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Chair

Mr. Pat Finnigan

Standing Committee on Agriculture and Agri-Food

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● (1535)

[*English*]

The Chair (Mr. Pat Finnigan (Miramichi—Grand Lake, Lib.)): Welcome, everyone, to our meeting this afternoon.

I want to welcome our guests here with us today. We have Mrs. Anne Fowlie, executive vice-president of the Canadian Horticultural Council, and Dr. Peter Kevan, professor emeritus, School of Environmental Sciences, Ontario Agricultural College, University of Guelph.

We also have, by teleconference—we don't have video, unfortunately—Dr. Chris Cutler, associate professor at the Department of Environmental Sciences, Dalhousie University. We also have, by teleconference from Red Deer County, Alberta, Mr. Kevin Nixon, chair of the Canadian Honey Council.

Welcome to our session about bees—not the birds and the bees, just bees.

We will start with Dr. Chris Cutler.

We will give you 10 minutes to introduce yourself and your knowledge about the bees. Thank you.

Professor Chris Cutler (Associate Professor, Department of Environmental Sciences, Dalhousie University, As an Individual): Thank you, Mr. Chair and members of this committee for the invitation. It's a pleasure and an honour.

Dr. Kevan and I spoke previously two years ago now to the Standing Senate Committee on Agriculture and Forestry on the importance of bees and bee health in the production of honey and food in Canada. It's good to see that this is still of interest and this work is ongoing.

I'm not exactly sure what you're looking for from me, so I'll try to hit on a number of different things. I probably won't take the whole 10 minutes.

Just as some personal background, I'm an associate professor at Dalhousie University. As you've heard, I'm at the faculty of agriculture, which is in Truro, which is about an hour north of Halifax. My speciality and background is in entomology, which means I work with insects. I do a lot of different things with insects including basic ecology and biological control and behaviour, and I do a lot of work with bees as well. I have a particular interest in insect ecotoxicology, which essentially looks at the effects of poisons on insects, mainly in an agricultural setting, and that mainly concerns pesticides. This includes studies into the hazards and risks certain pesticides pose to pollinators, including some of the ones I'm sure you've heard of like the widely used and debated neonicotinoid insecticides.

I can start off with a couple of comments about the importance of bees in general. I'm sure the other people who will be speaking will talk to you about that as well. Most angiosperms or flowering plants that are on the planet require pollination by pollinators and most of those pollinators are bees. About three-quarters of the food crops that we depend on require bees as well. One-quarter of the crops that we consume come from bees in terms of our dietary needs. A lot of crops that are grown do require bees, but it's not our actual calories that come from those crops. It's at a high value in Canada, approximately $1 billion in Canada. It's probably fifteenfold that in the U.S. in terms of the value of pollination to agriculture. It's a huge amount worldwide. It's estimated to be in the hundreds of trillions.

We've heard lots over the years and of late about struggles of pollinators and this is due to honeybees and wild bees. These are well documented. We hear a lot about honeybees, but not so much about the wild bees. These are large numbers of organisms. We have about 20,000 species of wild bees on the planet. We have close to 1,000 in Canada, and these are also very important for pollination of our crops. We've heard a lot in the media and through science about the different factors that are affecting honeybees. A lot of these same things affect wild bees as well.

Habitat destruction is a key culprit, I think, for problems that seem to be facing a lot of organisms on this planet. I think whether you're a polar bear in the Arctic or a frog in the Amazon, the destruction of habitat in terms of their nesting sites and the food that they eat is critically important. A lot of the urbanization and agriculture can create ecological deserts that can be very detrimental to pollinators.

Having said that, a lot of agriculture obviously is of benefit to bees and pollinators. I think that's something that is often forgotten. There are many parasites and diseases that plague managed and wild bees. We can talk more about them and there are others I can speak to as well, things like varroa mites and nosema.

The weather is a major factor up here in Canada for bees. It's a real problem for overwintering honeybees. Of course, pesticides are a concern as well in some cases. It's important to bear in mind that we're not simply talking about pesticides that the farmers use, but also the pesticides that beekeepers themselves use. As I mentioned, there are pests and parasites that do affect beekeeping and beekeepers have to try to control those diseases and pests.

● (1540)

I will say a couple of other things. It's great that we have these committees that are addressing these issues and looking into these issues, but these problems are not new. We've known about problems with honeybees for many decades in many different parts of the world. The problems do seem to be increasing of late, but these problems have been going on for many years.

We've also known about declines in wild bees for many years as well. The media has latched onto these ideas, but you can find literature going back decades talking about changes in the distribution and decline of certain wild bee populations. It's important for people not to make blanket statements that all bees are in decline and all bees are dying. The situation varies greatly. Even in Canada, with honeybees, it's inconsistent across the provinces and from year to year what's going on with the health of honeybees.

The other thing I'll say is that we have 20,000 species of wild bees on this planet. In terms of their population dynamics, the long-term community distributions, and the prevalence of different species, we know next to nothing about many of them. We do have a good handle on some species, such as bumblebees, which are big and fuzzy and tend to be well studied, but we lack a lot of baseline data for a lot of the bee species that are out there. This is another cautionary message about making blanket statements about all the bees being in decline. In my opinion, we lack a lot of data. A lot more data is needed on this.

I think there's a lot of good research going on right now. I have benefited a lot from initiatives like the Canadian pollination initiative that Dr. Kevan led. I think it was a great initiative, and I think we need more of that long-term, broad-stroke type of work being done across the country.

I also think that a lot more work needs to be done in the extension area. I think education is the issue that needs to be tackled among beekeepers. We have some excellent beekeepers, but we have a lot of new beekeepers coming online, and beekeeping is difficult. I keep bees myself. You can have hives in the exact same location, and half of them will live and half of them will die. I won't be able to understand why. In the Atlantic provinces, the three maritime provinces have initiated a tech transfer team for apiculture with two new positions in place, and with advisory stakeholders, provincial governments, beekeeping industry producers, and academic areas, as well. There's a strong sense among all of those groups, including myself as part of it, that beekeeper extension work is key in terms of improving the health of honeybees across the country.

Perhaps I'll leave it at that. If anybody else has any questions, I'll happily answer them, of course.

The Chair: Thank you, Dr. Cutler.

I'd like to say that's formerly known as Nova Scotia Agricultural College, my old alma mater, so it's fun to have a conversation with you.

Mr. Nixon and Mr. Kevan were here the last time, and we want to thank you for appearing again because we did not get a chance to have you as witnesses. Next will be a conference call with Kevin Nixon, chair of the Canadian Honey Council, from Red Deer, Alberta.

Mr. Nixon, you can have up to 10 minutes to give an opening statement.

● (1545)

Mr. Kevin Nixon (Chair, Canadian Honey Council): Thank you, Mr. Chairman and committee members, for asking me to appear. I'm sorry I couldn't be there. As mentioned, I did get out there last time, but it's a busy time. I am the chair of the Canadian Honey Council, which is the national industry organization for the honeybee industry. I'm a commercial beekeeper, as well, so it's a busy time of year right now.

I did send a briefing paper. Was it shared with the committee?

The Chair: Yes, by all means.

Mr. Kevin Nixon: The paper copy was distributed to the committee as well?

The Chair: We couldn't get the translation done soon enough, so we couldn't distribute it.

Mr. Kevin Nixon: Okay. It's not a problem. I'll go through it and try to be halfway speedy.

I'll tell you a bit about myself. I've been a beekeeper for 20 years. Some people think I'm young. Maybe I look younger than I am, but I started when I was 16, and I'm currently 36 years old. I'm involved both in honey production and in supplying bees for pollination services to the hybrid canola seed industry.

Honeybee farms are large and intensive operations nowadays. Most people don't realize that. We have just as much capital invested in our operations as some large cattle and grain farms. There's a common question that I get asked. People often can't believe that I do this for a living and think that I must do something else on the side, but beekeeping can be done on a fairly large scale. People just don't seem to get that.

As we all know, honeybees and their health have been in the headlines numerous times over the past few years. Unfortunately, most of the media have not been willing to present all the factors affecting bee health but are aiming at only a single factor, that being pesticides. In my opinion, this is very short-sighted. There are many factors affecting bee health. I'd like to share a few of them with you and let you know that there's still much more work to be done. There is some ongoing work, which is very good as well.

Some of the main factors that affect bee health are pests and disease, habitat and nutrition, pesticides, of course, and weather and climate.

