Legislative Assembly of Alberta

The 28th Legislature
Second Session

Standing Committee
on
Resource Stewardship

Bill 201
Agricultural Pests (Fusarium Head Blight) Amendment Act, 2014
Stakeholder Presentations

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Standing Committee on Resource Stewardship

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Standing Committee on Resource Stewardship

Participants

9:02 a.m. Thursday, June 26, 2014

[Mr. Khan in the chair]

The Chair: Good morning, everybody. I'd like to call this meeting to order.

Welcome to all the members and staff in attendance at today's meeting of the Standing Committee on Resource Stewardship.

My name is Stephen Khan, and I'm the chair of this committee. I would ask that members and those joining the committee table introduce themselves for the record. Once that round is complete, we'll go to the phone, and we'll find out who's joining us online.

I'll start with our deputy chair, to my right.

Mr. Hale: Jason Hale, Strathmore-Brooks.

Mr. Young: Good morning. Steve Young, MLA for Edmonton-Riverview.

Mr. Goudreau: Good morning and welcome. Hector Goudreau, Dunvegan-Central Peace-Notley.

Ms L. Johnson: Good morning. Linda Johnson, Calgary-Glenmore.

The Chair: Mr. Storch, you can go ahead.

Mr. Storch: Jason Storch, president of the Association of Alberta Agricultural Fieldmen.

Ms Kolebaba: Carolyn Kolebaba, vice-president of the Alberta Association of Municipal Districts and Counties and reeve of Northern Sunrise county.

Mr. Lentz: Garry Lentz, representing the agricultural service boards in the province of Alberta.

Mr. Skovron: Wyatt Skovron, policy analyst, Alberta Association of Municipal Districts and Counties.

Dr. Massolin: Good morning. Philip Massolin, manager of research services.

Mr. Xiao: Good morning. David Xiao, MLA for Edmonton-McClung.

Dr. Brown: I'm Neil Brown, Calgary-Mackay-Nose Hill.

Mr. Tyrell: Chris Tyrell, committee clerk.

The Chair: Thank you, all, for joining us this morning.

Before I start our housekeeping announcements, let's go to the phones. I believe we'll start with Wayne Cao. Wayne, please introduce yourself.

Mr. Cao: Yeah. Thank you very much. Wayne Cao, MLA for Calgary-Fort.

Mr. Casey: Ron Casey, MLA, Banff-Cochrane.

The Chair: Thank you, gentlemen, for joining us via phone this morning.

Now to those housekeeping announcements, that I know everybody is anxiously anticipating. The microphone consoles are operated by the *Hansard* staff, so there's no need to press any buttons here. Please keep cellphones, iPhones, and BlackBerrys off the table as they may interfere with the audiofeed. Audio of committee proceedings is streamed live on the Internet and recorded by *Hansard*.

Before we get to our guests here, we've just got a couple of agenda items. We'd like to start with a review of the agenda. Has everyone had a chance to review our proposed agenda? As such, can I get a motion to approve the agenda?

Mr. Goudreau: I'll move the agenda, Mr. Chair.

The Chair: Thank you very much, Mr. Goudreau. Have it shown that Mr. Goudreau has moved that the agenda for the June 26, 2014, meeting of the Standing Committee on Resource Stewardship be adopted as circulated. All in favour? Any objections? That motion is carried. Thank you very much.

Now to our business at hand. After a day of productive and very insightful testimony yesterday I imagine that today will be no less productive and insightful. We've arrived at panel 5, which is our regional stakeholder panel. We're going to proceed with some more testimony on Bill 201, and we'll continue to hear from our valued stakeholders today. They've all agreed to present before our committee and answer our questions in order to help us gain a better understanding of the issue at hand. The information that we have already gained and will be gaining today will help us in our deliberations when it comes time to write a report for consideration by the Assembly of Alberta. We will also continue to receive written submissions from stakeholders right up to the June 30 deadline. All written submissions will be posted to the internal and external committee websites.

We have three groups here to present and answer our questions. From the Alberta Association of Municipal Districts and Counties, AAMD and C, we have their vice-president, Carolyn Kolebaba. Representing the Association of Alberta Agricultural Fieldmen is Jason Storch, president of the south region. From the Agricultural Service Board Provincial Committee we have the executive director, Garry Lentz.

Folks, what we'll do is have each of you provide us with your testimony, and then once that's completed, we'll open up the floor to questions from our committee members if that works for you. I understand that in order of presenting it would be preferred if Mr. Storch starts first.

Mr. Storch: Yes.

The Chair: Whenever you're ready, sir, please proceed

Association of Alberta Agricultural Fieldmen, Alberta Association of Municipal Districts and Counties, Agricultural Service Board Provincial Committee

Mr. Storch: Good morning, members of the standing committee. My name is Jason Storch, and I am the president of the Association of Alberta Agricultural Fieldmen, or the AAAF.

