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• (1100)

[English]

The Chair (Mr. Kody Blois (Kings—Hants, Lib.)): Good morning, everyone. We'll get this meeting number 16 of the House of Commons Standing Committee on Agriculture and Agri-Food called to order. We will be continuing our study on the environmental contribution of agriculture.

I have a few housekeeping notes, colleagues. Today's meeting is taking place in a hybrid format, pursuant to the House order of November 25, 2021. The proceedings will be made available via the House of Commons website. So you are aware, the webcast will always show the person who's speaking rather than the entirety of the committee. As we know, no screenshots or photos are permitted during the proceedings and, of course, for those in the room, let's make sure that we're being mindful of the health protocols that are established by the Board of Internal Economy.

I certainly look forward to welcoming our guests. For your benefit—I believe you are all in the room, so it's exciting to have you back—in terms of language, you can toggle between English and French on the headset in front of you.

Pursuant to Standing Order 108(2) and the motion adopted by the committee on Monday, January 31, 2022, the committee is resuming its study of the environmental contribution of agriculture.

I'd like to welcome our first panel today. Joining us in person we have Susie Miller, executive director of the Canadian Roundtable for Sustainable Crops; and Erin Gowriluk, who is the executive director of Grain Growers of Canada. We have Fawn Jackson, who is the director of policy and international affairs with the Canadian Cattlemen's Association. I also have Duane Thompson, who is the chair of the environment committee for the Canadian Cattlemen's Association.

Each of our organizations will have five minutes for opening remarks.

Colleagues, one thing I just wanted to highlight is that there is a possibility of a potential procedural vote this morning. If you'll indulge me, I was wondering if we might be able to get unanimous consent that, if the bells do start for whatever reason, you can give me discretion to get us closer down so we can continue our work.

Mr. Dave Epp (Chatham-Kent—Leamington, CPC): Mr. Chair, if I may, I believe there are a number of us who would prefer to vote in the House, so if we could have enough time that we could get back to the House, it would be appreciated.

The Chair: Okay. I think the establishment by our whips is 15 minutes. When the bells do ring, Mr. Epp, is it okay that we wait until about 15 minutes before the vote and then I would release us?

Mr. Dave Epp: That would be fine. Thanks.

The Chair: Okay. Thank you, everyone.

We'll move forward with opening statements by our witnesses. We have Ms. Miller, I believe, first up.

You have five minutes. It's over to you.

Ms. Susie Miller (Executive Director, Canadian Roundtable for Sustainable Crops): Thank you.

Thank you so much for the opportunity to appear before you, and actually in person. It feels good.

I'm Susie Miller, executive director of the Canadian Roundtable for Sustainable Crops. We're an organization that is committed to pursuing opportunities and meeting the challenges of the sustainability of the production of cereals, oilseeds and pulses in Canada. Our members are grain farm organizations, input suppliers, grain marketers, food companies, conservation associations and researchers. We cover all of the stakeholders.

You've already received an extensive amount of excellent advice. Rather than repeating that, I thought I could focus my remarks on what grain farmers have told us about sustainability challenges and opportunities. We conducted conversations with them in winter last year and winter this year. We talked to over 600 individual farmers.

What they're saying is this. First and foremost, they want to be recognized for their contributions to climate solutions and for actions that they've taken and continue to take to reduce greenhouse gas emissions on their farms and to sequester carbon in their soil. They feel somewhat like they're the villains, and they see themselves more like heroes. Good environmental practices like soil health have always been important to crop farmers. They're proud of the work they do. They want to be seen as professionals who have the expertise to undertake the right decisions.

They've told us that there are many ways to reach the end goals of soil health and GHG emissions reduction. It's important for them, for government and also for their customers not to arbitrarily dismiss certain practices as inadequate, to favour one practice over the other or to select a specific practice as "the" solution. They think their ways of reaching the end goal should be based on science, and they want the calculation of costs and benefits and impacts on them. Research is critical to identify not only best practices but also how to limit the risks of implementing new practices. They expressed that new and improved technology can help them in where they want to go.

They also told us—I'm sure you've heard this before—that the differences between regions and between farms must be recognized. One size does not fit all is something that we heard quite frequently. One example they raised quite often was no till. As a beneficial practice in western Canada, it could be more challenging in eastern Canada with wetter climates. Cover crops, for example, are challenging when the ground is frozen by the time you harvest.

Farmers have also told us that modern farming practices and wildlife can and do coexist. When it comes to nature-based solutions, they see some significant cost or lost revenue that can conflict with their risk management and viability goals. They would like to see these costs quantified and considered when supporting nature-based solutions.

- (1105)

They expressed most of all that they really do want to contribute. They feel that they do already, but they want to contribute more. They see potential conflicts, or more like trade-offs, between various priorities of the Government of Canada and the people of Canada that implicate them: reducing greenhouse gas emissions from farms, increasing the feedstock for renewable fuels, Canada's contribution to world food security and the farm sector's contribution to the economic growth. They're not certain how they can help meet all of those at the same time.

They would like changes to the market, which does not value the contribution they're making to climate solutions or consider the investments that farmers have to make. They worry about the loss of their ability to use modern farming practices that help them improve soil health and sequester carbon. They fear, as I'm sure you're aware, additional regulations or targets that are arbitrarily imposed, from their perspective, without due consideration of their ability to meet them.

Most of all, they want to be an active partner with governments and customers in determining the best way to make their contribution to climate change mitigation.

Thank you.

The Chair: Thank you, Ms. Miller. You were right on time.

Ms. Gowriluk from the Grain Growers of Canada, it's over to you for five minutes.

Ms. Erin Gowriluk (Executive Director, Grain Growers of Canada): Thank you, Mr. Chair and committee members, for the invitation to address all of you today on this topic of importance to farmers, to Canadians and to the world.

It is very nice to have the opportunity to see many of your faces in person now. Thank you for that.

My name is Erin Gowriluk. I'm executive director of the Grain Growers of Canada, a national association that represents the interests of about 65,000 grain, pulse and oilseed farmers in every province across the country.

As the voice of Canada's grain farmers, I would like to stress that our members view their relationship to the land as paramount. Their livelihood depends on it. Leaving a healthy and sustainable environment for future generations is what farming is all about. Today I'm proud to be able to share that story with all of you.

In anticipation of my appearance here today, I reached out to our members with an invitation to share their sustainability stories, along with some concrete examples of methods and practices they have used to increase productivity on their operations while protecting their viability. Our members responded resoundingly and with enthusiasm.

First and foremost, many of our members pointed to the significant research investments that farmers directly have made to improve the sector's environmental contributions. Long before any significant political pressure or policy mandates, farmers invested in sound science aimed at reducing emissions as well as their carbon footprint. The reason for this is simple: It just makes sense.

In fact, our member associations have invested millions into establishing best practices in fertilizer management so that the best possible crop yields can be achieved while minimizing the crucial inputs needed to grow them. Investments in research like this make business sense just as much as they help the environment. When expensive nitrogen, for example, is lost to the atmosphere or misapplied, it also impacts farmers' already razor-thin margins.

The innovation does not stop there. There have also been significant investments made into research on how to use nitrogen more efficiently, and how to modify genetics to allow the plant to fix its own nitrogen. This has been coupled with research on how to reduce herbicide and insecticide use, all while making the plant itself more responsive and less impactful on its own ecosystem.

While this important research continues, Canadian farmers have also been on the cutting edge with their on-farm practices to ensure that the farm is efficient, profitable and sustainable. Among the many practices that were shared with me, I would like to highlight a few critical ones. They include the adoption of variable-rate technology, or “precision agriculture”, to optimize the use of seed, fertilizer and crop protection products; the adoption of new three-tier and four-tier diesel engines in tractors as well as the use of GPS technology to prevent field overlap, reducing the amount of fuel that is used; and, of course, as Susie mentioned, the widespread adoption of conservation tillage, which creates a carbon sink while increasing organic matter in the soil.

For any of the committee members who have not yet had a chance to visit a farm that has embraced these technologies, I would encourage you to do so. It is really remarkable technology that has had incredible environmental impacts on Canadian farms across the country.

I would be remiss if I did not thank you, Mr. Chair, for visiting Saskatchewan to do just that.

The reason I mention all of this is not to say that further progress cannot be achieved. Canada's grain farmers are consistently looking for the most efficient way forward. While many of these practices have come at a cost to producers, they were adopted voluntarily in the absence of any regulatory requirement to do so. That is why it is so important that we do not lose sight of the economic viability of Canadian farms. No matter where you farm in this country, you are operating on increasingly narrower margins. In fact, this year many Canadian farmers will be planting what is likely their most expensive crop.

Consider the unprecedented cost of fuel, fertilizer and crop protection products, and the global and environmental uncertainty facing thousands of grain farmers still recovering from last year's devastating drought. To meet government and industry targets, farmers will need to continue to invest in their operations and in new technologies and equipment that will make them more efficient. Farmers will make these investments when they're confident in the economic stability and sustainability of their operations. Governments can help facilitate this by ensuring that farmers have access to predictable and reliable risk management programs like AgriInvest and AgriStability.

Another way to encourage farmers to invest in new technologies and practices is by supporting Bill C-234 and providing relief from carbon pricing on natural gas and propane used to dry grain. Rebates will not make up for the costs incurred by carbon pricing.

Grain farmers are prepared to do more, as evidenced by their track record. That is why on March 28 of this year the Grain Growers of Canada announced the creation of a climate solutions initiative to help meet Canada's ambitious goal of net-zero emissions by 2050.

• (1110)

The road to 2050 will propose a path forward that focuses on innovation, research and beneficial management practices. This will boost productivity while continuing to enhance soil quality, im-

proving the carbon sequestration potential of cropland and reducing emissions.

We believe that a united approach to climate change is the strongest way forward. Rest assured, Canadian grain farmers are ready to do their part with our policy-makers and legislators as key partners. We are prepared to produce even more food while we support a growing population.

• (1115)

Thank you for your time today. I'll be happy to answer any questions you might have.

The Chair: Thank you very much, Ms. Gowriluk.

We're going to turn to the Canadian Cattlemen's Association.

Ms. Jackson and Mr. Thompson, you have five minutes collectively.

Mr. Duane Thompson (Chair, Environment Committee, Canadian Cattlemen's Association): Good morning, and thank you for the opportunity to appear before this committee.