For pests and disease, across the country most beekeepers on the whole still say that the varroa mite is the biggest challenge we face. So far, we have effective controls, I guess, to control this mite. It's a parasitic mite that lives on the honeybee. If you make your hand into a fist and put it on your chest, that is representative of what a varroa mite is on a honeybee. It's quite a significant pest, and it sits there and feeds off the hemolymph, the bee's blood. These mites are very aggressive when they do get control, and they lead to viruses that are just as devastating as the mite, or more so, as it takes so much time to get the viruses under control. If not managed well, the mite and the viruses can decimate a beekeeping operation quite quickly.

At this point in time, the industry feels that we do not have enough effective control products in place to be sustainable. We seem to get a product and use it until we get signs of resistance, and then we're scrambling to find an alternative. We feel that we are near the end of the time period of our current control, and so far there is no equal replacement. There are less than a handful of products being screened; however, no silver bullet has been found. This is very frustrating for beekeepers, as individual operations have millions of dollars invested in their livestock, and the research community is not able to find solutions or wait till the last days to try to find one.

There are other pests and diseases that are also very important to manage, but I won't bog you down right now with descriptions of them all. We have work to do on others as well.

In terms of habitat and nutrition, this has become a very high need for our bees and has been recognized as a very significant factor over the past few years. Just like us, when bees eat a well-balanced diet, they are healthier and able to fight off potential threats as their immune systems may not be so suppressed. Supplemental feeding of our bees has become one of the larger expenses of operating our farms. All regions of Canada go through periods throughout the year when they need to feed their bees; however, it seems that we are feeding more than ever before.

There are three factors that we believe have led to this change. There are changes in agricultural practices and in crops being grown, and weather and climate may also play a role. Farming has become so efficient and clean. Years ago, fields used to have weeds, which are typically a great source of food for bees. Equipment has become very large and efficient. What used to take a farmer three or four days, such as cutting a field of alfalfa, can now be done in a half a day. We also see a lot of monoculture, which greatly reduces the diversity of soil sources. We now see many shelterbelts and hedgerows being removed in order to make the land more productive, and irrigation pivots have extensions on them to get deep into corners that before would have been left to native pasture in some cases.

We also see changes in the vegetation in natural areas and lands under management by municipalities. Where we used to see naturally occurring soil varieties, we just don't see them in abundance anymore. Many municipalities and counties are also doing a lot of vegetation management to control unwanted growth; however, it usually takes out the flowering vegetation, which also may be good for bees.

● (1550)

We know pesticides are meant to control pests. Yes, some pesticides can be toxic to honeybees, but there are also many pesticides out there that are safe to use around bees. When products are used responsibly and the label is followed, most risks can be alleviated.

In Ontario, the provincial government has taken steps to reduce the use of neonics, as some beekeepers there were pointing to the use of neonics as the reason for their high winter losses.

In 2012, Ontario had the lowest overwintering losses in Canada. They then experienced three years of very high losses. Interestingly enough, from all reports to date, Ontario and Quebec had some of the lowest winter losses across the country this year, and these new regulations are only being put into practice as we speak right now. This just goes to show that there are many factors affecting bee health, not just one.

The value of honey also plays a role in bee health in Canada. In good times, beekeepers are able to invest more into their livestock. In a down market, it becomes more difficult. Over the past 15 months, we have seen honey prices drop over 50%, and there are beekeepers who are still sitting on last year's production. Meanwhile, we see honey being imported into Canada and the U.S., our biggest customer, from places such as India, Myanmar, Thailand, Spain, and Vietnam, which are all suspect countries for supplying transshipped or adulterated honey from China.

The need to monitor bee health is higher than it has ever been. Bees are transported across the country for pollination, and we import stock from other countries. Provincially, there have been many monitoring or surveillance programs. However, the information that is collected is not done in a standard procedure across all the provinces and cannot be recognized for things such as international trade and evaluating risk assessments.

The Manitoba Beekeepers' Association, along with the Alberta Beekeepers Commission, has initiated a project to create a national database on bee health. We are currently in year three, and by the end of year four there will have been samples analyzed right across the country. This work is being done by the relatively new National Bee Diagnostic Centre, which is in Beaverlodge, Alberta.

The National Bee Diagnostic Centre has also been a valuable tool to the industry. Beekeepers are able to submit samples for analysis in order to find out what the health status of their bees is within the samples. Personally, I have used this lab, and I am part of the research program that is being done.

Just as an aside, it is very interesting to get the live reports from the lab there, because they do PCR analysis and find these viruses for which we don't see physical symptoms in the hive. However, it is showing up on a PCR analysis, so we know it is hiding there in the background, and maybe we never get rid of that. We have to be really cautious and keep a close eye to see those physical symptoms being displayed. Hopefully we don't.

The Canadian Honey Council also rolled out a new manual to producers this winter, which incorporates the national bee biosecurity program, as well as an on-farm food safety program. We hope this will be a valuable tool for producers.

Some provinces have tech transfer teams in place, and some provinces are just introducing one, as we heard from our previous speaker.

In the Maritimes, the beekeeping industry is well positioned with the growth of the blueberry industry. It will be a challenge for the beekeeping industry to meet the needs, and there will be health challenges that go along with that, as anytime there is a large-scale pollination event, it is a melting pot for pest and disease exposure.

The bee health round table has been an extremely positive step for our industry, which has facilitated bringing stakeholders together to discuss challenges around bee health and to try to find some solutions.

● (1555)

The Chair: Thank you, Mr. Nixon.

We are out of time, so we are going to have to move on to the next witness, but you will certainly have a chance to answer the questions our members will ask later on.

Mr. Kevin Nixon: Thank you.

The Chair: Thank you.

Now we will move to Ms. Anne Fowlie, executive vice-president of the Canadian Horticultural Council.

Ms. Fowlie, the floor is yours for 10 minutes.

Ms. Anne Fowlie (Executive Vice-President, Canadian Horticultural Council): Mr. Chairman and committee members, thank you for the opportunity to appear before you to speak within the context of your study on bee health monitoring in Canada. The Canadian Horticultural Council is no stranger to this committee, and as always, appreciates the chance to come before you not only to raise matters of concern but also to highlight successes in this sector.

In the past, we have presented to you on matters such as innovation and the importance of the agri-innovation program, which enables the success of science clusters; Bill C-18, the Agricultural Growth Act, and specifically the provisions of the Plant Breeders' Rights Act, which were so important to us, as well as a range of competitiveness matters.

I had the opportunity to come before you earlier this month to speak about the Perishable Agricultural Commodities Act and the critical need for appropriate financial risk mitigation tools for Canada's fresh fruit and vegetable farmers. We appreciate the work that you do and the thoughtful questions that you always have for us.

We represent growers, shippers, and packers from across Canada primarily involved in the production and packaging of over 100 different fruit and vegetable crops from apples to zucchini. I say that only because often people will say to me that I must know a lot about flowers. I don't. I always make sure to identify us as the fruit and vegetable guys.

Our active mission statement focuses on four key words: innovative, profitable, sustainable, and generations. We represent members on a number of key issues such as crop protection, access to a consistent supply of farm labour, food safety and traceability, fair access to markets, and research and innovation. Our mission is to ensure a more innovative, profitable, and sustainable horticultural industry for future generations.

I mentioned successes, and we certainly do have a demonstrable record of success in this regard, which includes the seasonal agricultural worker program, which was established 50 years ago this year due to the vision and leadership of the day. The Government of Canada and the CHC were signatories to the original bilateral agreements with the Caribbean countries, and today nearly 20,000 workers come to Canada to work on horticultural farms for the season.

We also developed and established the CanadaGAP on-farm food safety program for Canadian fruit and vegetables. It was the first Canadian food safety program benchmarked to the global food safety initiative. We are an active participant in a number of value chain round tables, including the bee health round table.

We are one of Canada's largest agrifood industries and our overall objective is to ensure further growth for the sector. Today farm-gate sales with additional processing, supply chain, and induced impacts create an economic footprint of over $11.4 billion in real GDP. We are a key contributor to Canada's overall economic well-being and the health and wellness of Canadians.