Back in the early 1940s the Alberta department of agriculture and various municipalities began discussing the possibility of forming specialized agricultural committees in rural Alberta to assist in weed control and soil erosion prevention. It was felt back then that dealing with issues as serious as these was best conducted at the local level, where local governments and local staff had a more direct connection with the farming community. In 1945 the Agricultural Service Board Act was passed, and this piece of enabling legislation gave municipalities the ability to form an agricultural service board and to appoint an agricultural fieldman, who would act as the municipality's regulatory officer under legislation delegated to the ASB to administer.

As of right now ASBs and their fieldmen are responsible for developing agricultural programs and policies for their municipality and, if need be, enforcing several pieces of provincial legislation at

the local level. This legislation includes the Weed Control Act, the Soil Conservation Act, and the Agricultural Pests Act.

The agricultural fieldmen's association was first formed back in 1957, and its focus was on offering professional development and mentoring opportunities for fieldmen in an effort to standardize service delivery to Albertans. The AAAF is committed to the betterment of agriculture for all Albertans by protecting and enhancing the land, water, and community resources by integrating the administration of legislation with local programs and partnerships. Our association is recognized as a reputable group of skilled and knowledgeable individuals who are often sought to give input into various agricultural issues. We have weed, pest, and legislative review committees that work directly with Alberta Agriculture and Rural Development on proposed changes to programs and legislation.

Along with the provincial ASB committee and the AAMD and C the AAAF has a voting position on the Fusarium Action Committee. I can comfortably say that all three of these groups represent the primary agricultural community as a whole and seek to influence policy that is both equitable and enhances agriculture in the province.

Understanding that Fusarium affects each region of the province differently and understanding that agricultural fieldmen are the boots on the ground when it comes to enforcement of the legislation, there's no definitive position of the association that I can offer. There are, however, three distinct opinions amongst our membership, each with its own merit in its own way.

There are those that support the current zero tolerance policy as set forth in the Agricultural Pests Act, and I might add that those are probably the majority of the fieldmen. These fieldmen are in areas of the province where there is no Fusarium or very little Fusarium, and understandably they and their ASBs need the fullest authority of the legislation in order to deal with the pest quickly and aggressively if or when it is found.

There are those in our association that support the proposed minimal tolerance of Fusarium. These fieldmen are of the opinion that in their area a low-level tolerance for the disease and the potential for their producers to access new Fusarium-tolerant varieties of cereal crops would provide an additional tool to manage a disease that has gained a foothold in their municipality.

9:10

Then there are those that support the concept of changing the regulatory status of Fusarium and amending the Agricultural Pests Act to enable each municipality to decide how aggressively they would deal with the disease depending on their level of infection.

While there may not be a clear best answer in our minds, as an association there is one common position that we all share. It is our role to enforce the legislation that we are responsible for, and we will support and deliver on the policies and programs that our respective ASBs create. The ASB committee and the AAMD and C represent rural Alberta, and the AAAF is pleased to be able to support and work with them in their efforts to do so. We hope that the government is able to assist us in our efforts with appropriate legislation and the support that we need to accomplish our goals.

Thank you for the opportunity to address the committee on this issue.

The Chair: Mr. Storch, thank you very much for your testimony.

I believe that next on our list will be Ms Kolebaba. Please proceed when you're ready.

Ms Kolebaba: Thank you, and thank you for the pleasure of being able to address you this morning. As you have stated, my name is Carolyn Kolebaba. I am vice-president of the Alberta Association of Municipal Districts and Counties and reeve of Northern Sunrise county. Thank you on behalf of the AAMD and C members for allowing us to be here today.

The AAMD and C has been around for over a hundred years and represents the interests of all of Alberta's 69 municipal districts and counties. In representing our members, the AAMD and C often advocates a rural perspective on important issues that impact municipalities. We work with government on a number of advocacy issues ranging from municipal infrastructure funding to aggregated allocations. The majority of our members are elected officials from rural areas of the province.

Fusarium graminearum has been an area of concern for AAMD and C members for quite some time. The AAMD and C board has adopted key positions that are aimed at encouraging continued success for agricultural producers and the protection of the agricultural industry as it is a key contributor to the sustainability of rural Alberta. Our board firmly supports the current zero tolerance policy for Fusarium graminearum and the current legislation as it is written. It's no secret that it has become more prevalent in the southern part of the province, and addressing that needs to be a priority, but making legislative changes may not be the answer. Increasing tolerance levels even for a portion of the province increases the risk of Fusarium graminearum becoming prevalent at low levels province-wide.

Having healthy products going to market is essential. The current zero tolerance encourages research communities to continue to work to find a Fusarium graminearum-resistant strain of seed. The AAMD and C supports the existing legislation because it takes a firm stand on the issue. There is no indication that increasing levels would help prevent or decrease the spread of Fusarium graminearum, so we should continue to work with the zero tolerance parameter.