My name is Duane Thompson. I'm a beef and crop producer from Saskatchewan and the chair of the Canadian Cattlemen's Association's environment committee. I'm pleased to have CCA staff person Fawn Jackson with me today.

The last time we presented to the committee we discussed the beef industry's contribution to environmental outcomes and outlined our robust 2030 goals. As part of the discussion, we outlined the 44 million acres of grassland under the stewardship of Canadian beef producers and how we're losing this at-risk ecosystem at astonishing rates.

With that in mind, we would like to do a deeper dive into the land use within the agriculture sector, as it's the highest correlating factor to our ability to deliver on our shared environmental commitments, including climate change and biodiversity, amongst others.

Analysis by the Nature Conservancy of Canada shows that, on average over the past 25 years, roughly 148,000 acres of temperate native grasslands have been lost through conversion each year. This doesn't include the tame pastures and hay lands, which are also being lost. In fact, a recent study by Nature United identified stopping this loss as the number one solution we have for natural climate solutions.

Naturally, we have to ask, why did this happen and what do we need to do to turn this around?

There are several reasons we saw this change and shift in agriculture use. Of course, the beef industry has had its economic challenges in the past, particularly in the early 2000s, following BSE. We saw a large economic impact that led to large land use changes that were felt for many years following. However, today, despite the beef industry being in a much stronger position economically in comparison to the BSE days, we continue to see loss of grasslands directly correlated to the shrinking cow herds.

One of the key factors is that the beef industry has less ability to manage risk associated with our sector in comparison with the cropping sector. For example, on our farm, we have more effective tools to manage our crop risks than we do our beef risks. Furthermore, our crop insurance is a cost-shared premium where our beef insurance is not. This is extremely important to our young producers and families. These factors lead to business decisions where farmers and ranchers convert land from pastures to cropland or perhaps sell for other purposes.

Today, with the demand on biofuels and crop prices as they are, there are further economic reasons for people to consider switching land use. Of course, in some cases, it might make sense to switch land use and we certainly want to leave it up to our private landholders to be able to make those decisions. However, we, along with our conservation partners, as you've previously heard, understand the immense environmental value that goes with keeping grasslands in production in Canada, such as carbon sequestration and immense biodiversity, including for species at risk.

We would suggest the development and adoption of a comprehensive land use strategy by all levels of government and stakeholders to strike a balance between urban expansion, agricultural production and environmental protection.

There are also further tools that we see as helpful to maintain grasslands, such as a national perennial forage conversion program, investments in term easements, enhancement of funding for programs that support best management practices, or programs that reward producers for carbon sequestration and biodiversity, water and wetland conservation.

In the beef industry, along with the robust membership of the Canadian Roundtable for Sustainable Beef, we have ambitious 2030 goals, including maintaining 35 million acres of native grasslands and sequestering an additional 3.4 million tonnes of carbon every year. These efforts, combined with our work to reduce our greenhouse gas intensity footprint by 33% by 2030, which I would note is certainly on the right track with exciting new feed additives, as mentioned by the CRSB at their committee appearance, have us excited about both the environmental and economic future of the Canadian beef industry.

We in the beef industry are proud to be one of Canada's largest agriculture sectors, supporting 348,000 jobs and contributing \$21.8 billion to the GDP, while conserving 44 million acres of the important grassland ecosystem that stores 1.5 billion tonnes of carbon.

• (1120)

We have much to offer, both to the Canadian economy and our environmental commitments, and we look forward to working with you on these shared goals.

Thank you very much for having us today. We look forward to questions.

The Chair: Thank you, Mr. Thompson.

We're going to move right to questions.

First up we have Mr. Epp for six minutes. Mr. Epp, it's over to you.

Mr. Dave Epp: Thank you, Mr. Chair.

Thank you to our witnesses for their excellent testimony.

I'm going to pose a series of questions and ask all three of you to respond. I'm going to pick up a comment from Ms. Gowriluk where you identified all of the practices that have come already voluntarily, and the emphasis here is "voluntarily". I've heard the term previously about cross-compliance. There are environmental goals that each of you has articulated, and the government's articulated some.

My questions are this. In your testimony here, we hear you. In your engagement with AAFC and with ECCC, do you feel you've been heard? What would be your comments on a linkage? We are moving into the year where we're negotiating the cap, going forward. What are your comments on cross-linking environmental goals and BRM goals?

Let's begin maybe with Grain Growers, please.

Ms. Erin Gowriluk: Certainly. Thank you very much for the question, Mr. Epp.

With response to the first part of your question in terms of whether or not we feel we've been heard, I think that grain growers across the country wanted to be seen as active participants in this important discussion. That's why we made the announcement we did on March 28 of the road to 2050. That's our way of saying that we can be a solutions provider and want to work closely with our government partners to ensure that the policies and programs that are developed in this space reflect the best interests of Canadian grain farmers.

At the same time, we want to ensure that they're practical and can be applied, because to Ms. Miller's point, some of those practices or the programs that are currently being funded don't necessarily make sense on farms across the country. This is our way of saying that we're going to have some solid recommendations with respect to what you can expect from Canadian grain farmers, and we want to be a part of those discussions.

I think with respect to the second part of your question on cross-compliance, we think it's really important that, while we're having this conversation about what more Canadian farmers can and are willing to do in this space with respect to their environmental contributions—that's critical—we don't want to see that become criteria for or a barrier to entry with respect to the risk management programs that are so fundamentally critical to Canadian farmers across the country, especially at a time when they're facing unprecedented risks.

Mr. Dave Epp: Thank you.

Ms. Miller.

Ms. Susie Miller: To add a small amount to what Erin provided you, I think what we see from the industry sector is that there are many pressures on Environment Canada and Agriculture and Agri-Food Canada, and that it is challenging to balance them all. Lots of things have come very suddenly and haven't allowed the type of discussion that we would prefer.

What we see are attempts at being open and inclusive and allowing us to participate.

Mr. Dave Epp: Thank you.

Lastly, I'll ask the cattle folks, please.

Mr. Duane Thompson: I'd like to speak to the cross-compliance part of the question first. Cross-compliance is a challenge because, in this industry, agriculture is a system. Some of the unintended consequences of having cross-compliance across programs is that producers don't have the flexibility to optimize their systems.

By having cross-compliance, I feel that people might manage according to programs, rather than optimizing the system, which can directly affect the environment and the production system that we operate in. It's such a wide variety of production systems, even within the beef sector; never mind when you mix it in with cropping and a mixed operation.

Mr. Dave Epp: Thank you very much.

Getting in to a bit more of the specifics, I'll go to Ms. Gowriluk.

Regarding gene editing, can you describe the huge advantages, at least from my perspective, that a rapid adoption of that technology could potentially bring, both environmentally and economically?

Ms. Erin Gowriluk: With respect to gene editing and other similar tools around modern agriculture, increasingly now and especially around climate change, we need to ensure that Canadian farmers have the tools in their tool box to address the situations and challenges that they're facing increasingly now as a result of climate change.

Gene editing is just one example of the many tools available to mitigate some of those risks. One example I would provide of that would be, more recently, the widespread drought that we saw across western Canada. If you're looking at gene-edited, drought-tolerant varieties, for example, more investment needs to be made in that space. Quite frankly, it needs a regulatory framework to allow the development of those products to reach market, so that Canadian farmers are better prepared to mitigate some of the challenges they're facing with climate change with some of those new varieties.

• (1125)

Mr. Dave Epp: I have a follow-up question to that. Do you think layering on another layer of oversight at PMRA will speed up or hinder that process?

Ms. Erin Gowriluk: I'll go back to something that Ms. Miller said in her comments around what she's hearing from Canadian farmers. That is, collectively, we want to see that all regulatory frameworks are developed with science in mind. This government talks a lot about the importance of science-based, evidence-based policy and it's really important that while we have the conversation, we walk the talk.

Mr. Dave Epp: Mr. Chairman, I'm going to cede the rest of my time and bank it for the next time.

The Chair: Okay. We'll keep that in mind.

We'll go to Mr. Louis now for six minutes.

Mr. Tim Louis (Kitchener—Conestoga, Lib.): Chair and Mr. Epp, I didn't know that you could do that. I guess we have a cede bank here.

Thank you to our witnesses, both virtual and in person, for being here. I was taking notes feverishly.

I will start with Ms. Miller from the Canadian Roundtable for Sustainable Crops.

You touched on best practices, the ways of limiting risks. At the same time, you also touched on one size does not fit all. You said that no till in the west is easier than the east. You said that cover crops are harder if the ground freezes.

What is that balance? How can we strike the balance so that we can have best practices shared, but at the same time focus on regions? What are those challenges, and what are the solutions you're doing?

Ms. Susie Miller: From the perspective of the farmers we talk to, it was about outcomes. Tell us what you want, and we'll figure it out.

It's not quite as simple as that, of course. It requires research and practical application. The farm is a whole unit. It's not one particular practice or another. In many cases, like Mr. Thompson's, for example, it includes both livestock and crops that need to be balanced. It's about flexibility and understanding that there is a capacity among the farmers themselves to make a right decision if you have the appropriate information available.

Mr. Tim Louis: Thank you.

Maybe I will then skip to Mr. Thompson.

You touched on, as I was saying, the goals for 2030. You talked about maintaining 35 million acres preserved for grasslands. We talked about that ecosystem as both sequestering carbon and promoting biodiversity. For 2030, are you working backwards for that? Can we help you get to 2030? What can we do to help preserve that grassland for carbon sequestration and for biodiversity?

Mr. Duane Thompson: I think you have a good understanding of the fact that the grassland is an important ecosystem and provides so much value to the greater economy and society in general.

Number one, we have to figure out a way to promote the stabilization and prevent the conversion from further conversion because, as I mentioned, we're losing it at an alarming rate. If we had programs that perhaps showed the value of the carbon sequestration that's happening on those grasslands, then producers like me could look at that and, rather than seeding that piece of land that might not grow the best canola, we could leave it in forages, value that carbon and not promote the grain farming side of my operation. If that happens, if we take the forages out, there would be a huge carbon release, which would happen on the natural lands as well.

We have to have ways and programming that can effectively support and promote grasslands to be maintained in grasslands, just like the crop insurance and the shared premium. That would be huge, especially for our young producers, to support grasslands and beef production.

