is first to see if there is a problem and then to help find solutions as a government. This is our second major meeting with experts. Clearly, there are problems with bee mortality. We know in particular that there are a lot of wintering losses.

First, I would like to understand a few problematic aspects. The Canadian Horticultural Council provided certain data from Statistics Canada. These data show that, from 2009 to 2013, the number of bee colonies in Canada grew by 14%. According to the figures provided by Anne Fowlie of the Canadian Horticultural Council, the number of bee colonies increased by 24% from 2000 to now.

I am simply trying to understand. I do not deny that there have bee colony losses owing to certain factors. Based on the information I have, though, there is an increase in bee colonies in Canada overall.

I would ask each one of you to give me your opinion on this quickly.

● (1700)

[*English*]

Mr. André Flys: I'll start with the response to that, if it's okay.

We've seen an increase in the need for pollination services across the country, in the Prairies for canola and in eastern provinces and Ontario for blueberry pollination and cranberry pollination. We've seen a very large increase in Ontario. The actual numbers are not to be released yet, but we've seen a substantial increase of pollination contracts going to pollinate blueberry crops. The contracts that are being paid out for those pollination services are increasing.

We've seen more beekeepers investing more money into their businesses and their livestock to increase the numbers that they have for availability for pollination services.

Although we do suffer winter losses, every spring we push to increase those numbers and spend money bringing those numbers up. Those bees are available to pollinate those crops.

[*Translation*]

Mr. Pierre Breton: Mr. Castillo or Mr. Rutley, do you have anything to add?

[*English*]

Dr. Bruce Rutley: Yes.

Your question is best answered by industry and I thank our other witness for that.

This also, if I may comment, touches on Mr. Warkentin's question related to the expect for demand for services. In part that demand for service will come from this growth that you have just described.

Dr. Carlos Castillo: I agree with the other witness here that there is an increase in the need for pollination in the canola areas and also blueberries in the Atlantic provinces.

That, I think, gives an incentive to probably [*Inaudible—Editor*] and some of the beekeepers will spray their colonies to have more colonies next year, but that doesn't discount that they are having higher than expected losses during the winter. Everything is related to the market. If there is a need for colonies, the beekeeper will try to fill the need because there is a profit to make; however, the losses that they are having in winter is impacting those benefits.

[*Translation*]

Mr. Pierre Breton: Thank you.

I have no further questions, Mr. Chair.

The Chair: Thank you, Mr. Breton.

[*English*]

Thank you, Dr. Castillo.

[*Translation*]

Ms. Brosseau, you have the floor for six minutes.

[*English*]

Ms. Ruth Ellen Brosseau: Thank you, Chair.

I'd like to thank our witnesses for their testimony today.

I would also like to say, Mr. Flys, that I really like your shirt. I think those are bees on your shirt.

I have a quick question for the Grande Prairie Regional College.

Obviously, year after year, you're sampling and doing diagnostics on more bees. Last year, it was 20,000. How many clients is that? If I'm a beekeeper and I have lost thousands and thousands of bees, are those 20,000 clients or 20,000 bees? It might be a silly question. And where are those coming from? Are you getting bees mainly from Ontario or Quebec? Are you able to do a little breakdown? How much does it cost to send bees to have diagnostics done? I know the Government of Canada PMRA was doing tests over the last few years when we had significant losses mainly in Ontario. They were accepting bees and pollen, and they were doing diagnostics on the samples they received. They're no longer doing that now. I was just wondering if you could answer the questions about 20,000 clients or bees.

● (1705)

Dr. Carlos Castillo: I would like to answer this question.

When you say 20,000 diagnostics, it depends on how many diagnostics you need per sample. If I did five analyses per sample, then we'd be talking about 4,000 samples. Probably half of those samples come in from research, so we have 2,000 samples coming in from research. There are some very large apiaries, so we have hundreds of samples from apiaries. When we talk specifically about beekeepers, beekeepers send in samples to us. Probably we are talking about a little fewer than 2,000 samples. Probably we are talking about a maximum of 300 to 400 beekeepers. Some beekeepers are sending in a good number of samples. Some keepers of honeybees send only two samples from the two honey colonies they have in their backyard. We cover the whole spectrum for this, from the keeper of honeybees who has 10 hives in their backyard to the large beekeepers' apiaries in Canada with more than 20,000 hives.

To be clear, for 20,000 diagnostics, that means more or less 4,000 samples, and more or less 300 to 400 beekeepers.

Ms. Ruth Ellen Brosseau: Okay, thank you very much.

Mr. Flys, how are things going this year in Ontario? Are there any more bee losses compared to...?