AAMD and C members represent rural areas across the province, so naturally agriculture issues are often raised. The AAMD and C is involved with the provincial agricultural service board and has been an active participant on the Alberta Fusarium Action Committee. The committee was formed in 2011 with the intent to provide advice to the Minister of ARD on issues arising from FHB, caused by Fusarium graminearum, and provide suggestions for best management practices, attempt to limit the risk of Fusarium graminearum in Alberta by making recommendations to the minister to enact legislation and policy.

The committee is comprised of representatives from various groups pertinent to agriculture in the province, including the ASBs, the agricultural service boards, the Association of Alberta Ag Fieldmen, Seed Growers' Association, Beef Producers, the Association of Alberta Co-op Seed Cleaning Plants, the Grains Council, the Barley Commission, and the Canadian Seed Trade Association, to name a few. The Fusarium Action Committee developed the Alberta Fusarium graminearum management plan in 2012. The management plan included an overview of why it is an issue, the economic impacts associated with Fusarium graminearum in Alberta, the importance of having a management plan in place, and best management practices for cereal and corn crops. Since the development of the management plan, the committee has continued to discuss a number of issues, including provincial tolerance levels, the use of new varieties that are more resistant, and enforcement improvements to address the current state.

AAMD and C membership brought the first Fusarium graminearum related resolution forward in 2002. Since that time three additional resolutions have been endorsed and cover a range of issues, including addressing the costs associated with Fusarium graminearum testing; increasing ASB grant funding to address

increased involvement in the provincial issue, including Fusarium graminearum; implementing a zero tolerance policy for Fusarium graminearum, including in feed; mandatory testing at seed-cleaning facilities to confirm grain is free of Fusarium graminearum for the province; and to provide adequate support to the local authorities to enforce this policy. Complete resolution information is available through our resolution database at www.aamdc.com.

Managing Fusarium graminearum in Alberta is an ongoing challenge. As a provincial association the AAMD and C represents municipalities who are working through the issue at both ends of the spectrum. Some have been dealing with it for years while others are working to ensure that it does not become an issue in their municipality.

As Fusarium graminearum is declared a pest under the Agricultural Pests Act, municipalities are responsible for enforcement. Agricultural fieldmen act as designated officers of the municipality and as per section 8(3)(b) of the Agricultural Service Board Act act as "an inspector of the municipality under the Agricultural Pests Act." The agricultural fieldmen recommend actions to the municipality and landowners to address pest control and often play a key role in awareness programs for the public. Any potential change in tolerance levels should consider enforcement challenges and the long-term impacts associated with the increased pest existence in rural Alberta.

So how do we handle this grave concern? As an organization that focuses on issues that impact the province as a whole, the AAMD and C supports maintaining zero tolerance for Fusarium graminearum, recognizing that there are improvements that can be made to strengthen enforcement. Changing the tolerance levels for a portion of the province opens up the debate to make this accommodation for other pests such as the Norway rat. The AAMD and C supports a zero tolerance policy because it demonstrates the severity of the potential damage caused by Fusarium graminearum.

The argument that raising tolerance levels will translate into accommodating the existence of Fusarium graminearum in the south is understandable, but it is short sighted. It's a short-sighted fix that could contribute to the long-term detriment for agricultural producers across Alberta. We will continue to work with our members, government, and additional stakeholders on this issue.

The AAMD and C understands that the Agricultural Pests Act is set for review in 2016. Because of that timeline we believe that no legislative changes should be made regarding Fusarium graminearum before the act is open for review so that this issue can be considered along with other proposed amendments.

Thank you on behalf of the AAMD and C members, and I look forward to your questions.

The Chair: Thank you very much for that presentation. Very much appreciated.

Mr. Lentz, are you ready?

Mr. Lentz: Yes.

The Chair: Please proceed.

Mr. Lentz: Good morning. I'm Garry Lentz, south region representative to the Agricultural Service Board Provincial Committee. I'm a fourth-term elected councillor in Cypress county. I'm chairman of Cypress county's agricultural service board, and I'm chairman of the board of directors of the seed-cleaning co-op in Medicine Hat. I am the agricultural service board's representative on the Fusarium Action Committee. Thank you for giving me the opportunity to present today on behalf of the committee.

9:20

There are 71 agricultural service boards in the province of Alberta. We are responsible for administering and enforcing the Agricultural Service Board Act, the Agricultural Pests Act, the Soil Conservation Act, and the Weed Control Act. Many of our agricultural service boards also provide the ratepayers with proactive agricultural and environmental services and programs that are not available elsewhere. In general, we represent the best interests of all agricultural producers in the province. We do not represent special interest groups, who lobby for their own personal reasons. Of the 71 agricultural service boards that I represent, I know of only nine that have indicated support for the proposed change to the pests act.

The factual information about Fusarium graminearum that I will be presenting comes from prominent, reliable sources, including the field crop pest management department at the University of Guelph, the Food Research Institute at the University of Wisconsin-Madison, the College of Natural Sciences at Carleton University, the American Society of Plant Biologists, the Broad Institute of MIT and Harvard, the U.S. Department of Agriculture, Manitoba Agriculture, Saskatchewan Agriculture, Alberta Agriculture, and the Canadian Grain Commission.