Mr. Tim Louis: Are you already able to measure and quantify carbon sequestration? Who are you working with in that case? That's one of the things we want to learn, moving forward, how we can measure those numbers so we can compensate and reward for them.

• (1130)

Mr. Duane Thompson: That's one of my pet things. The quantification of carbon and optimizing our system and optimizing the practices is really an important thing. I think the answer is, no, we're not at the point where we can quantify it effectively. I really hesitate to promote best management practices on a value basis, but I would suggest that best management practices can be suggested and then encourage a quantification of carbon sequestration. That way, everybody in their system, on their operations, can say this is what I can do for my finances and the environment and come out in an economical balance and promote the two together.

The Food Water Wellness Foundation is doing great work on quantification, and it looks like they're coming up with quite a financially viable way of doing it. I would suggest we're working towards it; however, we're not there yet.

Ms. Fawn Jackson (Director, Policy and International Relations, Canadian Cattlemen's Association): If I could just add in, Duane, I think we're working on the finer details of the quantification. We do know there is about 1.5 billion tonnes of carbon within the grasslands that are managed by beef producers, but when we go to add even more carbon through best management practices, there's further research to be done there to get it to a little bit finer detail.

What we do know is that, when lands are converted, if it's converted into a cityscape or if it's converted into some other agricultural use, about 30% to 40% of the carbon is lost.

Mr. Duane Thompson: Can I just add one more thing, please? By not promoting and not encouraging people to optimize their system on the grasslands that they manage right now, and if we develop programs that encourage new practices and people who have been doing it a long time.... We have to be very careful that we don't develop programs that encourage people like me to do something new, because I can do something new in two years. We can take forages out and put them back into forages, so we have to make sure the producers who have been managing well-managed, environmentally sustainable systems aren't discouraged from continuing that.

The Chair: Thank you, Mr. Thompson.

Thank you, Mr. Louis. We're at time, unfortunately.

[*Translation*]

Mr. Perron, you have the floor for six minutes.

Mr. Yves Perron (Berthier—Maskinongé, BQ): Thank you very much, Mr. Chair.

I'd like to welcome the witnesses and thank them for being with us today to give us their precious testimony.

Mr. Thompson, I'd like to let you continue. You say that people who already have good practices in place should be included and not discouraged. Are you thinking of a measurement system that would allow us to assess the current state of farms? You say there are techniques you don't have yet to measure carbon, but according to some of the witnesses we've heard from, the technologies are evolving rapidly, so something could be put in place in the near future.

If we devised a way of measuring the current state of each piece of land, take into account the starting point of each one and encourage those who are already doing well, would that answer your question?

[*English*]

Mr. Duane Thompson: Absolutely. That is a key point. We're getting very close with the technology. I understand that in the States there is some infrared type of technology. They do a balance of organic growth and some soil sampling, and then they can do it from satellite imagery. As I mentioned, the Food Water Wellness Foundation is getting some very good results and feeling pretty comfortable with the results.

Of course, it has to be cost-effective. They can't have people out punching soil samples and it's burdensome. At the end of the day, it has to be cost-effective because if we, as producers, are encouraged to do these environmental impacts and be sustainable, and we can quantify our carbon levels at an economic level, then we have to be the major benefactor of that. We can't have the aggregators and the system taking the lion's share. If we can be the benefactors of these sustainable environmental practices and show the results that we have.... On our farm alone, we have land that's almost triple the average organic matter. That's a key factor in sustainability, and so many things that go with that.

Yes, we have to work toward that research.

• (1135)

[*Translation*]

Mr. Yves Perron: So you would recommend that the committee consider what's been done in the past.

There are a lot of very interesting things in what you're saying. One of them is that it has to be effective.

Would you recommend to the committee that this compensation system be decentralized? In other words, this system would not be included in a government-mandated program, but rather would be tailored, on a case-by-case basis, with a local assessment. The starting point would be the ecological performance of the soil right now, if I can call it that. Then, after a period of time, the new performance could be measured and quantified.

I will give you my personal opinion and you can tell me if it makes sense. I would see this as a new AgriInvest program. The UPA talks about an agri-green program. Money would be directly available to farmers in accounts. As agricultural entrepreneurs, you could use this money to implement the next environmental innovation. This way, you could continuously improve your performance, which would be continually quantified, encouraged and compensated, in order to always go further. This would all be done in a decentralized way, though.

Does it make sense?

[*English*]

Mr. Duane Thompson: I think you and I have a lot in common that we could talk about.

[*Translation*]

Mr. Yves Perron: It's a good answer.

[*English*]

Mr. Duane Thompson: It is important that we do it on a regional basis, because regionality.... Even in Saskatchewan, production systems are.... There's such an incredible diversity of what landowners are managing. You're dead on. You're absolutely right that we cannot do it on a broad spectrum. We have to do it more locally, in a more geographical area, if you may. I like the idea of what you're saying as a potential investment.

Farmers are the original environmentalists. Our very existence depends on it. I'm fourth generation. My kids are fifth generation. I have grandchildren who are sixth generation. It's in my very best interests to be an environmentalist.

[*Translation*]

Mr. Yves Perron: Mr. Thompson, I'm sorry to interrupt. We're getting on quite nicely and could talk for hours. However, I would like to hear quickly from Ms. Gowriluk and Ms. Miller on this same issue before my time runs out.

Do you think a similar system should be decentralized?

[*English*]

Ms. Susie Miller: There are opportunities and room for both. One of the things that we did two years ago was have the University of Alberta look at the literature that was out there and the re-

search that had been done that could show the impact of different practices on a grain farmer's carbon output and carbon footprint. There was nothing.

In terms of farm practices, there has to be the basis of good science, which is very challenging to do farm by farm, or even region by region. When it comes to the proofing of those practices, demonstrating those practices and implementing those practices, absolutely. Farmers have told us that it has to be responsive to their needs, and a region isn't necessarily a province. There are differences within, as Mr. Thompson indicated—

The Chair: Thank you, Ms. Miller.

Thank you, Mr. Perron. I'm sorry. We're at time.

I'm going to move to Mr. MacGregor, for six minutes.

Mr. Alistair MacGregor (Cowichan—Malahat—Langford, NDP): That's great. Thank you very much, Chair.

Thank you to all our witnesses. I'm going to ask a question and I'd like to hear from each of you in response.

In Australia, there are efforts well under way right now to implement a national soil strategy. It's going to set out how that country values, manages and improves its soil for the next 20 years. I like comparing Canada with Australia because, of course, we're both Commonwealth countries. We both have very similar systems of government. With their capital in Canberra, their state governments have similar devolution powers to those that our provinces have.

This is really a huge undertaking. They have done it through consultation with many different stakeholders. They want to make sure that it is prioritizing soil health, that it is empowering soil innovation and stewards, and that it's going to strengthen soil knowledge and capability.

Ms. Gowriluk, maybe I'll start with you. What are your thoughts on Australia's efforts in this regard, and do you think Canada could benefit from implementing a similar strategy where we really reach out to stakeholders so that we have a united federal effort at recognizing this as being one of our most valuable resources?

• (1140)

Ms. Erin Gowriluk: Mr. MacGregor, thank you very much for the question.

I'm not familiar with the strategy itself, but based on what you've told me about it today, it's definitely something worth exploring. To your last point, though, it's critical that any time we look at a strategy such as this Canadian farmers across the country are part of the discussion. I think they would welcome the opportunity to do that.

That's part of what we intended to do, or are intending to do, with the Grain Growers of Canada road map to net zero by 2050. That is to have a national discussion with grain farmers across the country on areas where we have greater potential and we know we can do more—to identify those areas, provide some solid recommendations to the government and work closely with our government partners to ensure that policies and programs reflect the best interests of Canadian farmers. This is one area that we'll certainly be exploring as part of that discussion.

Mr. Alistair MacGregor: Ms. Miller.

Ms. Susie Miller: To your question, I would answer, yes.

The Soil Conservation Council of Canada and the Compost Council of Canada have recently published a road map to soil improvement. There's a lot of research going on, but to try to work together even to understand where the opportunities are for improvement is an excellent idea. It is certainly something in which the farmers we talk to would be very interested in participating.

Mr. Alistair MacGregor: Could I hear next from the Canadian Cattlemen's Association, please?

Mr. Duane Thompson: It would be a great idea. I'm not familiar with the Australian program, but going back to our own history even, my dad was part of the SOS program, Save Our Soils, back in the early 1980s. Farmers have made really great strides since then.

The dirt is our very existence, so a national soil strategy would be a very good thing and Canadian cattle producers could be a very important component of that.

Mr. Alistair MacGregor: There's a certain private member's bill, Bill C-203, that you might all be interested in looking at for further research.

I thank each of you for your answers on that.

I'll turn to the Canadian Cattlemen's Association. On your website, your organization has an article posted from February 22, entitled "Curbing methane emissions will take a team effort". It's an in-depth approach to the different feed additives that are under development, trying to reduce methane emissions from ruminants—from dairy and from beef cattle.

We also know that there is potentially promising research out there with the development of different genetic stocks and so on, which could provide some steeper long-term decreases in methane emissions.

When you look at the research, I know research takes a lot of time to get it right. However, when you look at the progress of research both in developing those feed additives and their approval for commercial use but also the different genetics, bloodlines, that might also yield some incredible results, are you happy with the way that research is progressing?

If there's any room for improvement, is there anything that our committee could specifically be recommending to the federal government on aiding that research even further? Does the federal government need to pay more attention to funding that research because of the potential it might yield in terms of an absolute reduction in our methane emissions?

Mr. Duane Thompson: Fawn, you're very well versed in this. Could you take that one?

Ms. Fawn Jackson: Sure.

First of all, Canada has 50% of the greenhouse gas footprint of the global world average. The reason we have that is that we've invested in research for a long time. In the research around 3-NOP, which is one these feed additives you're alluding to, one of the biggest studies was done in Canada. It indicates that around 70% to 80% of emissions may actually be able to be reduced.

We know that research works. We also know that we have to invest in it for a really long time. These are the foundations of all our environmental work. We need to make sure that we are not getting distracted by shiny stars over here and turning away from things that we know deliver long term. For us, it is going to be very key to continue to invest in A-base research to make sure that these tools are continuing to be developed because it takes a long time to develop them.