Mr. André Flys: The official numbers are not out for our winter losses. We had a very mild winter in Ontario this year. I can say personally that I've had one of the best overwintering successes this year thanks to that mild winter. However, as corn gets planted, we are continuing to see poisonings across the province. So on one hand, things are looking up, but with legislation that's been put in place in Ontario, we were hoping to see a more proactive approach, with many of our growers willingly trying to reduce the amount of acreage they're putting in with treated seed.

The statistics aren't out on that yet, but we are hoping there will be a reduction in the amount of treated seed that goes out there, which will in turn translate into better winter losses.

We don't know; we're pushing to see those statistics. We should have the amount of treated versus untreated seed that was purchased, but that information has yet to be released. Again, it's looking as though many of us have had very few winter losses this year.

Ms. Ruth Ellen Brosseau: If I'm a farmer and I'm planting corn and soya and I traditionally used to have treated seeds, and I'm looking forward to transitioning and maybe next year using non-treated seeds, is there a problem with access to those seeds in Ontario or in Canada? I guess you'd have to order them maybe a year in advance.

Mr. André Flys: Yes. That largely depends on who you ask. If you ask the people who are selling the seeds, they will tell you untreated seeds are readily available. But I've spoken to many growers, and they say they have asked for untreated seeds. One person actually switched seed dealers because he was told repeatedly that there was no access to untreated seed, so he went to another dealer and purchased untreated seeds.

I believe there is an access problem, but the statistics will bear that out.

Something else we'd like to see is whether there is a cost differential between a treated seed and an untreated seed. I don't believe, if there is a difference, that it's much. I think seeing that a treated seed was much more expensive than an untreated seed would help a lot of growers make a much more informed decision. If there's no cost differential, then why not use the cheap insurance?

Ms. Ruth Ellen Brosseau: I guess in Quebec, too, there are a lot more farmers going towards or wanting untreated seeds. I know the PMRA best practices document is basically suggestions on how to use treated seeds, and what to do and what not to do.

Is this book of best practices adequate?

● (1710)

The Chair: Unfortunately, Madam Brosseau, that's the end, so maybe later on Monsieur Flys can answer.

We will now pass to Mr. Longfield for six minutes.

Mr. Lloyd Longfield (Guelph, Lib.): Thanks, Mr. Chair, and thanks to those who have joined us from Milton and from Alberta.

I am the member of Parliament for Guelph, so closer to one than the others. We have had some conflicting statements between some previous statements that we had from bee researchers from the University of Guelph and a few others. They indicated that there are some pesticides that are safe for bees and that they didn't see a correlation between the neonic policies of Ontario and any effect. We'll possibly be able to see an effect going down the line, but so far, they don't see a direct correlation between bee health and neonics.

That's going to be different from what we have heard this afternoon. How divided is the scientific community on this compared to the beekeepers, and compared to, let's say, industrial people?

The Chair: Maybe, Monsieur Longfield, you could direct your question, because we're all on video.

Mr. Lloyd Longfield: I'm sorry. I'm looking at André Flys.

Mr. André Flys: To say that pesticides are safe for bees, they are pesticides. They kill insects.

I believe personally that this is a bit of a diversion. All we've really been asking for, and the Province of Ontario has been asking for, in this legislation....

The best agronomists or soil specialists in Ontario, which neither chemical companies nor beekeepers disagree with, say that 15% to 30% of our soils and crops may require, or have enough pest pressure to require, the use of treated seed, yet 99% of our corn is treated year after year, 65% of our soybeans, and half of our wheat. We're asking that growers take a hard look at how much they're growing and what percentage, and reduce those numbers.

If you would like to look at science, you could ask Reed Johnson from Ohio State, or Christian Krupke from Purdue. We have plenty of evidence showing that when these seeds go into the ground, the dust can travel for many kilometres and get on many plants, and expose our bees to it.

Mr. Lloyd Longfield: Thank you. I am sensitive as to time.

As we're going forward—and sorry folks from out west; we'll get back to you in a second—I just want to drill into this a bit more because we're looking at this as a parliamentary committee. We are trying to find the hot spots that we need to look at policy-wise. As we go into the next round of our agricultural comprehensive policy program, I notice that some of the testimony today, and a previous presentation, mentioned Growing Forward 2. It would seem that we're not finished with our bee impact studies in Canada. We have a lot of variables to look at, and maybe that's something to be tabled for a future study.

I do want to touch on food sources. Going over to Alberta, food sources were strongly mentioned in our last presentations back on May 30. The University of Guelph has developed some food that can be used as supplemental food to reduce the incidence of starvation coming out of the winter seasons. Have you been seeing any of that out west? Have you used any kind of supplements out of Guelph? Are the collaborations reaching out that far?

Dr. Carlos Castillo: I think talking with beekeepers recently.... Again, they are having a very good winter for the beekeeper in western Canada. What they use are commercial supplements for their hives. I haven't heard anything about using the new supplement. I assume it is being tested in Ontario and the results are good. I don't see why it wouldn't be coming to this part of Canada.