I will now shift to the topic at hand, bee health. It's no secret that the agricultural industry relies heavily on both crop protection products and pollinators such as bees. The horticulture sector is an exemplary model of successful coexistence between farmers, production, and a robust pollinator population. That coexistence is an absolute must: no bees, no food; and conversely, no crop protection management products, no food. Apples, blueberries, and cherries are particularly striking examples of this concept. The blueberry industry, for example, is very dependent on pollination. One of our members, Gary Brown, who is the blueberry technical support manager at Nova Scotia's Oxford Frozen Foods, notes that on average they have about 100 million blooms per acre, so bees are very, very important to getting their crop pollinated. When you stop and think that every berry and every apple is the direct result of pollinator activity, that's a lot of busy bees.

I'm not a scientist and therefore will not be presenting to you in that capacity. There are certainly others among the witnesses who can do that far better than I. The Canadian Horticultural Council firmly believes in a science-based approach to topics such as bee health. We rely on research, innovation, and a conducive regulatory environment to bring forward new technologies and chemistries.

Pollinators are an important part of agricultural success in Canada. Canada's horticultural sector is an admirable model of the coexistence that does exist and that can in fact thrive among producers, bees, and production practices. As we heard from one of the previous witnesses, fortunately hive numbers have increased significantly over the last number of years and are the highest they have ever been, according to Stats Canada. In 2014 there were over 8,000 beekeepers in Canada keeping over 600,000 hives. That is a significant increase over the number of hives kept in 2000.

● (1600)

Recent specific incidents of Canadian decline in honeybee and other pollinator populations have generated considerable scientific and public interest. Although a number of factors are seen as potential contributors to these declines, no single factor has been identified as the main cause. It is fair to say, though, that our northern climate and harsh winters may well be the most significant factors impacting bee survival.

Insecticide-treated seeds have been used for about a decade. Farmers choose to use them because they provide valuable protection to crops during the early stages of development. This results in healthier plants and increased yields. But another result is also a lesser need to spray an entire field with an insecticide to fend off pests. Insecticide-treated seeds limit the quantity of pesticide used, provide targeted protection of crops against insects, and reduce the potential of exposure of non-target organisms.

Certainly there's been much attention to neonicotinoids, but they have become an important pest management tool in horticulture, including their use in integrated pest management programs, as they represent an effective means to control targeted insects and pests during the crop production season.

Experts agree that over the last number of years there have been concerns raised both in Canada and in other countries about long-term pollinator health. Canadian and other bee researchers overwhelmingly agree that the main stressors to bees are pests, parasites, diseases, inadequate diet, and weather. The international research community has been working to determine and characterize the impact of all of these factors.

Both bees and pesticides play a critical role in agriculture. Bees pollinate many important crops while pesticides protect the crops from pest, disease, and damage. The plant science industry is committed to ensuring that both bees and agriculture coexist and thrive. This coexistence is possible and aided through increased communication. We've heard of some of the initiatives that are currently under way. They are positive and exciting.

Health concerns in managed bee populations are not unique to a specific province or provinces. Some provinces' problems have been facing beekeepers in other areas of the world, including the United States and Europe. Canada's pest management regulatory agency is also working with a range of organizations, including the U.S. EPA and counterparts in Europe and other areas, to look at the effects and understand and assess the impacts of pesticides on pollinators.

The pest management regulatory agency is also working with Agriculture and Agri-Food Canada—as we've heard—provincial governments, grain growers, beekeepers, and the pesticide industry to determine what other options exist that would protect honeybees, including other pollinators and the environment, while allowing for the continued use of seed treatments for corn and soybean. In fact, a recent PMRA report on seed treatment found that the class of products in question did not pose a risk to bee health.

Certainly, pollinator health is a complex issue that is impacted by multiple factors. By focusing exclusively on pesticides, the potential to understand the impact of other contributing factors is being overlooked. Farmers understand that pollinators are essential to having healthy crops. More than half the bee colonies in Canada contribute to the pollination of canola each year. Pollinators are also needed for the production of other key crops, and certainly many of those are horticulture crops. Many organizations have collaborated to develop best management practices that are realistic solutions for growers to follow to help protect pollinators during spring planting season.

In August 2013, a*Time Magazine* cover article put the critical importance of honeybees and other pollinators into a meaningful, everyday context. You can thank the western honeybee for one in every three mouthfuls you'll eat today. Canadian horticultural producers know that there is a need for both crop protection products and pollinators. The loss of either can have devastating consequences for the industry and also for consumers.

Some of our members are the biggest clients of commercial beekeepers in the country. In fact, one of the big issues, particularly for the horticulture sector, is the lack of available bees for pollination. One thing is very clear, and that is beekeepers, horticultural producers, and other stakeholders are working together to find a fair and reasonable solution that meets the needs and protects the interests of all parties affected. Our sector is fully committed to doing so.

● (1605)

In closing, growth opportunities lay ahead for both producers and beekeepers. Colony numbers continue to grow and demand from our industry is also growing, so a healthy industry is essential. It looks like we are collectively on target to achieve this.

I have no doubt that the commitment from each, as well as from the other relevant stakeholders, will ensure the opportunities are realized as we collectively and collaboratively focus on real strategies to grow the industries.

[*Translation*]

The Chair: Thank you, Ms. Fowlie, for your presentation.

We will now move on to the next witness.

[*English*]

I have had a great conversation with our final presenter, who dropped in at my office the other day. I don't think you can find a more passionate person regarding bees, and he is certainly a great scientist.

Mr. Peter Kevan, you have the floor for 10 minutes.

Dr. Peter Kevan (Professor Emeritus, School of Environmental Sciences, Ontario Agricultural College, University of Guelph, As an Individual): Thank you very much, Mr. Chair, and for your hospitality the last time I visited. It was a great pleasure to be able to talk to you, and it is an honour to be able to address this committee formally.

I will just give you a little bit about my background. Very often people think of pointy-headed professors as not being very practical. I was one of the founding members of the Pikes Peak Beekeepers Association in Colorado, and I still am a member of that association and I taught beekeeping to many people there.

I am presently the president of the International Commission for Plant-Pollinator Relationships, which has a special working group on bee health that will have its next meetings in Seville, Spain, in 2017. It answers to the European and Mediterranean Plant Protection Organization and provides advice to them on bee protection and bee monitoring and pollinator monitoring, particularly in Europe.

I was also the scientific director of the Canadian pollination initiative, an NSERC strategic network that brought in $5 million over five years. That lasted from 2009 until about 2016. More recently I've been on the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. Its major report will be forthcoming very soon from the program on pollination and pollinators.

I have a very broad spectrum of interests in pollination and also in beekeeping. I taught the introductory apiculture course at the University of Guelph for about 25 years.

There are various aspects of beekeeping that need monitoring, and I have restricted my remarks and the material that I sent to the clerk to what is needed in monitoring. As we have heard from the other witnesses, we need to keep healthy bees.

We have heard that in Canada we do not seem to have the international problems that are really creating a stir in a lot of the press. We hear this from international agencies, as well, that North American beekeeping is in decline. We have heard—and this is correct—that beekeeping in Canada is quite healthy and overwintering losses in the last year.... Before I came today I spoke to Rod Scarlett, from the Canadian Honey Council, about losses across the country. He indicates that in fact they are well down in Quebec and in Ontario, although they were very high in Ontario, particularly last year. They are a little higher in Alberta than would be desirable, but nonetheless they are manageable. This is important.

Certainly the issues with monitoring honeybee diseases and pests are important, and the Canadian Association of Professional Apiculturists and the provincial apiarists across the country do a bang-up job of that. That is very well handled. As we have heard there is probably the need for greater harmonization across the provinces so that we can make better comparisons to understand in more depth the differences that may be regionally affecting our nation.

The problem of pesticides to beekeeping has been poorly monitored and documented. The issues with neonicotinoids certainly have caused major disagreements and the ground table has been one of the places where those disagreements have resulted in the situation being clouded by emotionally expressed opinions, backed up with some facts, some factoids, and some fallacies. We are not getting a very good picture of the actual problem, unfortunately, because of the way things are unfolding. Everybody has a stake in it and we understand what those stakes are and that everybody's stake is legitimate, but there has to be some sort of balance, which seems to be somewhat lacking. Maybe we're approaching some balance there. I haven't served with that round table for some time.

Certainly the issues of intensive agriculture that we've heard about are important and they include agrochemical uses, not just insecticides but also herbicide use and also the issues with genetically modified crops.