Thanks for that question.

• (1145)

The Chair: Thank you, Ms. Jackson.

Thank you, Mr. MacGregor.

We'll go back to our five-minute question period. Ahead we have Mr. Lehoux, but maybe Mr. Epp is going to be ceding a little bit more time.

I'll pass it over to you.

[*Translation*]

Mr. Richard Lehoux (Beauce, CPC): Thank you, Mr. Chair.

I'd like to thank the witnesses for being with us this morning.

I have a question for Ms. Gowriluk.

The Parliamentary Budget Officer's report states that when the carbon tax reaches its target of \$170 per tonne by 2030, it will have little effect on GHG emissions.

First of all, do you agree with this statement by the Parliamentary Budget Officer?

On the other hand, there are two options: either the money is refunded or the carbon tax is removed completely for propane and natural gas. What do you think would be the difference between those two options? What's your point of view on that?

[*English*]

Ms. Erin Gowriluk: Thank you very much for the question, Mr. Lehoux.

With respect to the first part of your question, we have to bear in mind that the carbon tax is applied to natural gas and propane used for drying grain. At this point, farmers have no alternative but to use fossil fuels. That's why we continue to support the passage of the private member's Bill C-234. I think there's acknowledgement from this government that the objective intended with that particular policy is not being achieved.

On your second point with respect to developing this rebate program that was established, ultimately the intention of the rebate was to return 100% of the funds collected from Canadian farmers and ranchers back to Canadian farmers and ranchers. What we've seen is that, while all of that money may be going out the door, the rebate is not equitable in terms of its approach to distribution. Some of our directors have quantified what they're going to be getting back in the form of a rebate. In some cases, what they'll be getting back in the form of a rebate is still below 40% of what they ultimately paid in carbon taxes.

I think there's acknowledgement from this government that the tax that's being applied is not fair and that it's not ultimately reaching its intended objective. That's why our sector continues to support the passage of Bill C-234 as the most efficient way to ensure that Canadian grain farmers, who have no alternative but to use natural gas and propane to dry their grain, do so at no additional cost, especially when you consider all of the unprecedented costs that they are currently facing.

[Translation]

Mr. Richard Lehoux: Thank you.

Now I'd like to address the issue of nitrogen fertilizer management.

Many improvements have been made and continue to be made today. Are the various federal government support programs adequate or should they be improved?

[English]

Ms. Erin Gowriluk: That's part of what we're going to be looking to do as part of our road map to 2050, which is the initiative that's currently under way with the Grain Growers of Canada. To Ms. Miller's point, we want to ensure that, as a national association, we have an opportunity to have a national conversation and ensure that the programs and funding that Canadian farmers have access to make sense in western Canada just as much as they do in eastern Canada, for example.

It's important that we're having a national conversation to ensure that the right dollars are being directed to the right policies and programs, so that Canadian farmers can take advantage of those.

[Translation]

Mr. Richard Lehoux: Thank you, Ms. Gowriluk.

I have a question for Mr. Thompson.

With regard to research and the new trend of incorporating certain food additives, do you think that the federal government is really playing the role it should be playing in supporting companies in terms of production?

[English]

Mr. Duane Thompson: The first step is to get these products licensed. If we get the products licensed and we endorse them and promote them, then business will pick them up and make them available to producers like me. There have been other products in the past that have been things that would have been very advantageous to us, but they just didn't quite fit into the criteria of...whether it be a feed or a pharmaceutical. That's the challenge right now. It's to make sure we have that category. Where government can play such a big role is to make that category and recognize the fact we have an area we can improve on that feed additives can be part of and that can have a really great environmental impact.

• (1150)

[Translation]

Mr. Richard Lehoux: Mr. Thompson, would you be prepared to recommend to the committee that Agriculture and Agri-Food Canada make the necessary regulatory changes to incorporate this category in order to give it some real meaning?

The Chair: I'm sorry, Mr. Lehoux, but your time is up.

[English]

Mr. Thompson, you can have 10 seconds if you want, but quickly because we have to move on.

[Translation]

Mr. Richard Lehoux: Mr. Chair, could Mr. Thompson send his answer in writing?

[English]

The Chair: Yes.

If you could write something, Mr. Thompson, we would welcome it.

Mr. Duane Thompson: Yes, we definitely can provide that. We would make that recommendation.

The Chair: I apologize. It's the nature of the business.

Mr. Drouin, you have five minutes.

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

I want to apologize to those who are in the room. I was looking forward to seeing you in person, but I had child care issues in the morning and I'm on deck.

To the Grain Growers of Canada, Erin, you've touched on a few points. Because we will be writing a report, when you say that farmers need to be recognized, what do you mean by that?

Ms. Erin Gowriluk: What I mean by that in terms of recognition is a couple of things. One is the direct contributions they've made in the absence of any regulatory requirement to do that.

They need to be recognized, too, during that time and going forward, for the fact that they know what's best on their farm in terms of the practices that will and will not work, what they can do in western Canada versus eastern Canada. They want to be a part of the conversation in terms of developing the policies and programs because they are prepared to do more. They have a very clear track record—and I think that's why we talk about recognition of what they've done—of significant improvements in this space. They want to be part of that conversation going forward because they have a very good sense of what's going to make sense on their individual operations.

Mr. Francis Drouin: We could assume that quantifying that recognition would be a goal. How would we quantify that recognition right now?

Mr. Thompson, you've touched on a few points. Obviously, we don't want to send government auditors on the farm to, say, take soil samples and carbon samples and say you've reduced your carbon by x amount. Are you aware of other technologies that are being developed so that we can reduce the red tape on farmers but provide that recognition?

Mr. Duane Thompson: As Fawn mentioned—and I'll let her comment on that—briefly, yes, there are products. One that was attempted to get registered a while back was a product that would make grazing legumes, which cause bloat, safe. The more vegetation we can grow, the more carbon we're sequestering, but if producers are worried about grazing vegetation that harms the animals, then they're not going to do it. However, we have an opportunity there.

Fawn, maybe you could comment on the other product, please.

Ms. Fawn Jackson: What I would say is that, while we can work on the really fine details, I think we really need to work at the big puzzle pieces. For us, we're losing grasslands at a rate that is having huge implications. Our thought is to come up with a land-use plan to figure out how to turn that trend around. We know the first tool we could do is balance the business risk management programs. Then we can think about term easements, we could think about perennial forage programs and we could think about other tools, but I think we really have to think on a big scale if we're going to reach our 2030 goal, which is to keep grasslands in grasslands.

If I'm being honest, that's the goal we have the most challenge with and we need the most help from government on.

Mr. Francis Drouin: Land use planning, as you know, is all dealt with at the provincial level. Are the provinces engaged on that? Are you having more success with certain provinces than other provinces? The land use planning is all done provincially, but what role would you see the federal government playing there?

Ms. Fawn Jackson: Yes, and I think we really need all the different stakeholders at the table, because how different policies interact actually drives those land use changes. When we have a federal policy on biofuels, for example, what is the implication of that? If we have sectors that don't have equal access to BRM or production-neutral BRM, then what are the implications there? Our ask is to get all of those different stakeholders at the table, because, as

you've very rightly indicated, the provinces have a really big role in this.

We talk a lot about grassland conversion, but we need to really look at it from an agriculture loss perspective. We lost 1.4 million acres of agricultural land as of the last census. These are serious problems when we're thinking of environmental deliverables and world food security right now.

• (1155)

Mr. Francis Drouin: That's great. Thank you.

I'm out of time in about 10 seconds, but I want to say thanks to all the witnesses. I know that your sector has played a vital role. We do have some differences and we are working on those differences. We have a lot more that unites us than divides us, and I know that your sector continues to do a great job.

[*Translation*]

Thank you very much.

[*English*]

The Chair: Thank you, Mr. Drouin.

We'll go now to Mr. Perron.

[*Translation*]

You have two and a half minutes.

Mr. Yves Perron: Thank you, Mr. Chair.

If you agree, Ms. Gowriluk, we'll finish the discussion from earlier.

Could you quickly give us your views on the necessary decentralization and on the fact that the money should be made available to producers?

[*English*]

Ms. Erin Gowriluk: Certainly I think we would support that vision, as reflected in our commitment to the road to 2050. This road map that we're looking to develop has been done before.

It would look very similar in its approach to the one that was developed by farmers in the United Kingdom. That is, it would provide concrete recommendations that are developed by farmers to provide government with clear direction on, first, where greater potential exists—where Canadian farmers know they can do more—and, second, what some of the barriers are to uptake. For example, why don't we see more western Canadian farmers practising cover cropping? What can we do to incentivize that practice? Is there greater investment in research required, for example?

Providing government with that direction in terms of where funds, policies and programs should be directed is the intention of the road map, ultimately, as is having farmers at the centre of that conversation.

[*Translation*]

Mr. Yves Perron: Thank you very much.

Ms. Jackson, you talked about the preservation of pastures and the loss of farmland. Do you think that if we could find a way to measure the ecological performance of land, we would have to go to each piece of land and measure it separately? Still keeping the case-by-case approach, we could perhaps establish the agricultural performance in terms of carbon emissions for a given soil type or region.

I'd like your opinion on this.

[*English*]

Ms. Fawn Jackson: Yes, I really think that we can keep it at a higher level because I think that's where we're going to be able to really drive the amount of change we need, and then, as we get into the finer details—perhaps you want to supply a habitat for a specific species or perhaps you want to increase wetland retention in one specific area—I think that's when you can get down to those smaller details. Perhaps it's working on the infrastructure that can support that, such as having the certified sustainable beef program, which 17% of our beef producers are under now.

Those are the types of tools that would be able to really home in on some of the very specific details, but to go back to that sort of land loss, keeping it at a high level is going to be very important for the short-term solutions that we need. As the Nature United paper said, by 2030 we need to stop land conversion.

The Chair: Thank you, Ms. Jackson.

[*Translation*]

Thank you very much, Mr. Perron.

Go ahead, Mr. MacGregor. You have the floor now.

[*English*]

Mr. Alistair MacGregor: Thank you, Mr. Chair.

Ms. Gowriluk, on Bill C-234 the discussions are going to be very similar to what we had in the previous Parliament with Bill C-206. I remember that when that bill was before committee we had witnesses, people who were involved in the technology, and they said that anything to replace propane and natural gas was probably at least 10 years off to be commercially viable.