Fusarium graminearum is a serious fungal disease that infects cereal grains, causing a reduction in yield and quality. Barley that is infected cannot be used for malting. Approximately $3 billion was lost to United States agriculture during a Fusarium outbreak in the 1990s. Losses in Canada have ranged from $50 million to $300 million per year since the 1990s, and I believe that is mainly in Manitoba and Saskatchewan.

Fusarium graminearum produces a mycotoxin referred to as DON or vomitoxin. It is a serious health risk to humans and animals. Vomitoxin causes weight loss and feeding refusal in nonruminant livestock, particularly swine and horses. Another mycotoxin produced by Fusarium graminearum is zearalenone. It has estrogenic effects, and depending on the concentration, ingestion can result in reproductive dysfunctions.

Human ingestion of grain products containing Fusarium graminearum have been associated with alimentary toxic aleukia – that is the loss of white blood cells – as well as illness characterized by nausea, vomiting, anorexia, and convulsions. Aleukia can lead to autoimmune disease, neoplasm, which is tumours, or have long-term effects on resistance to infectious disease. Dry milling and baking has almost no effect on reducing vomitoxin levels.

On the positive side, some organisms present in livestock rumen fluid and organisms found in the soil can detoxify vomitoxin. Claims that Fusarium lives forever in the soil are unfounded; Fusarium fungi can, however, over winter in crop residue. Spores can be carried short distances by wind. Hauling infected straw and grain can take the disease great distances. Chopping and spreading the straw and chaff during harvest will encourage decomposition. Burying the residue through tillage will speed up the decomposition process. Planting of noncereal grains and legumes in a long rotation may then effectively break the disease cycle.

Fusarium was first described in England in 1884 as wheat scab. In 1985 30 wheat samples from the Red River valley in Manitoba tested positive. Manitoba Agriculture focused their efforts on trying to develop a resistant variety instead of trying to eradicate the disease. As a result, the disease spread rapidly throughout all of the grain-producing areas in that province.

Beef cattle can tolerate fairly high levels of Fusarium graminearum, so grain brokers soon started shipping large volumes of infected grain from Manitoba as well as infected corn from the United States into Feedlot Alley in Alberta. It's a cheap, plentiful feed source for the feedlot industry. Trucks backhauled good Alberta grain to hog, poultry, and dairy farms in Manitoba. Is it a coincidence that farmland around the feedlot districts in southern Alberta have high levels of Fusarium graminearum?

We asked the province to stop the infected grain from coming into Alberta. The Alberta plant science people downplayed the seriousness of the situation. However, in 1999 we were able to get the minister to declare Fusarium graminearum a pest under the pests act. This made it illegal to import or use infected seed, but it did nothing to stop the flow of infected feed grains into the province. So where does our infected grain go? Low levels get blended off for use in domestic food and export. Higher levels go for livestock feed.

There are presently no seed treatment or foliar fungicides that will kill Fusarium graminearum. At best they only provide a level of suppression. Contrary to some claims there is presently no such thing as Fusarium graminearum resistant cereal grains, but there are several Fusarium-free varieties that are less susceptible than others. The 2014 *Alberta Seed Guide* lists 29 varieties of barley, four of triticale, and 33 of wheat that are classified as having fair or good resistance to Fusarium graminearum and one that has very good resistance. There is also a list of seed growers in that catalogue that have seed for sale.

So why would we even think of bringing infected varieties into the province? You reap what you sow. Instead of tampering with the pests act to allow pedigreed seed growers to import and sell infected seed, perhaps we should be asking the feds to relax the plant breeders' rights to allow commercial growers to sell uninfected seed. There is plenty of Fusarium-free commercial seed in Alberta that is every bit as good as most pedigreed seed. Farmers like to grow cereal grain crops because they are relatively easy to grow and provide a reasonable profit. However, no one is compelled to grow them, especially when there are dozens of other crops that are not affected by Fusarium graminearum.

Statements that Fusarium graminearum is everywhere and that we should learn to live with it just aren't true. The seed cleaning co-op at Medicine Hat has a zero tolerance policy. The plant cleans 400,000 bushels of Fusarium-free seed each year. That's enough seed to plant about 200,000 acres. There are still millions of acres of uninfected farmland in Alberta that need to be protected with a zero tolerance.

I believe that it's only a matter of time until the general public realizes that they are eating beef that was fed Fusarium graminearum infected grain and that many of their bakery, cereal, and pasta products may also contain vomitoxins. The reaction could have a devastating effect on both our beef industry and our cereal grain industry.

The Broad Institute in collaboration with the United States Department of Agriculture has mapped the genes of Fusarium graminearum. That will open the door to the development of pesticides that will kill Fusarium as well as the development of GMO grains that are immune to Fusarium. In the meantime we must do everything possible to stop the spread of Fusarium graminearum until we can completely eradicate it. That may only be possible by maintaining the zero tolerance policy.