● (1610)

In terms of the problem associated with the herbicide-tolerant crops, such as Roundup Ready, that's fine, but it cleans the fields out because the weeds don't come in, and we heard about the importance of weeds to bees and beekeeping. Very clean fields are not a very healthy place for bees, except during the period in which the crop is in bloom. When there is no bloom, there's nothing for bees, wild bees or honeybees, so this is a bit of a problem.

One of the things we do hear about, and this came up in the statistics from the Canadian Honey Council and from the Canadian Association of Professional Apiculturists as to the three reasons for overwintering losses. A major one was starvation. Starvation is a management problem. Again, it was brought up that, yes, we probably need to look into some of the management issues. That was brought up particularly with the remarks about increased need for extension. We're seeing that happen in the Maritimes now with their tech transfer team being established. We can expect that to happen and some greater harmonization, particularly through the Canadian Association of Professional Apiculturists.

We really do need a systematic way of monitoring management practices, again, so we can make comparisons between the regions in Canada to try to understand what can be done better here or there. I have said this to people like David Hackenberg in the United States and to American colleagues, “Why don't you people look north where we're not having the problems?” They might say, “Well, I don't know the answer to that.” It's as if I'm from a different planet when I say that.

The Mexicans are not having problems with their beekeeping either, but they're dealing with Africanized bees, the so-called killer bees. That's a different quintal of fish, to use a Newfoundland expression.

Certainly, part of the starvation issue is diet. As was pointed out by one of the other witnesses, we're having to feed our bees more and more with either a pollen substitute, pollen supplements, and a lot of sugar as syrup, in order to keep our bees through the winter and to give them the strength, particularly in the latter part of the winter when the bees are building up their populations at a time when there's still snow on the ground and there's nothing for them to eat. They have to be fed at that time of year, or the feed has to go on in the fall in preparation for a long winter.

I have found in my experience—and I'm sure I will be unpopular for saying this—that the beekeeping industry is rather conservative and is rather dismissive. Beekeeping equipment by and large has not changed, at least in the field, for about 150 years. We're still using equipment that was designed by Lorenzo Langstroth about 150 years ago and has been adapted a little bit. I think there are some new approaches that could be taken, that need to be taken.

The other issue I have found, because of my international involvement in pollination and bees, is that over the last decade-plus Canada has been disconnected from the international community to a large extent, except through the academics and to a lesser extent through the provincial apiarists and the Canadian Association of Professional Apiculturists. I really think it's important for Canadian beekeeping to become more cognizant of the big program called COLOSS in Europe, based in Switzerland. Perhaps the Liberal campaign platform and the Senate reports from 2013 and 2015 will be able to take us in that direction.

Thank you very much, Mr. Chair.

● (1615)

The Chair: Thank you, Dr. Kevan.

We'll proceed with questions for our panel. I might add that Dr. Cutler might not be with us until the end, although we'll see how the time goes.

We'll start with Mr. Maguire for six minutes.

Also, please identify who you want the question directed to because we have some witnesses on teleconference.

Mr. Larry Maguire (Brandon—Souris, CPC): Thank you very much, Mr. Chair.

It's my pleasure to be on this committee today to take part in this debate. I come from Manitoba and there are a lot of bees there. In my own area I have relatives who are in the bee business and certainly have done a lot of research in overwintering way back into the 1970s. Mr. Howard Turnbull was one of them at the Brandon research station, and some of the others have worked over this period of time and kept that family business going up to today in his grandson's hands. This is certainly a concern, bee transportation, bee movement, and of course the diseases that are becoming a great concern.

I want to go back to Mr. Cutler and look at how you see research having a bigger impact on this. Because it's pretty broad, I would maybe open up that question to all our participants.

Prof. Chris Cutler: I'm sorry, what was the question again?

Mr. Larry Maguire: It was about the research. There's a whole host of areas that we've been looking at, but what do you think are the most important areas of research that need to continue to be done in this whole area?

Prof. Chris Cutler: If we're talking about honeybees, I think it's interesting that some of the things we've already alluded to.... We know some of the key culprits of weather, starvation that relates to weak colonies going into the fall and poor queens, and those types of things. Those factors have been identified, but it seems to me in terms of the research the attention tends to go in other directions.

We've heard about the neonicotinoids, and I've done a lot of work in that area. I don't want to say there needs to be less restriction in that area, but I think there needs to be more in the other areas. I think the media has exacerbated that issue, and there's a lot of Facebook science going on out there. I think it's important for people to be skeptical about some of the things you hear in terms of the research that's produced. You only tend to hear the bad news stories, but there's a lot of good stuff going on.

Overwintering does continue to be a major problem. I was talking to a beekeeper on Prince Edward Island last week as part of that tech transfer team I referred to. They're struggling with that, and I think that perhaps we need some work in basic IPM, or integrated pest management. We need, as Dr Kevan alluded to, some research on basic practices and what's going on. We sometimes don't know what beekeepers are doing. I think that's critical in order to identify exactly what the potential problems are.

When I think about things like integrated pest management in the field, monitoring for pests is a key part of that. If you look at the most recent overwinter report from CAPA, the Canadian Association of Professional Apiculturists, and if you look at something like varroa mite, which Mr. Nixon referred to as a key problem in Ontario, for instance, less than 60% of beekeepers were monitoring for varroa mite, yet almost 100% were treating for it. There's a bit of a disconnect. We're having these prophylactic applications against problems that may not even be there.

I think a lot of that extension of research could be useful in looking at what management practices are under way for pest control, how nutrition affects the health of bees going into the fall, and how it affects their coming out in the spring. Others may have comments on that, as well.

● (1620)

Mr. Larry Maguire: Thanks. They'll have an opportunity to participate on that as well.

Kevin Nixon, you talked about the biosecurity program that was produced last winter by the Honey Council, and we have Dr. Kevan here as well. I wonder if you could expand on the work you see that's important that has been done and what more needs to be done.

Mr. Kevin Nixon: This biosecurity program is a fairly thick document. It's voluntary for beekeepers at this time, but it touches on a lot of issues, and there is some overlap with some food safety. We've tried to condense it into a user-friendly single manual.

There has been a reasonably good uptake so far for beekeepers, but we still would like to see a lot more uptake. The Canadian Honey Council is going to each provincial industry organization to try to roll this out and get beekeepers to know about it, to know it exists, to try to adapt it and to adopt it, and to use it in their operation. It's a valuable tool with suggestions for how to monitor and to try to take an IPM approach to controlling pests and disease.

The Chair: Thank you, Mr. Nixon.

Thank you, Mr. Maguire.

We'll now move on to Mr. Longfield for six minutes.

Mr. Lloyd Longfield (Guelph, Lib.): Thanks, Mr. Chair.

Thanks to all the witnesses and returning witnesses as well, especially Dr. Kevan. It's always great to have any time with you at all. I always feel there's a lot more to be said in every conversation I have with you, and it's great to have you and Guelph, and your team in Guelph working around the world.

You had mentioned right at the end of your comments about the role that Canadian scientists could or should be playing in the world that they're not currently playing. Could you expand on that? You also mentioned something about the Liberal platform, which caught my attention. How could the government assist in filling some kind of void that you started to talk about?

Dr. Peter Kevan: It's a pleasure to answer your question, Lloyd.

I think there are a number of opportunities there, and I have noticed over the years, particularly with respect to pollination issues in agriculture and pollination issues in general, that Canada has not really been present except through the Canadian pollination initiative. We were very fortunate and I suspect this was a typographical error. We were encouraged or it was recommended that we get industry funding to match the NSERC funding. It wasn't required. I think somebody typed that wrong, but of course NSERC was obliged at that point to say, “recommended”.

We were able to bring in a lot of outside funding but not from the major industries. Certainly one of the issues with Canadian involvement in pollination in beekeeping and with the horticultural industry as well has been really a lack of buy-in into pollination and into beekeeping, because beekeeping is not a wealthy enterprise. It doesn't have a lot of money to kick in. In the horticultural industry, on an average, I would suggest that the growers are making seven times as much money as are the beekeepers from the point of view of what the bees are contributing to the growers' crops.

I think there's an issue in there with respect to some economic evaluations that haven't been done, and I think that might be something that could be encouraged. Then I certainly think it's getting involved in international development. I don't mean in the old IDRC-CIDA type of thing, but in the international milieu with that. The new comprehensive trade agreements are going to come up, and they're going to affect the beekeeping industry and our grower industry as well because of regulatory issues that are going to come along that are associated with that. I think we need to engage internationally to find out what's going on in other countries.