Mr. Lloyd Longfield: There was just a hint in an answer that I had from Guelph in saying that they're exporting that product all over the world, but they aren't using it that much in Canada. Maybe that's a sales pitch from my university in Guelph.

● (1715)

On the clarification, just in terms of science and using scientists across the country, it looks like we have some great centres of excellence from scientists. As we look forward into our next budget year, the 2017-18 cycle, we're looking at clusters and at what's developing or could be developed for agriculture. It seems that we have a very strong group within Alberta.

Do you find that you have effective connections across Canada, or is that something the government could help you with?

Dr. Bruce Rutley: Mr. Chair, I'd like to respond to the member.

We always take help and always appreciate the support from the government. We have a national advisory committee that advises the National Bee Diagnostic Centre. We mentioned that we have relationships with provincial and federal government researchers and university researchers, and we're connected with the provincial apiculture, so I think we do a pretty good job of being connected.

Dr. Castillo was in the Maritimes just last week, and in Quebec, and he was talking with representatives there who would be collecting samples for the Growing Forward 2 project. I think we're well positioned, and we will continue to build on those relationships.

The Chair: Thank you, Dr. Rutley and Mr. Longfield.

Now we have Ms. Lockhart for six minutes in this second round.

Mrs. Alaina Lockhart: Thank you.

Mr. Flys, this question is for you, I think.

Wintering losses obviously result in significant financial losses. I'm wondering if you can tell us—

Mr. Lloyd Longfield: On a point of order, Mr. Chair, wouldn't it go to the Conservatives after me?

The Chair: No, we changed rounds. That's why—

Mr. Lloyd Longfield: I'm sorry. I just wanted to make sure we weren't ignoring our friends across the road.

The Chair: Go ahead.

Mrs. Alaina Lockhart: I'll restart.

I want to talk about wintering losses and what support there is. We understand from some of our other witnesses that there are significant investments in these colonies. Is there compensation for colony loss?

Mr. André Flys: There was a program the province had over the past two years that reimbursed us. I think it was about $115, give or take, per colony. The problem was that you had to lose 40% of your colonies before you could get it. If I had 1,000 colonies, I'd have to lose 400, and then I would get $115 for the 401st hive. There was a program for that, but there are some problems with it.

I don't believe that compensation would be the answer. I'd like to look forward more to having a healthy industry that didn't require compensation.

Mrs. Alaina Lockhart: I was thinking more of risk management programs such as the agri-stability program. That doesn't apply?

Mr. André Flys: There is insurance available. Also, a new program that came out this year had much less of a buy-in. That did become available, so there is crop insurance or livestock insurance available here in Ontario.

Mrs. Alaina Lockhart: It probably has not been designed specifically for bees, but does the program as designed work well?

Mr. André Flys: It just came out last year. I don't know what the uptake was. Last I heard, only a few dozen people were enrolled in that program—there are number of insurance programs—and I personally know some beekeepers who have partaken of it.

Mrs. Alaina Lockhart: I certainly do appreciate your comment about the focus needing to be on healthy bees. I just was looking at ways to mitigate as well.

You mentioned the value for the provincial program being $115 per hive. How does that compare with the actual value of a hive?

Mr. André Flys: Nucleus colonies, which are basically starter colonies, are valued at about $180 to $200 now. That's not including the equipment you put them in. The value of the bees and the equipment you put them in is somewhere between $350 and $500.

If you're a beekeeper and you're having to replace that, you can also factor in what those colonies would have produced for you had they not died over the winter. There is another $300, $400 or $500 in honey and other products or pollination services that they may have done for the beekeeper, had they not been lost over the winter and the beekeeper had to reinvest in starting up a new colony.

Much of what we do relies on looking after those bees so that in the next year they'll be able to provide income for us.

● (1720)

Mrs. Alaina Lockhart: Dr. Pernal mentioned queen health, and then you brought it up as well. Can you talk to us a little more about ensuring that we have healthy queen bees?

Dr. Carlos Castillo: We are currently doing research with imported and local stock of queens, so we are reporting from a few sources. Most beekeepers in Canada are buying their queens, and we are evaluating how they arrive here in Canada. They say the queen has a storage of sperm. They mate and fly once in their life and mate with 10 or 20 drones. They store the sperm in their body and, based on the level of sperm, they have a lasting life of laying eggs that will become workers. The workers are the ones that do the work in the hive and produce the honey.

We check if they are properly mated, if they have enough sperm to produce their progeny, if the sperm is alive or dead, and also we check if the queens are infected with disease or not. All of this gives an idea of how well the queens are to drive a hive for one or two years. This is what we do in the NBCD and very soon it will be available for any beekeepers who want to check their stock.