In conclusion, please tell your colleagues that defeating Bill 201 is the right thing to do. Thank you.

The Chair: Mr. Lentz, thank you very much for your testimony.

I'd like to again thank all of the folks who have come here and for your testimony this morning. We're now going to open the floor for questions. What has become customary at our committee is that Mr. Goudreau is going first.

Mr. Goudreau: Well, thank you, Mr. Chair. Jason, Carolyn, and Garry, thank you for your presentations, and thank you for being with us this morning. No doubt we've got some serious decisions to make over the next few months here, as you indicated, as to whether Bill 201 will proceed, will proceed as amended, will not proceed, or whether we might come up with different alternatives. So your input is extremely valuable to us, and I appreciate that.

9:30

I do have a couple of questions. My first one is to Jason. I appreciate the history. Certainly, you know, with my background I should know some of that, but I appreciated the dates and the fact that the ASB Act will be reviewed in 2016. I didn't know that. It certainly will give us another opportunity to deal with this particular issue at hand. I guess when I hear you, Jason, as an ag fieldmen part of your responsibility, as you've indicated, being "reputable" and "knowledgeable" – those are the two words you used – is to enforce legislation. Has the Ag Pests Act changed in the last few years?

Mr. Storch: No, it has not. To the best of my knowledge, there have been a few pests added to the list, but the general wording of the legislation hasn't changed for years.

Mr. Goudreau: Thank you.

You also identified three distinct groups of ag fieldmen and their relationship towards or their views, I suppose, on Fusarium. You indicated that the majority have a zero tolerance policy, there are some that use a minimum tolerance policy, and others are advocating for changes in the regulatory system. I remember, going back to when we had virulent blackleg in canola, where in some instances ag fieldmen and municipalities as well as the department of agriculture looking under the Ag Pests Act said: "You must plow down this field. You must do everything, your utmost, to do that." Some municipalities did that, others didn't. But, finally, with new varieties and those kinds of things we were able to really get a good handle on virulent blackleg. We're not there yet with Fusarium, I don't think, in terms of variety selection. My question to you: are you following the Ag Pests Act across the province equally as ag fieldmen?

Mr. Storch: I would have to say, in all honesty, no. There are certain areas of the province – and I believe it's the ag fieldmen in conjunction with their ag service board – where they have basically determined that the disease is prevalent to the point that enforcing the pests act aggressively, as you mentioned with tilling down fields anyway, isn't practical because it would be too large of an impact on too many people on too many acres of land. There are other areas of the province where they are able to do that, you know, take after the disease very aggressively because they don't have the disease.

Mr. Goudreau: So then maybe to put it mildly – and I'm not sure how to put it – if everybody in a particular city or community speeds, we can ignore it?

Mr. Storch: No. It doesn't make it right, no.

Mr. Goudreau: Jason, I know that you finished your comments by saying that your role is to enforce legislation. The legislation has not changed?

Mr. Storch: Correct.

Mr. Goudreau: Some of the ag fieldmen, then, are not doing their work, are not getting the proper direction, maybe, from the ag service boards and the members appointed. Am I right to say that?

Mr. Storch: Correct. The ag fieldmen are responsible for following the direction of the municipalities that they work for.

Mr. Goudreau: Yeah. I can recognize with the past history on virulent blackleg, then – and I know how tough it was and how difficult it is for farmers and ag fieldmen and ag service boards to enforce legislation. Some were very, very successful with it. Others were not as successful.

Going back, then, maybe to Ms Kolebaba, certainly you identified that there are enforcement challenges and you would need help with that, and I can appreciate where things are coming if we're going to enforce a zero tolerance policy, that help would be needed. Do you have any idea of what kind of additional support you would need to enforce a zero tolerance policy in the province of Alberta?

Ms Kolebaba: Well, I can tell you that in the north they're much harder. It's easier to have municipal councils agree that zero tolerance is zero tolerance because we have almost nothing there in Fusarium. In other places municipal governments need to support the agricultural service boards to help the ag fieldmen enforce the pests act. I mean, by law you're supposed to be doing your job, so do it. But I think that we need to educate, you know, municipal governments on the dangers of that. We need to educate the fieldmen. We need to educate our farmers.

In my situation we have 69 per cent of that rural land base that are saying zero tolerance. The guys on the land know that they need to do zero tolerance, and if there are a few that are getting away with things, as Jason has spoken to, then it needs to be dealt with. I think it's just a matter of all of us standing up to this godawful disease. You know, I think we just need to all pull together to do it. And if there are fluctuations in the province, then we need the province to say: "It is zero tolerance, and it will remain that. You need to enforce it, and you will enforce it because by law you have to."

You know, I think that's why we're here today, because there is some fluctuation in thought, right? So people think: well, maybe it's okay, and I can speed. Well, you can't speed, right? I agree with you. If we tell them it's okay, if we do this for this pest, then what do we do for the rats? We say that it's okay to have three rats in Alberta? Is it? I don't know. I don't think so. So why would we allow this danger, to do this? I don't know.