At the intergovernmental panel, I was the only Canadian who was there. I was not able to get any funding federally or provincially to attend. I had to find my own funding. The University of Guelph was generous enough to fund a half of one of three trips. The rest of the money I had to find on my own, and of course, I dipped into my own pocket as well. So that's important.

Certainly, we should be more engaged with the international commission and the working group on bee health, and make sure that we have people other than just from the pest management regulatory agency who attend those meetings. They are more a type of spectator, listening to what the wind is.

Is that a general impression?

● (1625)

Mr. Lloyd Longfield: That's great for three minutes and 24 seconds, and valuable information. We have so little time to expand on that, but you mentioned a Senate report in 2013, and maybe that's something we also need to include in our study. We'll ask the clerks to help us pull that forward as well, because what we're wanting to do is add value to this conversation. I love the comment from the witness on the phone about “Facebook science”.

Chris Cutler, I think that was you who used that term. I wonder whether you think the Ontario government has maybe followed some Facebook science and whether you have an opinion on whether the focus on reducing the neonic pesticides by 80% by 2017 is going to be an investment worth making.

Prof. Chris Cutler: I don't want to speak too much about the Ontario government's decisions. Again, I do work in pesticides and pesticide risk assessments, but I also do work in biological and ecological controls and whatnot, so I'm not a pesticide guy per se. I completely understand the value of reducing pesticide inputs. I think that's an admirable goal regardless of the bee story, so to speak. It's important for people to realize that in Ontario and elsewhere, we actually have a tremendous reduction in pesticide loading into the environment. I think that was mentioned previously by a representative from the Canadian Horticultural Council.

In terms of the neonics, which are used as seed treatments, I believe in 2009—I'm just going by memory here—there was one-fifth the amount of neonicotinoid insecticide input in the entire United States as there was organophosphorus pesticide input for the single state of California. We're talking about a 50% reduction—a fiftyfold reduction—so there's a lot less pesticide going into the environment.

The Chair: Thank you, Dr. Cutler.

We will now move to Madame Sansoucy.

[*Translation*]

Ms. Sansoucy, you have six minutes.

Ms. Brigitte Sansoucy (Saint-Hyacinthe—Bagot, NDP): Thank you, Mr. Chair.

Thank you to the witnesses who shared their comments by teleconference. They provided a good overview of bee health issues and the multiple factors causing those issues.

I represent Saint-Hyacinthe—Bagot, in Quebec, home of a number of major beekeepers, but also many farmers.

My first question is for Mr. Kevan.

Last week, the Federal Court ruled that Canada must review over 350 pesticides used in the country. A number of groups said that the Canadian government therefore needed to conduct a special review. You spoke about the importance of international treaties and noted that, according to the Federal Court, some pesticides used in Canada are banned in Europe, including atrazine, which has been banned in Europe since 2004.

Can we take the opportunity to conduct a review? You said we are dealing with a great deal of misinformation and misconceptions on the subject of neonicotinoids. What is said is often prompted by special interests. Some producers in my constituency say there are few independent studies or more neutral positions to use as a reference. You said that balance was lacking.

Whether through a pesticide review that must be conducted by the government or through other means, how could we encourage better research?

What do you think about the review?

● (1630)

[*English*]

Dr. Peter Kevan: My French is not up to replying to you in French. I'm sorry.

Ms. Brigitte Sansoucy: It's okay.

Dr. Peter Kevan: Your questions are extremely interesting. Certainly they have been of grave concern to me, as a Canadian, for a long time. I think we need to somehow take the parties with agendas, particularly the profit-motive agendas, away from being in charge of research that is of societal importance, and certainly the insecticide question is of great societal importance.

We have gone through a long period when people like me, who have wanted to do research perhaps involving pesticides and pollination, have not been able to get the funding because the industry doesn't want the answers to the questions, frankly. The policy within NSERC, and also at the provincial level, has more and more gone that in order to do the research, you should have industry buy-in. I don't oppose the industry buy-in. I've benefited from that myself. Four private companies have been spawned from my lab, so I certainly appreciate the private sector. At the same time, it has gone to the extent that it is almost impossible to ask objective questions, in an objective way, with the current research policies in Canada. I think there needs to be a disconnection made there in order to get back to some objectivity.

I think that is the big problem. Asking the difficult questions is difficult. They're difficult questions, and so is getting the answers. But if the industry takes it.... I have worked with industry scientists. I take a question to them and they say, “Yes, Peter, we would like to get an answer to that.” They take it to their policy and legal people and hear, “Oh, no, we don't want an answer to that question” because it might have repercussions on their image and profitability, if the answer comes out in a direction they would not like. That is certainly a problem.

In Canada we have additional problems, because most of the companies involved with these sorts of things are multinationals. Canada is really at the mercy of the U.S. and of the international headquarters. We tend to be on the bottom of the totem pole.

I think a number of things like that need to be addressed at the policy level. I'm not a politician, and I'm not really a very good diplomat either, but I think that's certainly one of the ways in which we need to get at some of the pesticide issues and perhaps some of the other issues that might have more implications where the private sector is having undue influence.

● (1635)

[*Translation*]

The Chair: Ms. Sansoucy, go ahead.

Ms. Brigitte Sansoucy: Thank you, Mr. Chair.

I hope that a number of researchers like you will have access to funding in the next few years and will thus be able to help us.

The Chair: Thank you, Ms. Sansoucy.

[*English*]

Ms. Lockhart, you have six minutes.

Mrs. Alaina Lockhart (Fundy Royal, Lib.): Thank you.

I have a question for Chris Cutler to start, and possibly a little further on too. The riding I represent is Fundy Royal in New Brunswick, just to give you some background. A few of you have mentioned the Atlantic Canada tech transfer team, and I'm wondering if you could elaborate on that. What was the origin, what are they doing, and are there best practices that could be shared?

Prof. Chris Cutler: This is a pretty new initiative. I think there are a number of factors. As was alluded to previously, one of our major commodities in this region is lowbush blueberry, and it is a growing industry. As was also mentioned, there's a strong relationship between pollinators—honeybees—and that industry, so there's an understanding that we need more information.

There's also growing interest in beekeeping in the area. On our campus we have a modern beekeeper extension course that's offered throughout the summer for four different modules over four different weekends from March to September, I believe, and it's been sold out over the past three years with a cap of 25 students.

There's a lot of interest in beekeeping, but few avenues to get training and education. I'm the only entomologist on my campus. I'm the only person who does any work with bees. There's an understanding that we need other people to do that type of research and outreach, so the provinces collectively got together with producers—growers and beekeepers—academics, and our current extension people to create these two positions to work on pollination issues with beekeepers and growers.

The problem is that it's only for the next 20 months or so, so we're going to have to acquire more funding for that going forward.

Again, it's just the recognition that there's a lot of interest growing. There's a lot of need, and not a lot of sources to get that information from. I think Canada in general really lags behind in the extension area in many different sectors, not just beekeeping. There's a real need to create that research and the extension education as well.

Mrs. Alaina Lockhart: Thank you.

Dr. Kevan, did you have any insight into that tech transfer team and the potential there?

Dr. Peter Kevan: Thank you, Mr. Chair.

I do have some insights. I think I can say proudly that one of the most successful tech transfer teams was initiated in Ontario and came about as a result of the activities of the Ontario Beekeepers' Association. That started at least 15 years ago and is still ongoing. It is an extremely valuable adjunct to the beekeeping industry in Ontario.

It was extremely powerful in its early days, and extremely useful more recently with the neonic discussions. There have been some ups and downs and people with alternative opinions, etc., coming on, so there's been a bit of debate within the organization as to how it should position itself with respect to the beekeepers in Ontario. As in all grower groups, politics can enter into it, particularly with these emotional issues.

I think Ontario can be proud, and certainly in the United States, people were looking very closely at the tech transfer team in Ontario, getting speakers from Ontario to go and say how it was done. We've seen that also followed up a little bit in Europe, with similar kudos to what we've done. As Chris says, yes, let's hope that the Atlantic provinces can put this together for more than the next 20 months. It is a great initiative that needs to be fully supported.