We also had a witness who appeared for this current study who warned our committee against systems that may take leftover plant residue, crop residue, off the fields to use that as a fuel source, because it is very important, she said, for increasing the carbon in the soil.

No matter which way you look at it, there's a trade-off.

From your members' perspective, have any of your members started using alternative systems? Do they want to see the federal government put more research into this? I know that even with natural gas prices, with or without the carbon tax, that can still be a very volatile fuel source on international markets, so that stability won't always be there as much as farmers would like.

Please give us what comments you have on that.

• (1200)

Ms. Erin Gowriluk: Absolutely. Thank you very much for the question.

As outlined in my initial comments, when we had an opportunity to survey our members in preparation for today's appearance, it was really all about efficiency and about cost savings. Many of the practices they've adopted make good environmental sense, but they just make good business sense. If you have an alternative to natural gas and propane, which is increasingly expensive, farmers would look to adopt that, but it has to offer cost savings and it has to be efficient.

To your question with respect to whether many of our farmers, or any of our farmers, who dry grain are currently using an alternative to natural gas and propane, the answer would be no. It simply doesn't exist yet.

I think that's why you see sector-wide support, even beyond grain growers, for Bill C-234, because we recognize that it's not going to achieve its policy intent, which is to encourage a practice change and for Canadian farmers to use alternative fuel sources, which are simply not available right now for the purposes of grain drying.

The Chair: Thank you, Ms. Gowriluk.

Thank you, Mr. MacGregor. Unfortunately, that's time. That concludes our first panel.

Colleagues, I don't do it often, but I'm going to ask a quick question of Mr. Thompson.

I recognize you're from Saskatchewan and I had the privilege of being there a couple of weeks ago. I visited one of your colleagues, Scott Greiner, near Indian Head.

It was eye-opening, of course, when talking about land management and some of the pressures that are on farmers in terms of what crops to bring forward. Some farms are mixed, but we know that some commodities are through the roof right now. He talked about some of the sloughs and some of the wetlands that exist and how there's an inherent pressure to make them even more maximized from a crop perspective.

The government had announced some programs around wetland preservation. We know there have been partnerships with Ducks Unlimited. Can you speak to whether those programs are landing for farmers, whether it be cattle farmers like yourself or perhaps crop farmers?

Are those programs working and how can we expedite them, particularly with some of the pressures that are being faced to preserve those wetlands and grasslands?

Mr. Duane Thompson: There's a significant pressure on conversion of any possible acre that can grow the high-value annual crops that are being produced right now. As a couple of previous speakers have mentioned, farming is such a high-stakes game now. The amount of money in and out is immense, so when producers see lands that could potentially turn a few more dollars into their net return, they are really motivated to make the most of it.

It really is important that we encourage some of that land, because a good bit of it is better left in wetlands and left in habitat, if policy can be drafted and a lot of consideration made to say, okay, you could make it a couple of acres, but it's worth this to stay in wetlands or to stay in grasslands. You drive around western Canada and there are a tremendous number of acres that should not be farmed. It should be converted back to a perennial cover program as Fawn mentioned.

It's really important that we think about that. I would suggest it could be in the millions of acres that could be promoted to be that kind of cover.

The Chair: Thank you, Mr. Thompson.

Colleagues, thank you for the brief indulgence.

Thank you to our witnesses. Ms. Miller, Ms. Gowriluk, Mr. Thompson and Ms. Jackson, thank you for your time today.

Colleagues, we're going to take a very brief moment to get our new witnesses in, and then we're going to get right to it so that we can try to get some time for questions.

• (1200) _____ (Pause) _____

• (1205)

The Chair: Colleagues, welcome back.

Thank you, Madam Clerk, for the quick changeover with our witnesses.

We're going to get right to opening statements so that we can get to questions, particularly with the impending vote.

Today I'm pleased to be able to welcome Eric Toensmeier, who is the director of the Perennial Agriculture Institute, which I believe is connected with Yale University, although it's not in my notes; Dr. Rod MacRae, who serves at the faculty of environmental and urban change at York University; and Mr. Ryan Cullen, who is a small-scale and urban agriculture entrepreneur at City of Greens farm.

Each of you will have five minutes for opening remarks and we will get right to that.

Mr. Toensmeier, I'll start with you, for five minutes.

Mr. Eric Toensmeier (Director, Perennial Agriculture Institute): Thank you, honourable members.

I hope today to share my experience as a former senior fellow for Project Drawdown and researcher on agricultural climate change mitigation. My knowledge relates to science and practices rather than policy. That part I will leave to you.

Climate change is kind of like an overflowing kitchen sink. Emissions are the water flowing from the faucet, which is now pouring onto the floor. The first thing to do is to turn off the faucet. That's reducing emissions, turning off the faucet. The next thing is to mop up the wet floor. This is carbon sequestration. Both are necessary, and neither is enough alone.

In the area of agriculture, we have several approaches to mitigation.

The first is to demand reduction, for example, reducing food waste and shifting diets to foods with low emissions and low land demand, although food can have positive or negative effects depending on how it is produced.

Next is reducing emissions from agricultural production itself.

Third is to remove excess carbon dioxide from the atmosphere and store it in soils and biomass, a process called carbon sequestration. Increasing productivity on the farmland we have can help to reduce deforestation pressure elsewhere, a process called sustainable intensification.

Finally, the supply chain is a significant source of emissions, including transport, processing, retail and more.

Each approach is important, and together they can have a powerful impact.

According to FAO, Canada's top five sources of agricultural emissions are land conversion, farming on peat soils, on-farm energy use, enteric fermentation from the digestion of cattle and other ruminant livestock, and synthetic fertilizers.

Canada has a powerful tool kit of mitigation practices to draw on. I love seeing the agricultural climate solutions grants program that targets cover crops, nutrient management, shelterbelts and rotational grazing. These are all excellent priorities.

A number of additional tools are available to address your key emission sources like limiting land conversion, re-wetting peatland soils, on-farm energy conservation and using forages with high tannin levels to reduce methane. Returning sovereignty of forest land to indigenous people is also a powerful tool for protecting forest carbon.

When it comes to carbon sequestration, it's important to note that some practices have a much higher per acre impact than others. They're not all equal. Generally speaking, the more trees, the more carbon. This is why agroforestry practices that integrate trees with crops and/or livestock are especially powerful.

Carbon sequestration has other limits as well. It does slow down dramatically after several decades, and the carbon that is held can be re-released by climate disasters or a return to the previous farming practices.

To come back to the notion of the overflowing sink, the bucket for the mop is only so large, and it can be knocked over. Carbon sequestration is essential, but isn't the only approach we should take.

While many emission reduction practices are new and were created just for mitigation, this is not true for carbon sequestration. These practices were developed because they're good for the farm and/or the surrounding environment. They offer many co-benefits like climate change adaptation, which is critical because, while no farm on its own can mitigate all of climate change, every farm must be resilient to the new conditions in which they're farming.

Canadian farmers are facing increased rainfall intensity, which exacerbates erosion. Many of these carbon sequestration practices reduce erosion, and all of them improve soil organic matter, which greatly enhances soil water-holding capacity for drought resilience, among other benefits.

The proposed private member's bill, Bill C-203, an act respecting soil conservation and soil health, would create a national strategy to greatly accelerate the adoption of practices that sequester soil carbon and assist farmers to adapt to our changing climate.

Thank you once again, and I welcome the opportunity to answer any questions.

- (1210)

The Chair: Thank you very much.

We'll now go to Mr. MacRae for up to five minutes.

Dr. Rod MacRae (Associate Professor, Faculty of Environmental and Urban Change, York University, As an Individual): Thanks very much for the opportunity to appear before you today.

I urge the committee to examine how to improve our policy execution. We have an implementation problem in the Canadian food and agriculture system as it relates to environmental improvement. It's a decades-old problem. It cuts across all levels of government, all governing parties, elected and unelected officials, and their systems. Nobody seems to want to address it and I'm hoping you will. Given what's in play and the potential of Canadian agriculture to contribute to environmental sustainability, this seems to be a moment for change.

We do have many good aspirations and policy statements, and in some cases we have very good targets, but the instruments that we're using will not permit us to meet the sustainability goals we've set out for the food and agriculture sector. All the main programs for environmental sustainability and agriculture suffer from the same kinds of deficiencies. This includes the Canadian agricultural partnership, the on-farm climate change fund and climate change solutions. These problems are essentially that they're largely voluntary, focus on grants or contribution agreements and are not targeted. They focus on best management practices and not systems change. They focus on the supply side without demand-side elements, and they have limited transition planning associated with them.

These instruments are not adequate for the scale of our challenges. We have to improve our instrument choices, our designs, application and integration. I elaborate on more suitable designs on my research website. The clerk has the link to that site.

Thanks for inviting me, again, and I look forward to the discussion.

The Chair: Thank you, Mr. MacRae.

We'll now move to Mr. Cullen for up to five minutes of opening remarks.

Mr. Ryan Cullen (Small-Scale and Urban Agricultural Entrepreneur, City of Greens Farm, As an Individual): Good day, and thank you for the opportunity to speak today.

My name's Ryan Cullen. I manage a small-scale—in our case, 10 acres—diversified farm. We predominately grow market garden vegetables intensively, but are integrating small-scale livestock systems and small fruit and nut tree systems in a rural and peri-urban context. I've also designed and managed a small-scale, high-tech and high-yield urban farm in an academic setting at our local college, while also learning and getting training from some of the leading small-scale and regenerative farmers around the world. I'm focused on demonstrating the viability of small-scale, regenerative agriculture farms, teaching and training a new generation of farmers and growers and redefining the paradigms in horticulture, food and farming and how they connect to our everyday life.

Regardless of the context of any of these farms, I want to stress the importance of how some of them are being managed.

On our farm, we plan and manage our farm holistically following regenerative farming principles, meaning we consider how our resource base, our decisions, our production systems and outcomes not only affect our bottom line but also positively affect our environment and the people in our community. Regenerative agriculture is all about managing holistically, so we make decisions that are not just based on economics but include the social and environmental impacts and outcomes as well.