Mr. Goudreau: Thank you.

Garry, or I should call you Mr. Lentz. I'm sorry. I'm using first names, and I shouldn't be.

Mr. Lentz: Call me Garry.

Mr. Goudreau: You did talk about some of the enforcement that's occurring in the southern part of the province in areas that are infected. What do you do when a sample comes into a seed plant or into a municipality that is shown to have Fusarium there? You talked about millions of acres still not infected. I'm assuming you were talking about the province and parts of southern Alberta. How do you control it, or what's happening on that?

Mr. Lentz: The seed plant in Medicine Hat requires that every seed lot that is going to come in to be cleaned has been sent away and tested for the presence of Fusarium, and if Fusarium graminearum is present in that seed lot, in that sample, that product cannot come into the plant to be cleaned. We'll only clean grain that is Fusarium free. Seed plants can be a source of spreading the infection if the managers are not extremely careful. Our plant also has a fine charged for cleaning up the plant. We've never had to use it because we haven't had that problem. If a seed sample comes back positive, our manager tells the farmer to go find some Fusarium-free grain, and we've had very good co-operation.

Our ag service boards work hand in hand with the seed cleaning co-ops. There's always been one or two ag service boards in the province and one or two seed cleaning co-ops that ignore the wishes of their various organizations and legislation and, you know, do their own thing, and I think possibly some of those areas have been responsible for spreading the disease.

Mr. Goudreau: Thank you, Garry.

For many, many years I've been involved in the ag industry, from a regulatory point of view, from farming on my own as well as being an extension agent within the province of Alberta, and I know all of you are involved, it seems, in the Fusarium Action Committee that was established in 2010 and, you know, the plan that came out in 2012, I believe is what you said, Jason. In the past – and maybe we need to move beyond the past – whenever we had issues when it came to grains and cereal, oilseed production, or whatever it might be that we were growing there, part of the action plan was always to say: start with clean seed, and then you build from there. I'm hearing across the province that we want to ignore that action now and allow infected seed to be sown and then expect the grower to deal with the particular issues. I just want your comments on that.

9:40

Mr. Lentz: I would tend to agree with that, yes. The ag service boards have always concentrated, most of them, on educating and working with their farm people. Most of our agricultural service boards in the province are made up of one or two or three elected councillors as well as two or three members at large that are usually prominent farmers from the area. So, you know, we have a good feeling of what needs to be done in our local communities.

Ms Kolebaba: Can I just add to that?

Mr. Goudreau: Please.

Ms Kolebaba: I think that if we look at what happened in Manitoba and Saskatchewan – Alberta has always been a leader. I think if you look at what happened there, perhaps they didn't lead when they should have. We have a chance here to prolong or stop or slow down Fusarium graminearum in the province by taking a leadership role and sticking to zero tolerance while science catches up as well as, you know, our farmers are saying no.

Thank you.

The Chair: Just prior to moving on on the list, I have a question that speaks to the line of questioning from Mr. Goudreau and that speaks to the current laws that we have and some of the challenges that Mr. Storch and his associate fieldmen face on a day-to-day basis, trying to enforce the current zero policy and the fact that we have identified Fusarium as a pest. Fortunately, on this committee we do have some experts in the area of law. You know, my layman understanding of laws is that there needs to be some reasonableness and practicality to those laws. Mr. Storch talked about some of those challenges in the enforcement, and Ms Kolebaba spoke with quite some passion, if I may, about the need

to enforce those. My question specifically to Mr. Storch is on the enforcement of the laws as they currently exist. In the north of the province is the law reasonable and practical, in your opinion?

Mr. Storch: Actually, we had an ag fieldmen's meeting yesterday with representatives from throughout the province, and we talked about this issue because they knew I was coming here today. And, yes, the disease is more prevalent in the southern part of the province, very much so less prevalent in the northern part. Where the disease is not prevalent, the current laws are reasonable.

The Chair: So my follow-up question – and I think you know where I'm going now – is going down south and acknowledging some of the challenges with Fusarium down south. You spoke to that yourself, with the difficult position that we've put the fieldmen in in terms of enforcement of the law. In the southern region of the province would you say that our current legislation is reasonable and practical to enforce?

Mr. Storch: In the municipalities in the south where infection levels are incredibly high, I believe that those fieldmen would say that no, it is not reasonable to try and enforce the legislation in those municipalities. Their mindset would be that if almost every farmer in the county has some level of Fusarium infection, how would you go about enforcing that? Understanding that, that doesn't make it right, because the law is the law, but . . .

The Chair: I absolutely agree, you know, that it doesn't make it right, and I fully appreciate the challenge that we've placed upon the fieldmen in terms of the current legislation. So thank you very much for your candour, and thank you for your answer.

We'll move down the list. Next up we have questioning from Dr. Brown.