Alberta has an excellent tech transfer operation through its provincial apiarist. Certainly Saskatchewan is really on top of it as well, and I can say that with equal pride, because both of those provincial apiarists came through my lab. Manitoba has a very good record through the University of Manitoba and through its provincial apiarist going back a very long time, as was alluded to by Mr. Maguire

It's a really important thing, and the more we have the tech transfer teams set in place across Canada, the more we can harmonize the monitoring that is going to be so important to understanding the future of the business, not just in beekeeping but also in pollination.

● (1640)

The Chair: Thank you, Dr. Kevan.

Thank you, Alaina.

Now we'll move to the second round, for six-minute questions.

[*Translation*]

Mr. Drouin, you have six minutes.

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

[*English*]

Dr. Kevan, I'll ask you this first, and I would also encourage those on the phone to answer. I can't see you, but I'm all ears.

You said there needs to be greater harmonization to monitor bee disease. How do you see that? How do you see in Canada a greater collaborative approach to ensuring that we have the best practices, and that best practices are shared across this sector?

I'll ask Dr. Kevan first and then those on the phone.

Dr. Peter Kevan: I think we have the infrastructure there. We just need to give the green light to the provincial apiarists and the bee inspectors working across this great country, along with the Canadian Association of Professional Apiculturists, and we need to give them the mandate to go ahead and actually do that, and give them some facilities to be able to do that. I think we have it there. It's just that we have national problems that are now being recognized as national problems rather than just as provincial problems.

Of course, beekeeping like agriculture is a provincial jurisdiction in many respects. It isn't a federal jurisdiction, so the harmonization between the federal activities and the provincial activities could be brought about through this infrastructure. We have in Alberta, as was already mentioned, the bee disease diagnostic clinic, in Beaverlodge, which I think is a fantastic stride forward through the Alberta initiative. Also in Brooks, Alberta, is the diagnostic lab for monitoring diseases in leafcutter bees, which are extremely important economically, particularly in the prairie provinces of Manitoba and Saskatchewan, and increasingly so in Alberta.

I wouldn't be the person to say how to do it, but I think there are lots of people there who would get together with great enthusiasm to try to get it into place.

Mr. Kevin Nixon: Perhaps I could just jump in and make a quick comment.

At the bee health round table, we do have a couple of representatives from CAPA, and the provincial apiarists as well, and there has been some harmonization of national surveys by the provinces so that the data is collected in a uniform way. A project has also been done through the bee health round table, with Les Eccles from the Ontario tech transfer team, to pull together a best management practices manual for both growers and beekeepers for national use.

● (1645)

Prof. Chris Cutler: I don't have much to add. I think the wheels are turning for that. If you look at the most recent overwinter report from CAPA, there is a more comprehensive set of survey questions that are going out to beekeepers. I think that data is being generated right now. In the Atlantic provinces, again it kind of comes down to boots on the ground. There are a lot of hives and a lot of beekeepers, and getting people to coordinate and collect those samples and that data, and to make sure that data is accurate has been the challenge. Hopefully, with the implementation of our new tech transfer team, we'll have better data going forward.

Mr. Francis Drouin: Great, thank you.

Dr. Kevan, you touched on a buzzword that rang a bell with me. I think what you mentioned was innovation on the beehive. From your experience, do you know best practices of other countries and how they invest in their sectors? You also touched on the point that beekeepers don't necessarily have the same revenues that other sectors in the agricultural domain have. What would you recommend we look at in terms of providing the sector more research dollars, and in a sense providing more innovation dollars, so we can help them?

Dr. Peter Kevan: Let me address that by giving you some examples that I understand. I'm sure there are other examples that I don't know about.

The Hungarian beekeepers get from their government enough money to buy the pollen substitute that they need to bring their colonies healthfully into production each spring. That material that the Hungarian beekeepers get is milled in Toronto. There is an export opportunity there for that material, which is exported by the thousands of tonnes around the world, but I don't think is being used as well as it might in Canada. I say that because that particular pollen substitute was developed in my lab. That's why I know about it.

There are other pollen substitutes out there that could be used. That's an innovation. We did receive money from NRC in order to do that. That was through an IRAP grant that was through the Ontario Beekeepers' Association. That was a synergy.

The Chair: Thank you, Dr. Kevan.

[*Translation*]

Thank you, Mr. Drouin.

[*English*]

Mr. Arnold, you have six minutes.

Mr. Mel Arnold (North Okanagan—Shuswap, CPC): Thank you, Mr. Chair.

I thank all of the witnesses for being here today.

I was a small-time beekeeper at my home. I had about 10 or 12 hives, so I became fairly familiar with some of the disease and mortality issues. Most of that was before the issue of neonicotinoids came up. Bees are very complex. They're individual organisms that really make up one entire organism. It's amazing how intelligent and interactive they can be.

Is there any indication of differences in percentages of colony mortalities in relation to hive density per hectare? Do we see a higher percentage of mortalities where there is a higher hive density than there is in areas of lower hive densities?

Does anyone have information on that? I'm not directing it to anyone in particular.

Prof. Chris Cutler: That's an excellent question and one I hadn't really thought of before, except for the fact that there is a lot of work in the very initial stages looking at carrying capacity. For instance, in Nova Scotia, we're asking the question of how many hives we can accommodate in terms of food that's available for bees. That gets down to your question: if you have a high density of hives in a certain location, is there enough food for them all to feed on?

I'm not aware of any research that has looked at that question, but it's a good one. Again, it's one that is just starting to be looked at right here now in Nova Scotia.

● (1650)

Mr. Mel Arnold: The reason I bring it up is that I'm a follower of wildlife, wildlife health issues, and conservation. We definitely see higher incidences of transmittable diseases, infectious diseases, when wildlife populations are sometimes artificially or naturally overabundant, possibly beyond the carrying capacity of the quality of the food resources. That was why I was asking that question about overloading certain areas for certain specifics because bee health is reliant on so many different, minute portions that it's pretty hard to monitor.

I know there have been some measures to prevent transportation of diseases such as limiting colony transportation, inspections, and so on. Measures initially started particularly around the varroa mites and now with the small hive beetle. Have there been any studies done on that part of it? Is there any good information that has been effective in some of these mass colony die-offs?

That's to anyone who may have knowledge of it.

Mr. Kevin Nixon: I guess some measures were brought into place for small hive beetle control over the last couple of years. It was mainly found in Ontario, but I guess there were some finds in British Columbia last year as well.

Bee health overall does not seem to be directly related, like mass die-offs, to areas where there's higher bee movement. I believe Ontario moves in the neighbourhood of 30,000 hives to the Maritimes for blueberry pollination. In Alberta, about 80,000 hives are moved to southern Alberta for canola pollination for seed production, yet beekeepers who are sending these bees into these high-density pollination situations are not necessarily the ones experiencing the higher losses.

I guess that's my answer to that right now.

Mr. Mel Arnold: Thank you.

This study is really around bee health monitoring. Are there different results or is there more usable information coming from small or large apiarists? Are there differences that way? I know with our local bee club, when I belonged, there was a fairly good exchange of information internally among members, but I don't know if that always got up to the provincial apiarists' level. I'm just wondering if the information coming in is available and is being shared efficiently.

Mr. Kevin Nixon: I know that over the past couple of years, with the huge growth in beekeeping, it's mainly been urban and hobby beekeeping where there's been a huge interest across the country. The provincial apiculturists have done a good job, a great job, and they continue to do so, but it puts extreme pressure on these provincial apiculturists to maintain this growing group of beekeepers. As we've heard, beekeeping is very complex. It's not as easy as it seems or as people may think.

It's a concern to large commercial beekeepers as well. If this group does not pan out as they had hoped and we end up with a bunch of abandoned bee equipment around the country, it will be a risk factor to those who are continually keeping bees.

The Chair: Thank you, Mr. Nixon, and thank you, Mr. Arnold.

Mr. Peschisolido, you have six minutes.

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

Guests, thank you so much. Your comments have been very helpful to me. I've been trying to wrap my head around an issue that I've discovered very recently is very important.

I want to follow up on Mr. Drouin's question about our federal nature here in Canada. The anecdotal conversations I've been having with folks in the past few days seem to be that there is a problem in Ontario but not so much in the Prairies. Is that accurate? If that is the case, I'm wondering what best practices we as a government can implement to deal with the "problem", and to address the differing nature of our country—Alberta, Saskatchewan, and Manitoba versus Ontario, versus the Atlantic, versus my neck of the woods in B.C.

This is to any of the witnesses.

● (1655)

Dr. Peter Kevan: I can take a crack at that.