Building soil, as we've heard through many of the speakers today, is an important part as well. It has the power to sequester carbon, cycle nutrients and produce life. We focus on systems that improve soil health, not destroy it, whether it be no-till cover crop systems, not spraying herbicides and pesticides, or using organic inputs.

We try to mimic ecosystem processes, understanding how nature functions in wholes, recognizing natural laws and patterns in nature and how we can use nature to create a niche for our production systems and our economies, and integrating these laws, patterns and systems into our production systems and our everyday farm business. We strive to use local inputs for local outputs, capitalizing on circular economies using wastes, particularly our own, as resources, and integrating our systems so the inputs for the farm come from the farm.

We focus on mobile, scalable infrastructure that's low tech, innovative, energy efficient and useful technology applied with low capital costs and minimal fossil fuel use. We're investing in management and information, not expensive infrastructure with high capital costs.

Our model's direct-to-consumer sales are certified by our customers. We very much meet and exceed organic standards, but don't believe we should have to pay for certification to demonstrate we have safe and high-quality products. We maintain transparency about what we do and how we do it by inviting the public and our customers to be part of the experience, to see how their food's grown, to understand how we do it and educate people on where their food is coming from, trying to put the farm at the centre of the community and making it an integral part of the social fabric.

We're ecologically, socially and economically regenerative. We're attempting to build up multiple forms of capital, not just economic forms. We're trying to create a resource base in harmony with nature, society and ourselves that's sustainable, viable and resilient. If farms are going to be regenerative, we need to work to a triple bottom line that works to keep our business, the regeneration of the land and our customer satisfaction in equal consideration.

What we need in agriculture are production systems at various scales fit to their context. Whether it's 1,000 acres in Saskatchewan or a quarter-acre in the city, we need integrated systems that permeate the social fabric of our lives, produce high-quality food for people and grow it locally with local labour accessible and convenient to the local population. We need systems that regenerate our landscape, cities and countryside and are integrated into the communities, economies and environments we're living in today.

Production systems that are viable agricultural models and use useful technologies already exist and are being practised. We need to promote these systems and models and promote local inputs and outputs, create local jobs from a skilled local workforce and integrate these systems into our local communities and economies. We need to take a holistic approach that is regenerative, and that's what we're trying to do.

Thank you.

• (1215)

The Chair: Thank you, Mr. Cullen.

For the benefit of our witnesses, we are expecting a procedural vote in the House, where bells may start at about 12:30 eastern. We have permission to go for about another 15 minutes after the bells happen, so we should be able to get one full round of questions in. For the benefit of our colleagues, if folks want to share time, that is your prerogative.

We're going to start with the Conservatives. I believe it's Mr. Falk who's up first.

It's over to you.

Mr. Ted Falk (Provencher, CPC): Thank you, Mr. Chairman.

Thank you to our witnesses for your presentations this morning, they were very interesting. We'll try to glean a little bit more information.

I'd like to start with Mr. Toensmeier.

You talked about increasing productivity. Do you have any specific examples of how a person could do that?

Mr. Eric Toensmeier: One interesting thing about that category is that there are perhaps hundreds of different ways of doing it, from a very conventional approach of increasing fertilizer use and integrated pest management and so on, to the integration of trees with crops so that you can produce timber and crops on the same land. On 100 acres you could produce what would take 130 or 140 acres to produce separately.

There are lots of different ways to do that.

• (1220)

Mr. Ted Falk: Okay. I want to get back to a comment you just made about increasing fertilizer.

When it comes to agriculture, part of this government's objective is to reduce fertilizer input by 30%, yet they've also indicated in this last budget that they want to increase our agriculture exports from \$55 billion to \$85 billion annually.

Is that a doable aspiration?

Mr. Eric Toensmeier: I would suspect that would bring some challenges with it.

In terms of increasing fertilizer use, that refers more to areas where it is underutilized, which is not the case in most of North America. I do work globally, so I may have implied something incorrectly there.

Mr. Ted Falk: You also talked about shifting food demand. Can you extrapolate a little bit more on what you mean by that?

Mr. Eric Toensmeier: Certainly. It's clear that some foods tend to have much higher emissions than others, both directly from their production and by using more land than other crops. If you can shift diets to some degree to some of those lower-emission foods, that can reduce emissions from agriculture.

That's sort of a demand-side approach, which the Intergovernmental Panel on Climate Change is getting more excited about, for example. It does seem like a really important component of the whole thing.

One possible approach to doing that would be through just changing what kind of food is served in schools.

Mr. Ted Falk: Thank you.

Mr. Cullen, I would like to ask you a few questions too.

You farm 10 acres. You say you supply the local market. What do you mean by "local"?

Mr. Ryan Cullen: We're very much concentrated just outside of an urban centre. If you're familiar with the Durham region—Oshawa, Whitby, Ajax, Pickering.... We have a 10-acre farm with almost an acre of market garden and we're able to feed 150 to 200 families a week.

We sell our products at local farmers' markets within the city. We have partnerships with local businesses that allow us to go direct to our consumer. We invite people to the farm in our local community to see what we're doing, to learn how we're growing and to buy products from us right off the farm. We're very much connected in a direct-to-consumer relationship.

Mr. Ted Falk: You're saying your farm would entirely supply 150 to 200 families' food requirements for a week.

Mr. Ryan Cullen: It wouldn't entirely.

Currently, we're growing vegetables. We specialize in salad greens and market garden vegetables. We have eggs as well. We currently don't grow any livestock, so there's no meat, dairy or anything like that coming off our farm. We supply vegetables, farm-fresh eggs, honey and things like that on a weekly basis.

Mr. Ted Falk: Okay.

Do you have a way of sustaining these products through winter?

Mr. Ryan Cullen: We don't right now because we haven't put any greenhouses up, but it is in our plan to extend the growing season by having low-cost greenhouse systems that don't require a lot of heat through the winter. We're just working towards that right now.

Mr. Ted Falk: That's very good.

You mentioned "regenerative farming" a lot. Can you give me one example of what you're actually doing from a regeneration perspective?

Mr. Ryan Cullen: We've taken what was essentially an acre of grass or lawn that had to be mowed or cut and we've built a bio-intensive market garden on it. We don't till up the soil. We add high-quality compost. We grow cover crops in between annual crops. These cover crops help build up the soil while also providing nutrients and soil life that help grow our annual vegetable crops.

We really focus on harvesting and cycling nutrients on site. We catch and store all our own water in ponds and diversion systems and then use those inputs to irrigate our farm. We're integrating chickens and laying hens right now, using the outputs from them to generate and develop our own compost so that we don't have to be dependent on buying it from outside sources.

• (1225)

Mr. Ted Falk: Very good.

Mr. Chair, I think I'm out of time.

The Chair: You have 10 seconds, but thank you for being on time and thank you for your line of questioning.

Mr. Turnbull, we go over to you.

Mr. Ryan Turnbull (Whitby, Lib.): Thanks to all our witnesses for being here today. It's really great. I especially want to say kudos

to Ryan Cullen for being here. He's a local Durham region resident and food champion in our local community.

Mr. Cullen, I'm going to start with you. In terms of small-scale, bio-intensive farming using—as you said—holistic and regenerative methods, I think you said in your opening remarks that a small-scale farm using those methods is highly viable. Am I correct in that?

Mr. Ryan Cullen: Yes, absolutely. To throw some numbers out there, on a one-acre market garden, we should be able to produce enough food for 50 to 100 people. Economically we can generate over \$100,000 of annual vegetable crops with 40% to 60% margins, depending on the skill of the grower, costs of inputs and things like that.

Yes, they are viable, and we make a good living and employ a small number of people just on our scale.

Mr. Ryan Turnbull: Thank you.

In terms of seasonal extension, I know that previously I talked to you, and you showed me a greenhouse that was running on geothermal energy. I know that greenhouses are challenging to keep going and are costly in terms of the inputs, but if we use renewable energy.... Was that greenhouse successful from your perspective?

Mr. Ryan Cullen: Yes, very much so. We built a passive solar greenhouse using a standard, off-the-shelf, hard wall style greenhouse. We started growing in the dead of winter, and we were able to successfully maintain temperatures above 0°C by storing all the heat into the soil using heat pumps and geothermal under the soil as a heat source and sink. We were able to, weekly, grow salad greens in there throughout the winter.

Going forward, this is really where, especially in Canada in our cold climate, we need to focus some of our innovation and technology. We grow crops year-round that we otherwise aren't growing now. We can be less dependent on imports with very basic, simple technology and greenhouse systems that already exist. Applying other technologies like geothermal and HVAC systems from other industries and coupling them with greenhouses, we can grow year-round and have that viability.

Mr. Ryan Turnbull: Thanks, Mr. Cullen.

Professor MacRae, I'm going to go to you now. I noticed on your website that you talked about the need to move from what you call more efficiency stage strategies to substitution and redesign stage strategies.

Could you describe what you mean by that?

Dr. Rod MacRae: Yes, there's a transition framework that usually has to be applied to any kind of change process. Part of our challenge is that we often don't use transition thinking. The idea here is that we start with relatively straightforward changes that improve the efficiency of the processes broadly speaking. That's just the first stage, because what we have to do in the longer term is start to substitute certain kinds of processes and practices for ones that aren't working very well.

The third stage, the redesign stage, is where we're really taking a lot of ecological ideas, and my colleagues on the panel have spoken to some of these dimensions. We're using those ecological principles and practices to redesign the way our various systems are working. It's really a three-stage process.

Obviously the substitution stage is more complex and takes longer to implement. Redesign is more complex again, but if we're thinking in transition terms from the very beginning, then it's easier to imagine how things might unfold in a reasonably evolutionary way without too much disruption.

Mr. Ryan Turnbull: Thank you, Mr. MacRae.

If climate change can indeed be fought on the farm, which I think we're hearing from Mr. Cullen is certainly the case, what are the biggest changes to policy, Mr. MacRae, that are needed in order for us to incentivize the right types of behaviour on the farm?

Dr. Rod MacRae: I think we need to have transition advisory services all across the country. Obviously the provinces have a big role to play in this, but, because of the Canadian agricultural partnership, there's an opportunity for the federal government, especially at this stage of negotiations, to promote and help to fund these transitional advisory services. They work very effectively in Europe. That's a key piece.