Right now we are collecting queens from every single province in Canada. They are local producers, and we are now licensed so we can compare how well produced and mated the queens are here in Canada.

Mrs. Alaina Lockhart: Is this because we've seen a decrease in the health of queens, or is it a proactive effort to increase their health?

Dr. Carlos Castillo: Probably you have heard before of CAPA. They have stated that one of the main issues of beekeeping is the [*Inaudible—Editor*] so the queens are not lasting enough time in the hives to produce enough progeny or they have been replaced very quickly. Because of this concern, we are doing this research.

The Chair: Thank you, Dr. Castillo.

Thank you, Ms. Lockhart.

Now, Mr. Shipley will split the time with Mr. Warkentin for six minutes.

Mr. Bev Shipley: I just have a quick question or so and I'll cede to my colleague.

André, I have a couple of quick questions.

I think all of us are concerned about the health issue. We all recognize the strength that is needed in our bee population in the colonies that we have.

The farmers out my way and the beekeepers seem to be working hand in hand. The farm operators are working with their equipment... earlier we were told that there was a 70% or 80% decrease in losses, which is actually significant and really good news for everyone.

You mentioned earlier that you were wishing there were a bigger differential in the cost of the seed between the treated and the non-treated. I understand that. The last thing I would want to see though, quite honestly, is an artificial cost added to those farmers, regardless of whether it's 15% or 30%, who actually would get dinged a high subsidized cost that would be subsidized by a few farmers on an artificial cost. I don't think that's what you meant, but anything in terms of seed production should be based on the cost of what the product is, and we'll go from there.

A number of beekeepers in Ontario didn't join the class action suit that is out there. They haven't, and I understand the Canadian Honey Council haven't joined either, and I'm wondering why that would be if it's so significant. I'm not saying that it isn't. I'm just trying to get an explanation for why we have some beekeepers, some that are around us, who actually haven't belonged to it. I'm just wondering what the reason would be.

● (1725)

Mr. André Flys: There are 3,000 beekeepers in Ontario. Like anything, you would have to ask for their personal reasons. Some people take their time to inform themselves about particular situations and others do not.

Often, we find beekeepers are in places in Ontario where they are not very agriculturally intensive and they may not have problems with their bees. They may not have high overwintering losses or in-season losses, so they may not have reason to become part of that lawsuit as they have not suffered losses.

It's going to depend from person to person as to why they would take part or would not take part in a lawsuit like that.

Again, I always revert to trying to keep the conversation around the need to adjust those incredibly big differentials between where there's a need and where there isn't. We understand farmers need to use pesticides. We would like them to use them where they need them and not use them where they don't. We as beekeepers try to do that as well, controlling varroa mites in our colonies.

Back to your issue regarding seed, I certainly wouldn't ask that they increase the cost of a treated seed, but obviously, it must cost money to treat a seed, and it should cost less money to buy untreated seed, one would assume.

Mr. Bev Shipley: Thank you.

Mr. Chris Warkentin: Dr. Rutley and Dr. Castillo, I wanted to get back to you. I got onto the discussion about your facility's capacity. I've been to the facility and I wish all my colleagues would have an opportunity to be there. It's remarkable what you're able to accomplish in such a small footprint.

I understand there has been some effort or plans to expand the current footprint of the facility. Is that still on the books? Are you still working toward that end? Do you have an update for us or an expected plan on how that might proceed?

Dr. Bruce Rutley: To Mr. Warkentin's question, the plans are to continue to explore expansion. We've initiated conversations with Agriculture and Agri-Food Canada. We already had one meeting in Ottawa in February. We have just recently submitted a proposal to the strategic infrastructure fund that the federal government has opened and we await the results of that application. We are formulating our development plans essentially as we speak.

The plan is to continue to explore expansion.

Mr. Chris Warkentin: That's great news because we do know the success that is evident by the number of samplings you're diagnosing on an annual basis and how they are exponentially growing. I suspect that's going to continue as people become more aware of the world-leading study you're doing and the diagnosing you're doing in such a quick way.

We thank you for that. We'll continue to monitor the developments of those applications and of your plans to continue.

Thanks so much for all you do. I'll leave it there and end by simply thanking all of you for joining us today.

The Chair: On this, we will end our second hour of panel witnesses. I want to thank you for the time you took to address this very important issue on bee health for the bee industry but also for all of agriculture.

Thank you again. I'm sure we will speak again.

Before everybody leaves, we will be talking about the travel budget for fall travel at the next subcommittee meeting on Wednesday. The letter that was recommended for PACA has been drafted. It will be circulated to every one of you. Please prepare your comments on it for the next meeting.

We'll see you on Wednesday.

The meeting is adjourned.