Dr. Brown: Thank you, Mr. Chairman. I think that was a particularly important question you asked because one of the arguments that we heard yesterday against relaxing the zero tolerance policy was that we can't presently control seed coming in from across the border and Saskatchewan. Ms Kolebaba, you mentioned, you know, that that problem would probably be exacerbated if we relaxed it on a regional basis or in zones in Alberta. Maybe I could direct this to Mr. Storch. What, if any, additional resources would you need if you were going to maintain the zero tolerance policy in order to make sure that it wasn't abused?

Mr. Storch: Gosh. That's kind of a tough one. One of the challenges that is faced is that, again, because the local municipality is the one who's responsible for enforcing legislation with their agricultural fieldmen, it is people who tend to be in the community who are being tasked with doing the enforcement, even the municipal officials who are making the policies. One resource that we certainly could use would be just some additional provincial support from the department of agriculture to recognize when we might be in those challenging situations. Maybe a provincial inspector needs to come down and either offer, you know, support to the municipality, or in some cases they may have to do the enforcement if it's not being done.

I'm not sure if there's anything else specific that I could offer as an answer.

Dr. Brown: If I could follow up, Mr. Chairman, with a supplementary question along the same lines, the Grains Council and the scientific experts that we heard yesterday are both telling us that the Fusarium graminearum is already here. They're telling us that, basically, we have to live with it and that we should have best management practices in order to, you know, deal with it. The best management practices that they're talking about are seed treatment, testing of the seed, and then crop rotation. Those are, really, the three big things that they're talking about in terms of best practices.

When I asked them about how you would go about that, they really shied away from the fact that there would any mandatory nature to that or any enforcement. They said: well, we've got to use the carrot approach rather than the stick; you have to convince the producers that it's in their best interest to follow those tenets of best management practices.

I guess my question to the panel, particularly to Mr. Storch since you're out there in the field and looking at these issues, is: how practical is it for us to expect, you know, that best management practices can be implemented on a widespread scale in order to control this pest?

Mr. Storch: Well, farming is a business. One of the problems with Fusarium is that it does reduce your ability to produce a crop and sell it and make a living. Most farmers that I'm aware of in the areas where Fusarium is prevalent do undertake some best management practices because, again, they understand that if they just do nothing, they won't be able to grow a crop. I guess it's reasonable, from my perspective and in my opinion, that if somebody doesn't just want to jump on the bandwagon and adopt the best management practices, eventually over time it would get to a point where they would have to if the disease was prevalent. Does that answer the question?

Dr. Brown: Well, sort of. The example that I used with the folks yesterday was that if somebody comes along in the spring, they're going to put seed in the ground and say: "I'm a little bit short of cash this year, and I'm not going to treat my seed. I'm going to buy some untreated seed, and I'm going to put it in the ground and just take the chances that it's not going to be a moist year. Hopefully, I'll get away with it." I guess my inquiry is: how practical is it to expect that we can use the best management practices if we relax the zero tolerance policy? I mean, is it reasonable? You can encourage farmers to do it, but you're not going to force them.

9:50

Mr. Storch: Yeah, it would be difficult to force anyone to do that across the board. I think you do raise a good point. If you were to solely rely on the best management practices, you are going to run into scenarios exactly like what you've seen. We see that with other pests and weeds, and that's where, generally, the municipality gets involved.

Dr. Brown: Okay. Thank you.

The Chair: Thank you, Dr. Brown.

We'll now move to Mr. Xiao.

Mr. Xiao: Thank you, Mr. Chair. You know, yesterday we heard from several parties regarding this issue. Basically, they are saying that we have to recognize the reality. The reality is that a lot of farmers are importing the affected seeds from other jurisdictions, right? They're not using the treated seeds. So we just have to update our legislation to go along with that kind of a practice. On the other hand, with the proposed change nothing is going to happen. We're not going to make things worse. We just have to keep doing what we do, which is the so-called best management practices. To me, best management practices should be enforcing

the law – right? – but they're not doing that. They allow the farmers to bring the affected seeds into Alberta.

My question to you is: why can we not enforce the legislation in order to change this bad habit? I understand you just talked about it, Jason. It's all about business, right? Farmers are in business. They say: "Okay. If I try to buy from the local Alberta supplier, as seed producers they have to follow the legislation, which is zero tolerance. Of course, the cost could be higher." You know, this is all about cost, the money. So then they say: "Okay. I'm not going to use the local treated seeds. I'm going to buy from Saskatchewan or elsewhere at a much lower price. Then I'll keep my fingers crossed and hope this is going to be a reasonably dry year." My question to you is: why can the legislation not be enforced?

Another question is: what kind of incentive do we as a government or an organization such as you have to provide to the farmers to really help them to adopt these, I will say, best management practices, you know, instead of just chasing the dollars? How can we help the seed producers to lower their costs to make them affordable to farmers? When you look at the big picture, the long-term picture, I think it's in everybody's interests, to me, to keep zero tolerance. Why? Because that's the only way you can prevent this kind of disease from spreading, at the same time as with other legislation that we pass regarding other diseases.