I think the sustainable diet scenario that my colleague on the panel has mentioned is also very important. In other words, farmers want to be producing things that consumers will want to eat, and if consumers are asking for things that fit into a sustainable diet scenario, that will obviously be a market-based kind of incentive.

Another thing that I think is going to be very important down the road and that has also been used very effectively in other jurisdictions is transition payments because, for a lot of growers, the transition period is the most financially risky. To help finance that transition phase while they're taking advantage of these transition advisory services is another key dimension of the process.

• (1230)

Mr. Ryan Turnbull: Mr. MacRae, on your website you talk about the importance of soil organic matter and probably the need to replace some of the nitrogen-based fertilizers or gradually transition off those in a way that makes sense for the agricultural industry.

Do you have any ideas about how we could embed that in policy?

Dr. Rod MacRae: One of the problems right now is that, as I mentioned off the top, our program designs are not really based on systems adoption.

For example, you have Mr. Cullen's kind of system. We don't really incentivize that kind of transition process, and there are many ways in which we can do it. There can be direct payments. We can use different kinds of tax-based incentives. Of course, some of them will be administered at other levels of government, which is why there's this key requirement for better policy integration. There are many instruments out there that can be used to create those kinds of incentives.

The Chair: Thank you, Mr. MacRae.

I apologize. We're out of time.

Thank you, Mr. Turnbull.

[*Translation*]

Mr. Perron, you have the floor for six minutes.

Mr. Yves Perron: Thank you very much, Mr. Chair.

I'd like to thank the witnesses for joining us today to give us their important testimony.

Mr. MacRae, I'd like to let you continue, because you're on to something good. You just mentioned that there aren't enough incentives, that the transition will be long-term and that incentives need to be maintained.

I don't know if you heard what was said during the first panel. If every innovation made on farms were rewarded with an amount of money that would be available to farmers as entrepreneurs, farmers could use that money to implement a future innovation. In this way, the aim would be to constantly improve environmental performance. Do you think this would be a good model?

[*English*]

Dr. Rod MacRae: Yes, I do think it's a good model.

Part of the idea with transition payments is that it's not a long-term process. It's usually transition payments within a three-year window, and sometimes those payments can be reduced over time.

The idea with transition payments is not to completely substitute for what the market can provide to farmers. It's more to take away some of the riskiest elements of the transition process, and then once they're through the transition, many farmers are in a much better position to take advantage of those market opportunities.

[*Translation*]

Mr. Yves Perron: Would you recommend to the committee that these amounts be decentralized and not necessarily found in government-mandated programs? In the future, producers could benefit from this money to make a new improvement, which would in turn be recognized, evaluated and rewarded. That would keep the fund available, much like the way the AgriInvest program works right now. Do you think that would be a good model?

[*English*]

Dr. Rod MacRae: It's very important that transition payments be associated with certain kinds of recognized sustainability protocols and that those protocols be authenticated. That creates the kind of market confidence that consumers will often need.

If you get this integrated approach where the farmer is getting transition advice from these transition advisory services, which would probably have to be provincially focused given jurisdictional requirements, and there are payments, the payments could be coming from multiple sources. We already have the Canadian agricultural partnership model, which is an FPT model, so you could have the money coming from different places. Then if the farmers are themselves certified and can identify their products in the marketplace, that strikes me as a very strong, integrated package.

• (1235)

[*Translation*]

Mr. Yves Perron: Mr. Toensmeier, I'd like to hear your view on this.

[*English*]

Mr. Eric Toensmeier: It's an interesting question.

It seems to me that there aren't any one-size-fits-all practices. I don't think it would be appropriate to mandate that all farmers must implement a particular practice, because each piece of land is a bit different and each farmer's needs and their market, and so on, are different as well. I suspect that in crafting policy it would be important to leave the flexibility for the farmer to play a key role in determining which practices are right for them and for their land. That's what I think.

Also, there might be a sort of ladder. You might begin with a practice like cover cropping and then step up to adding shelterbelts and continue adding additional practices over time. It would be useful to build in a mechanism that allows farmers to continue to ratchet up their climate impact in that fashion.

[*Translation*]

Mr. Yves Perron: Thank you very much, Mr. Toensmeier.

Mr. Cullen, I'd like to hear your opinion on the same topic, please.

[*English*]

Mr. Ryan Cullen: Thank you.

Any kinds of incentives we can offer to farmers.... As Mr. Toensmeier said, every farm is different; every context is different. If there is a general set of practices that can be outlined in a framework from within which to operate, then, I think, farmers like me can identify certain practices and be contributing certain practices, and then be rewarded for them.

What's important, too, is some sort of green-tape cutting to make it easier for farmers like me to erect greenhouses in certain municipalities or use different types of innovations and infrastructure that might not otherwise be recognized, allow it to be more easily implemented without the costs of permits and regulations and things like that, and give farmers more creativity and more opportunities in different contexts, especially someone like me, who farms in an urban and peri-urban context.

[*Translation*]

Mr. Yves Perron: Thank you, Mr. Cullen. I understand your intent. Basically, you think that the system should be decentralized. So there is unanimous agreement on this idea.

I have one last question for you. You talked about organic farming. You don't understand why you have to pay for organic certification. I'd like to hear more about that, as well as the funding for the organic standard, which hasn't been renewed by the federal government. What do you think of this?

[*English*]

Mr. Ryan Cullen: Sure.

As I said before, we're certified by our customers. We're very transparent in how we grow. We grow organically. I don't feel there needs to be a certifying body or regulating body that tells us farmers how we can grow our best products. I think we're certified by our customers. We're transparent about how we grow. They can come to the farm and see that we don't spray pesticides, that we grow in organic soils, that we use organic inputs and how our farm is run. It's up to the consumer to decide and make that decision.

I think the costs and the time associated with getting organic certification just doesn't make a lot of sense, especially at certain scales.

The Chair: Thank you, Mr. Cullen.

Thank you, Mr. Perron.

[*Translation*]

Mr. MacGregor now has the floor.

[*English*]

Mr. Alistair MacGregor: Thank you very much, Mr. Chair. I'll repeat my colleagues by thanking all of our witnesses for aiding us in this study.

Mr. Toensmeier, I'd like to start with you.

I really appreciated your sink analogy with respect to climate change—the faucet and also the spillover on the floor. I think we acknowledge that agriculture's greatest role is probably in acting as a mop, in trying to sequester the excess carbon that we've put into the atmosphere.

I appreciate the shout-out to my Bill C-203. I really took a lot of inspiration from what Australia is doing. They have older soils there, generally, which are not very high in carbon content, and they are losing billions of dollars' worth of farm production every year due to erosion. It was turning into a real national crisis there. I also like how they are going to establish the office of a soils advocate, someone who can be in a position to keep pressure on the government and act as a nexus for public opinion but also for stakeholder relations, to continue to push those policies.

You've authored a book called *The Carbon Farming Solution*. I've read that book. I've seen many examples of what other countries are doing. With respect to agroforestry and all of the examples that you've included in that book, for the benefit of our committee, I was wondering if you could talk about other countries, apart from Australia.

What are some of the notable countries that are putting these practices into amazing effect that we could perhaps study and learn from?

• (1240)

Mr. Eric Toensmeier: The first one would be France. It has really been leading the way in research and development and agroforestry, and it has a national commitment to convert a million and a half acres of cropland to agroforestry over the next decade or two.

Another outstanding example until recently was Brazil, where all of the public schools were required to buy at least 30% of their food from farms that were part of agroforestry using a sustainable production method.

I really appreciate what's being done in Mexico. Ranchers who have been subsidized by the federal government because they haven't been producing efficiently, profitably, have been provided the finances to convert to a silvopasture system, in which they integrate trees. This greatly intensifies production there. They have two to 10 times a higher stocking rate in these intensive silvopasture systems, lower emissions and higher carbon sequestration, after which the farmers don't need subsidies anymore, because they've become more profitable.

Those are a few examples.

As well, there is Australia. There is much to be learned from efforts there. One of my favourite things is that they were addressing savannah burning by changing the time of year in which savannahs are burned, and actually rewarding, recognizing, appreciating and financing the indigenous communities there who used to manage much of Australia with fire in that fashion and bringing them into their carbon payment scheme. I think Australia is a great model for Canada in many ways.

Mr. Alistair MacGregor: Thank you.

I'm sure you're aware that the federal government has committed to an initiative to plant two billion trees. In a previous life, I was a tree planter, so I know the work that's going to be involved in getting that up to speed.

Would you like to see a significant portion of that tree planting initiative focus more on trees that can be used for fuel, for fibre or for crops? Would you like to see a significant portion of that program devoted towards agriculture specifically?

Mr. Eric Toensmeier: Personally, I would. The carbon sequestration rates on farms that have trees integrated into them are three to five times higher than on those with the improved cropping and improved grazing systems alone. Where it actually can improve profitability and productivity, it does make sense to do that from a carbon perspective.

There is also a significant nitrous oxide reduction from integrating trees into farms. Their roots capture fertilizer that would otherwise leach away and off-gas as nitrous oxide.

Yes, I would strongly encourage you...and I would be delighted to talk further about it at great length with anyone there.

Mr. Alistair MacGregor: That sounds like a pretty solid recommendation that our committee could make in that regard. I really do appreciate that.

For my final question, I'll turn to City of Greens farm. I really liked your intervention on regenerative farming practices.

We heard from Professor MacRae, who was talking about incentivizing the transition to regenerative farming. I was wondering if you could talk about, from your experience, what you wish, looking back, might have been on offer from the federal government to help you set up your farm.

Mr. Ryan Cullen: Thank you. It's a great question.

Typically, there are not a lot of incentives in terms of funding or access to funds, especially for small-scale growers. A lot of the programs developed by government or to access capital are typically for larger-scale farms.

For the small-scale grower or bio-intensive grower, there are not a lot of avenues and ways in which to access funds or capital to get started. Getting access to land for someone like me, who doesn't come from a traditional farming background or a farming family, is also very difficult. The high capitalization involved with buying land and real estate and getting a farm going is very difficult. If there were ways to access capital for smaller-scale growers to start some of these bio-intensive farms, that would be super.

• (1245)

The Chair: Thank you, Mr. Cullen.

Thank you, Mr. MacGregor.

Colleagues, the bells have started ringing. As we agreed on previously, I'll let us go about 15 minutes, and then we'll release so that folks have time to vote in person.