Making interprovincial and inter-regional comparisons will be very useful for giving insights into how best to tweak our management practices. I do say "tweak", because Canadian beekeepers by and large are very successful. It's a very successful industry. It may not be a very wealthy industry, but it is a successful and well-managed industry with a great deal of harmony. That's brought about through the Honey Council and the meetings they have with the Canadian Association of Professional Apiculturists. I'll admit that I haven't been to those meetings in recent years. I've been busy with international things. But I think is an important component whereby people are exchanging a lot of information. That is a healthy sign.

I'm not sure if I answered your entire question.

Mr. Joe Peschisolido: That is extremely helpful.

Just to follow up, you're right. It's a healthy industry. What strikes me is not so much the honey industry, or the beekeepers industry, but just the importance of pollination to the overall agricultural sector. With canola and soybeans you are looking at billions of dollars, almost $8 billion for canola and $2.5 billion for soybeans, which is part of the pollination process.

There is one thing I'd like to ask. Is that just through wild bees or is that planned? How is the relationship between bees, pollination, and not honeybees and beehives but just general horticulture?

Dr. Peter Kevan: That I can answer. Worldwide, where experiments have been done with canola, it has been shown that adding managed pollinators to the mix will raise production between 10% and 15%. There have been trials done in Quebec out of the Université de Montréal in the past, but most of that scientific literature is not taken up by the agronomists, who ignore it. I don't understand why because there are a good number of papers.

On soybeans, that may be a bit of a different problem partly because of the pollination mechanism in soybeans. They pollinate within the flower. There is no movement of pollen outside the flower necessarily in order to get a set, but in Brazil there have been studies that said if you add bees to it you get an 8% percentage yield boost. Similarly with sunflowers, there's an up to 20% yield boost, so a number of crops that are recognized as being self-fertllizing, self-pollinating, still benefit quite a lot, significantly, from the activities of pollinators. It's not that you need the pollinators to get a crop. It's that you get a better crop, a bigger crop, better seeds, and so on, by adding pollinators to the mix. That adds some complexity to it.

In Europe there have been interesting studies very recently done, and worldwide, through the global biodiversity initiative out of the Food and Agriculture Organization in Rome, showing that wild bees are contributing 30% or even higher amounts to crop yields than just managed pollinators, so it is a combination of the two things that seems to be providing that. But that's very new information. It's only just been published in the last couple of years.

● (1700)

Mr. Joe Peschisolido: Dr. Kevan, I was intrigued by your statement that industry would prefer that some of your insights or research not be done. Would you like to elaborate on that?

Dr. Peter Kevan: I'll give you one example without naming the industry. I proposed years and years ago to do some work on learning and cognition in honeybees that would be given minute doses of neonicotinoid pesticides. I've done work with the institute of neurobiology at the Free University of Berlin on learning and cognition in bees. I was told by the scientist privately—he's now retired from the company—that yes, they were interested in having the work done, but if the work that was done had shown detrimental effects on learning and cognition on honeybees, then it would look bad on them. The original imidacloprid thing—

The Chair: Thank you, Dr. Kevan.

Dr. Peter Kevan: —was French "mad bee disease", and it had to do with exactly that question.

The Chair: Thank you, Mr. Peschisolido.

That might be a question that Mr. Arnold would want to pursue.

It seemed interesting, but anyway it's your time, for five minutes.

Mr. Mel Arnold: I thank Mr. Gourde for passing his questions on to me.

On the question of bee stress from a number of different sources, it always seems to be the actual cause of colony collapse. Whether it's massive colony collapse or stress, from what I understand, bees typically don't die from one particular cause, but from a combination of stresses, whether it's disease and lack of food, or a combination of diseases and other stresses such as temperature, humidity, and so on.

Hive monitoring also includes stress on the hives. I'm wondering if there have been any studies done on the stress caused to the hives through closer monitoring, or more repetitive monitoring, or through the movement of hives, with multiple moves throughout the year from different pollinating sites. I know that in many areas bees will move from initially an apricot orchard, into possibly a cherry orchard, and then to an apple orchard. They end up with multiple moves that are stressful for the bees. I'm wondering if there have been any studies done on the additional stresses and the related mortality possibilities.

Prof. Chris Cutler: I can say a few words about that. I think there has been some work done to show that obviously the more stress that bees are under in terms of transportation and confinement on transport trucks, and in terms of moving from agricultural commodity to agricultural commodity, the more it can be very hard on bees in terms of spreading diseases and whatnot.

At the same time, bees can also be very healthy in those situations. I've been involved with a couple of pretty big honeybee studies that were looking at the question of neonics and canola. We intensively collected data in terms of monitoring the bees, including measuring different endpoints, their reproduction, their weight, and the numbers of adults, and collecting samples for disease, surveillance, and whatnot. The bees still do very well, and those were very stressful conditions where it was very hot. Any given colony may have been open for even an hour, and our bees were quite strong and vigorous. In one of the studies, the overwintering mortality was very low.

Even though those things can stress bees, the bees are also quite resilient and can power through that type of monitoring.

Mr. Mel Arnold: The next question is in regard to monoculture such as the canola crops, corn crops, and so on. I'm wondering again about differences there in hive mortalities in larger apiaries that are moved to these monoculture crops. Do we see any differences there versus hives that may be moved from one scenario to another for pollination and multiple sources of feed through the year?

● (1705)

Mr. Kevin Nixon: From personal experience in being involved in the canola pollination industry, I'll say that we move bees and have heavy stocking rates compared to a honey production scenario. Frankly, we want to get them in and out as quickly as possible, because in southern Alberta when the canola is in bloom the bees do well, but once the canola starts shutting down, there is nothing else out there but prairie grass.

Unless they are along a river valley or something, where there is some natural vegetation and some diversity, they can go downhill if they're out in the prairie. There are large populations at that time of the year, and they need an abundant food source. If they're not able to get that they can go down quickly, so we try to get them out as soon as we can in those situations. There are definitely regional differences, so I don't want to speak for those across the country, but in that situation we do know that it can lead to poor fall nutrition, which will lead to higher winter losses.

Mr. Mel Arnold: Thank you.

The Chair: Thank you, Mr. Nixon, and thank you, Mr. Arnold.

[*Translation*]

Ms. Sansoucy, you have three minutes.

Ms. Brigitte Sansoucy: Thank you, Mr. Chair.

My question is for Ms. Fowlie.

You said the producers have been increasingly using integrated pest management for their crops. However, the Pest Management Regulatory Agency published a document on best management practices for protecting pollinating insects when planting treated seed.

Can you tell us about the producers' integrated management practices?

Ms. Anne Fowlie: Thank you for the question.

[*English*]

When it comes to integrated pest management—and I won't speak necessarily specifically to the treated seed—the ways they approach that and the strategies around the mix of tools or chemistries they use are very important. It's so important that there be the range of availability of chemistries, whether old, new, or non-traditional. It's that mix that really makes everything work. One of the fears that certainly our sector has, and I know others share too, is that as products are being re-evaluated as part of the regular cycle that the PMRA conducts, there is a loss of chemistry. It's a huge fear, because one of the big pieces of integrated pest management and pest management strategies in general is resistance management. You need a mix of tools so that you can mitigate resistance.

[*Translation*]

Ms. Brigitte Sansoucy: Do the producers have access to proper information and adequate training?

Supply is another issue. A few years ago, it was practically impossible for producers in Quebec to find and purchase untreated seed. There was none on the market. The agriculture minister sent a letter to all producers asking them to use treated seed only as needed. As a result, the next summer, untreated seed was more widely available.

Do you think producers have access to proper information, and adequate training and supplies? Do they have easy access to this alternative?

[*English*]

Ms. Anne Fowlie: Sometimes there are alternatives, but they're not necessarily viable alternatives. That's the importance of having things that work and being able to have some choices.

In terms of information, I think communication is hugely important. All of the witnesses have spoken in one way or another to that importance. Certainly, one of the things we've seen, particularly on the pollinator file over the past number of years, is how information has become more widely available and shared. Even as interest was mounting and there was a lot more media interest and so forth around the matter, you could talk to some beekeepers, large and small, who weren't having the issues or the losses being faced by some others. In part that was due to availing themselves of information that was available. I think a lot of the tech transfer and the good old-fashioned extension work that we're starting to see go on is going to be highly valuable in how things are managed going forward and the successes that will be gained.