I will go to the second round, but we're going to keep it to four minutes for both the Conservatives and the Liberals, and two minutes for the Bloc and the NDP.

I think it might be Mr. Epp, for four minutes, if you'd like the additional time.

Mr. Dave Epp: Yes. I'd like to begin with the Durham farm. What would you define as being "local"?

Mr. Ryan Cullen: For us, it's our immediate community. In Durham region—if you're familiar, you know—there's Oshawa, Ajax and Pickering. For us, that's local.

Depending on where we are in our municipality, we try to serve our community within our region. There are a few million people. Our small farm on 10 acres can only really serve 150 of them. What we need is more small-scale farms in our context, so that we can serve more people and make farming the centre of the community.

I'd like to see more farms that are urban, peri-urban and integrating the rural, traditional agriculture with more urban, small-scale, bio-intensive farms right in the city, so that instead of driving to Costco and big box superstores, they can get access to local produce from local farms, and it's right on their doorsteps.

Mr. Dave Epp: Thank you.

I'll ask for your quick comment. I flew in this morning. I brought peppers and some cucumbers that I sourced a kilometre up the road in a greenhouse. They were grown pesticide-free in a 100-acre production facility. Am I eating locally tonight?

Mr. Ryan Cullen: Yes, I would say you are. Congratulations on that effort.

Mr. Dave Epp: Thank you.

To Mr. MacRae, can you give me your assessment of Canada's regulatory framework? How responsive is it?

I'm looking forward to some technologies that hold a lot of promise, like gene editing. We heard about that from the previous panel this morning. Can I have your comments on the state of our regulatory system in its ability to quickly adopt technologies that have so much promise environmentally?

Dr. Rod MacRae: I think our regulatory system still suffers from its roots, if you will. A lot of our regulations were designed around fraud prevention. Obviously, fraud prevention is important, but now we're in a situation where, as you say, we're trying to figure out how to support certain kinds of transitions toward sustainability, whether they're management-related or technology-related.

I would say that our regulatory apparatus, as I've highlighted with much of our program instruments, is not yet up to the challenge of helping us move rapidly in this direction.

Mr. Dave Epp: What's needed?

Dr. Rod MacRae: That's what my website is all about. I have hundreds of proposals for how we need to change all kinds of government instruments at all levels of government. I'd encourage you to look at my proposals there.

Mr. Dave Epp: Would you support a very regionalized approach to implementing many of the strategies you've outlined, because of the diversity in our agricultural sector?

Dr. Rod MacRae: Yes. Part of our dilemma is that we've focused for too long on export and not enough on regionalization. We also haven't done much in the realm of import substitution. Those are critical areas that need much more attention.

Mr. Dave Epp: Thank you.

To the Perennial Agriculture Institute, in a perennialized system, how do vegetables fit in?

Mr. Eric Toensmeier: There are many perennial vegetables. I've written several books about them. Many of them are extremely high

in the nutrients that people have the greatest deficiencies in, in countries like Canada.

Mr. Dave Epp: My farm's name is Lycoland Farms Limited, coming from *lycopersicon esculentum*, a tomato perspective.

How would you integrate into that industry? How would you integrate that into your philosophy?

• (1250)

Mr. Eric Toensmeier: The tomato is not easily perennialized at this point. We don't have a good substitute. Annuals are great. We should grow the things that are annual and grow them well, but we can supplement with many other perennial vegetables.

The great advantage, to me, for perennial vegetables in cold climates, is that they're yielding much earlier in the spring. I've been eating them here in Massachusetts for a month already. They have a seasonality that is much earlier than the annual crops, so they extend the growing season in a fashion that I find is very complementary, compared with annual vegetables like tomatoes—which I appreciate and grow, by the way.

The Chair: Thank you, Mr. Toensmeier.

Thank you, Mr. Epp. I gave you wine. I guess I'm looking for a basket of tomatoes at some point. I'll hold you to that.

Ms. Valdez, you have four minutes.

Mrs. Rechie Valdez (Mississauga—Streetsville, Lib.): Thank you, Chair.

Thank you to our witnesses for being a part of this important study. I love tomatoes. I'm just saying that.

Dr. MacRae, your research is focused on creating a national food policy for Canada. I want to give you the opportunity to elaborate on that policy and what your vision is for Canada.

Dr. Rod MacRae: I'm quite comfortable with the national food policy that was put forward by the current government in 2019. I think, again, the issue is not the visions and the principles; it's the implementation. A lot of what's in play and what's being proposed to reach the vision, I don't think will get us there. I have similar observations on what's happening in a lot of the provinces as well.

My vision is not all that different. It's more elaborated, perhaps, on the ecological side, but what's critically important, as I said, is the redesign of a lot of the instruments we're putting forward to reach those visions.

Mrs. Rechie Valdez: Thank you.

You spoke on a few challenges that farmers face already, but what, in your opinion, is the greatest opportunity for us to address on this committee?

Dr. Rod MacRae: When you look at the studies on why farmers don't make changes, why they don't shift to more sustainable practices, they name about 15 different barriers. We think that they're mostly financial, and obviously some of them are financial, but there are also many what are called "psychosocial barriers" such as one's status in the community, how one relates to other institutions and how one's banker interprets what one is doing. All these kinds of psychosocial dimensions can be very significant.

Part of the challenge for us now is that if we're going to implement changes that involve supporting the transition period, it's not just about providing money but also ensuring that this takes place in a way that addresses these psychosocial barriers.

Mrs. Rechie Valdez: Thank you.

Mr. Cullen, could you tell us how you started City of Greens farm, and what environmental techniques you feel can be really leveraged across the country?

Mr. Ryan Cullen: Sure. Thank you.

As I mentioned before, I don't come from a farming background. I grew up in the city, but I was travelling the world and working in Thailand on a number of permaculture projects. Actually, Mr. Toensmeier's book, *Edible Forest Gardens*, was a big inspiration in my life.

I started out of general interest, and I took my teaching skills and went back to college. One of my biggest platforms for starting my farm was that we had a great horticulture food and farming program at our local college. I think if we have more institutions like that developing, teaching and training people like me, who can get into this field with the proper skill set, that's a big thing. I would certainly champion it.

For your second question, we very much focus on cover crops, soil building, cycling nutrients on our farm, catching and storing water and reusing it, creating our own input from our own waste, feeding our chickens excess produce from the gardens, and integrating livestock systems into our soil generation. As I said, we're catching and storing nutrients as much as we can and trying to mimic nature, mimicking forest ecosystems and applying them in our annual and perennial production systems. That's what we do.

Mrs. Rechie Valdez: Thank you.

We talk a lot about incentives. What incentives do you think farmers, especially small-scale farmers, could really use or be incentivized by to be able to continue to produce sustainable technologies?

The Chair: Could we have an answer in about 20 seconds, please?

Mr. Ryan Cullen: Sure. For us I think it's consumer awareness. I just want to sell more to more local people. The more we can change consumer demand and change consumer perspectives, I think that goes a long way to the viability of small-scale farms like ours.

● (1255)

The Chair: Thank you very much, Mr. Cullen and Mrs. Valdez.

[*Translation*]

Go ahead, Mr. Perron. You have two minutes.

Mr. Yves Perron: Thank you very much, Mr. Chair.

Mr. Toensmeier, I'll turn to you again.

You mentioned earlier in your opening remarks that carbon sequestration could sometimes be seen as a short-term solution and that, if the way the land is cultivated changes in the future, there would be a danger that the carbon will be released. To me, this illustrates the need for the financial support program to be relatively permanent.

Can you elaborate on that, please?

[*English*]

Mr. Eric Toensmeier: Yes, it's necessary if you're building your national strategy around carbon and soils, or trees for that matter, to put measures in place that make sure it will stay there. Otherwise, it will be re-emitted or it can be re-emitted. That's a critical concern that people are thinking about around the world with carbon sequestration and national plans.

Also, think about how you want to handle it if something happens that's outside of the farmer's control, like a fire or an extended multi-year drought, a shift to a drier climate, which will mean the loss of some of that soil carbon. These are important things to build in.

I don't particularly have the answers to how that might be done, but it would certainly be something to take into account, that it's somewhat vulnerable.

[*Translation*]

Mr. Yves Perron: Even if you don't have a specific answer, Mr. Toensmeier, would you recommend that the government not opt for programs that are too restrictive, but rather for a model that is as decentralized as possible? That way, farmers could make decisions that are good for their farms.

[*English*]

Mr. Eric Toensmeier: I do think flexibility is essential. Mandating specific practices often might have a negative effect on a particular farm. You do need to build in some ability to meet those individual farm's needs. Something might work in one soil type and not in another, for example.

Without creating a bureaucratic monstrosity that's a nightmare for everyone to work with, to the degree that you can build that in, it will make farmers much happier to participate.

The Chair: Thank you, Mr. Toensmeier and Mr. Perron.

Mr. MacGregor, we have about a minute before we're at 15 minutes. I want to be respectful to our colleagues. I might have to apologize to you, but perhaps we can adjourn at this point if that's okay.

Mr. Alistair MacGregor: I just need a minute, Chair.

The Chair: Go right ahead.

Mr. Alistair MacGregor: Thank you.

Mr. Toensmeier, I just want to give you a chance to expand on agroforestry and building on the two billion trees initiative. The federal government is funding that, but given Canada's climate, what kinds of crop trees would you like to see us focus on? What crop trees hit the markers of profitability but are also great at sequestering carbon?

Can you expand a little bit more on that in 30 seconds, please?

Mr. Eric Toensmeier: I'm very enthusiastic about willows and poplars, which can grow to very high latitudes in Canada, for short rotation biomass systems. It's not particularly for energy as my focus, but they have lots of applications in the material and chemical feedstock industries, where they could replace fossil-based carbon inputs in certain ways.

The Chair: Thank you, Mr. MacGregor. I apologize.

Thank you, Mr. Toensmeier.

We are at time, folks.

Thank you to our witnesses, Mr. Toensmeier, Mr. Cullen and Mr. MacRae, for your excellent testimony here today.

Colleagues, we will be back on Thursday to continue our draft consideration of the supply chain in agriculture report. We'll see everyone on Thursday.

Thank you to all those involved. Take care. We're going to adjourn.

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