As I indicated in my comments, it's a growing industry, so there are a lot of opportunities, not only for the producers but also for the beekeeping and pollinator communities.

● (1710)

[*Translation*]

The Chair: Thank you, Ms. Fowlie and Ms. Sansoucy.

Mr. Breton, you have three minutes.

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

Thank you to all the experts who made statements today.

I listened attentively to the presentations and read all the documents sent to us. I must admit that I'm a bit of a novice when it comes to bee health. Of course, the experts seated now at both ends of the table know more about it. I appreciate all your comments.

However, the following information struck me. According to Statistics Canada, from 2009 to 2013, the number of bee colonies increased each year across Canada. I know that there are all sorts of problems, including issues with nutrition, illness, habitat, and harsh winter conditions, but I would simply like to understand certain aspects of the situation.

Do we want more bee colonies, even though their number has increased each year since at least 2009?

The discussions today suggest that we need to go even further. I think there may also be natural reasons why bees are disappearing in some cases. That said, I would like an opinion from one of you.

[*English*]

Mr. Kevin Nixon: Again, I think we want to see the industry continue to grow, for sure, and we have the capacity in Canada to have many more bees than we do.

In the Prairies we have 20 million acres of canola. If we wanted to have half a hive per acre to increase the yield of canola, as we heard, that could happen, the potential is huge.

The growth in the blueberry industry, specifically eastern Canada, the needs that are coming in the near future, and how we as an industry are going to meet those needs is the challenge we're facing. We don't have an answer today on how we're going to meet those needs. There are some options being tossed around, but I think for sure we have a huge opportunity to continue growing this industry, and why not?

The Chair: Thank you, Mr. Nixon.

[*Translation*]

Thank you, Mr. Breton.

[*English*]

Mr. Maguire, you have three minutes.

Mr. Larry Maguire: Thank you, Mr. Chairman.

Dr. Cutler, I think it was you who mentioned there are 20,000 species of bees on the earth, 1,000 of them here in Canada. Of course, we're talking about the wild versus the honeybees that I think you mentioned as well.

Do you see any difference in the strength of breeding in those different types of bees?

Prof. Chris Cutler: Sorry. The strength of breeding...?

Mr. Larry Maguire: The strength of the bees themselves, between the wild and the honeybee, the ones that may be in our apiaries today. They are overwintered. They are brought through, but is there any research or evidence you could give us in regard to the strength of any of the different species and their ability to overwinter and produce?

Prof. Chris Cutler: In terms of the wild species, do you mean?

● (1715)

Mr. Larry Maguire: Yes.

Prof. Chris Cutler: Bees have been evolving throughout Canada and elsewhere for thousands and thousands of years, so they are well adapted to deal with the climate and the stressors that occur naturally and to successfully overwinter.

The wild bees are, perhaps, a little more vulnerable in some ways in the sense that most of those wild bee species are solitary. The social nature of honeybees is not unique, but the vast majority of bees are not social.

In that sense, you have a huge honeybee colony, and there's strength in numbers so to speak, so that colony can kind of buffer itself against the stresses it may encounter, whereas with some solitary species and wild species.... For instance, you may have a bumblebee queen that's flying around at this time of the year, and she is the actual individual that's trying to found and establish the colony in the wild, so she's a lot more vulnerable to potential stresses, whether they occur over the winter or during the season.

I guess that would be one of the main differences. I don't know if Dr. Kevan has something to add to that.

Dr. Peter Kevan: Only a quick point, in Saskatchewan there were breeding programs for the alfalfa leafcutter bee, which led to some changes in the nature of the bees that were commercially available and improved the industry.

There's a certain amount of selection and geographic separation, particularly between the northern stocks of leafcutter bees and the southern stocks. The southern stocks tend to have more diseases than the northern stocks. By the sort of shake-hand agreement among the producers, they tend not to shift their bees around too much because of the selection, the advantages of one particular biotype in one part of Saskatchewan versus another part of Saskatchewan.

I think that's a good example of a wild bee that has been taken into domestication and is used practically and has been selected and bred for particular beneficial characteristics.

The Chair: Thank you, Dr. Kevan, and thank you, Mr. Maguire.

Mr. Larry Maguire: Thank you.

[*Translation*]

The Chair: Ms. Sansoucy, you have three minutes.

Ms. Brigitte Sansoucy: Thank you, Mr. Chair.

I'm not sure who can answer me, but I'll let you decide.

Health Canada adopted risk reduction measures to protect bees from exposure to neonicotinoid dust. Health Canada also banned certain neonicotinoids because they pose a risk to both bee and human health.

How did adopting risk reduction measures result in fewer instances of bee mortality?

[*English*]

Prof. Chris Cutler: In my opinion, it's too early to tell if there's been any effect. I would be surprised if the changes had any effect on the honeybee.

Mr. Kevin Nixon: I would agree with that.

[*Translation*]

Ms. Brigitte Sansoucy: You are saying that Health Canada's measures had no effect.

[*English*]

Prof. Chris Cutler: In my opinion, I don't think that the neonicotinoid insecticides are a major cause of problems with bee health. Again, out west in Alberta, as Mr. Nixon has alluded to, practically 100% of canola is treated with these chemicals, and beekeepers intentionally put their hives in those fields.

In other situations, in corn-growing states along the corn belt, there are bees as well. There doesn't seem to be any correlation between whether or not there's a corn field present and the survival of those bees. That work has been looked at.

Personally, I think the situation in Ontario is a very political and an emotional one, but I'm not convinced that it will have any effect on honeybee health.

Mr. Kevin Nixon: I just want to make a point to clarify. You're asking about the measures that Health Canada put in place. Are they measures that Health Canada has put in place or are you referring to measures that somebody else has put in place?

● (1720)

[*Translation*]

Ms. Brigitte Sansoucy: Yes, I was referring to Health Canada.

[*English*]

Mr. Kevin Nixon: As far as I know, Health Canada has done some studies and re-evaluations on the neonicotinoids. As far as taking measures goes, the industry has taken some measures to help reduce risks with seed flow lubricants and planting equipment, but I would agree with the earlier statement that it's too early to say if there will be any effect.

[*Translation*]

The Chair: Thank you, Ms. Sansoucy.

[*English*]

Thank you, everyone. That concludes our rounds of questioning.

If the committee would permit me, I would just like to ask maybe one question.

Ms. Fowlie, you got off easy today. I want to ask you a question.

Ms. Anne Fowlie: It's okay.

The Chair: It's with reference to Dr. Kevan's point in his opening remarks that in a sense, this is bringing the producers thousands and thousands of dollars in profit, so why are they not being more active or contributing more to the well-being of the bees?

Ms. Anne Fowlie: I'll try to answer that but it will be with limited knowledge, because I'm not, perhaps, as familiar with the economics of beekeeping on either a large scale or a small scale as I should be.

I definitely do believe, though, that industry producers, producer groups, are contributing in various ways to advancing the cause, if you will, whether it's through their participation in the round tables or through some of the work that we've been investing in through science clusters, which have ancillary impacts on how crops are treated. I'm thinking of some of the work we've done, particularly in Nova Scotia, through the science cluster, on spraying and monitoring techniques.

I'm perhaps not as informed as I should be to adequately answer that question, but I do believe that there is commitment and investment.

The Chair: Thank you.

I'd like to thank the panel, those who are here, Dr. Kevan and Ms. Fowlie, and also the others for taking the time, especially the beekeepers because I know you are having a busy day. I certainly want to thank you on behalf of the committee for participating today. We really appreciate it. It's been very informative to our study on how to improve bee health in Canada.

[*Translation*]

Thank you everyone.

[*English*]

I would ask the committee to stay. We have a little business to attend to, and it will take a few minutes.

Thanks again.

[*Translation*]

Ms. Anne Fowlie: Thank you.

[*English*]

The Chair: We will move to our business portion.

It's a motion that we need to adopt. We had a budget back when we had the TPP witnesses, and we had not approved a budget to have the witnesses brought in here. It's a standard amount of $9,600 that we need to approve, and if ever we would go back to that topic there would probably be some monies left. Whatever is left after the expenses have been paid, we will have there if we should go back to the TPP.

I need a motion to adopt this budget to pay our bill.

Mr. Joe Peschisolido: I so move.

● (1725)

(Motion agreed to)

The Chair: Thank you all for the meeting. We shall see you at the next one.

The meeting is adjourned.