Those are my questions.

The Chair: Thank you, Mr. Xiao.

Mr. Storch: On the incentives for the seed growers, I think one of the challenges, as I understand it, is that there are more tolerant varieties of wheat available, but we can't necessarily access them in Alberta because they have this minimal tolerance, or they have a certain percentage of Fusarium that's present. My understanding is that usually that is the case. It's not impossible to find that seed that has no Fusarium in it. It's just challenging because most of it is sort of propagated in Saskatchewan.

I wonder if there might be some opportunity – and maybe it has to be a provincial initiative – to start propagating that seed, Fusarium-free seed, of those tolerant varieties in Alberta. Alberta Agriculture does have different research stations. Well, I don't know that that's their business so much anymore, but maybe something like that, just to create a source – and it would take time, obviously – of those tolerant varieties in Alberta so that it is Fusarium free.

Mr. Lentz: I'd like to just comment on the fact that some people confuse tolerant varieties with resistant varieties. Tolerant varieties are generally a variety that is actually infected with that seed. It's like a carrier of a communicable disease. You carry the disease, it doesn't affect you, but you spread it.

Resistant varieties are varieties that do not have the infection and have a resistance to getting the infection. I believe some of the push by the pedigreed seed growers is to be able to bring in that tolerant variety, which is actually infected but can grow and produce grain without having the disease or without being affected by the disease. I think that we really have to be careful with that as opposed to resistant varieties.

The Chair: Thank you very much for that clarification.

We're going to move along to Mr. Hale, and Mr. Hale will be followed by Mr. Young and Ms Johnson.

Mr. Hale: Thank you. My first question is for Mr. Lentz. You mentioned in your presentation about cattle eating infected grains and if the public would find out that the cattle are eating infected grains. I myself am a cattle producer. I kind of took offence to that statement. We heard from the Alberta Beef Producers yesterday and from the hog producers that it's all about the level of mycotoxins in the feed, and a lot of our feed is mixed off and fed different rations. I would just like you to maybe expand on what your statement was about cattle eating this Fusarium-infected seed.

Mr. Lentz: Okay. What I referred to are cattle that are being fattened in feedlots, and in addition to Fusarium-infected barley and grains and corn coming in, there's a considerable amount of dried distiller grains that are coming in to these feedlots as well. The problem with dried distiller grains is that they're a by-product of the ethanol industry. During the process to make ethanol from the grain, it goes through a fermentation process, and that actually escalates the vomitoxin level to often as much as two and a half times the level of the infected seed that they used to begin with. That's another risk as well, you know. There are large volumes of this coming in to finish fattening feedlot cattle. It's a well-known fact.

I've been in agriculture for many years. My father's side of the family came here in 1902. We've been farming and ranching here all this time. I guess we should differentiate between fattening and finishing feedlot cattle and the cow-calf producer. I don't believe that the cow-calf producer is exposing their livestock to the high levels that the feedlot industry is.

Mr. Hale: Okay. Maybe to Mr. Storch or Ms Kolebaba: do you know what percentage – basically, we're talking about the level of Fusarium in the seed produced – of seed growers in southern Alberta compared to central Alberta compared to northern Alberta?

10:00

Mr. Storch: That's not a statistic that I've heard. No. Sorry.

Mr. Hale: I wasn't sure myself. That's why I was asking.

Ms Kolebaba: I know that in northern Alberta municipalities pay their farmers for five testings of the seed themselves in order to keep the land free and to support the farmer. The legislation says three years if you're found with Fusarium graminearum – there are many Fusariums, but the Fusarium graminearum is the one – but we have changed ours to four years. We're hitting them hard, and they back us up. I think that if we had done the same in southern Alberta, hit them hard right off the bat, we wouldn't be sitting where we are today. I don't know how to express this to you more. I mean, the harder we hit them, the more the farmers – at first, they buck it, but right away they know that if we don't help them, then they're not going to be growing cereal crops. Then where is the market going to be? So they're pretty much sold once you can get them over it.

Farmers are good people. They want to produce – right? – and they want to do that the right way. In the south there are levels there – you know, we have 69 municipalities, and they voted for zero tolerance, and the south was there. I don't know what else to say to you.

Mr. Lentz: If I might comment on that, the province monitors the statistics based on postal codes. When a sample comes in from a certain region, the testing lab keeps track of the postal code that that sample came from. Now, in the Medicine Hat area we have a large number of people living in Medicine Hat that farm in Saskatchewan. Also, we have people that are contemplating bringing in seed from Saskatchewan. If they take a sample and send it away so that they're assured that it is Fusarium free and the

sample comes back showing positive, it's labelled as that postal code having Fusarium. It's not always true.

Mr. Hale: Okay. Thank you.

I believe both gentlemen were members of the Fusarium Action Committee. Where is that committee at right now? What are their recommendations? What are their studies showing?

Mr. Storch: Garry does. I don't personally sit on the Fusarium Action Committee. We have a pest representative from the AAAF who does. Garry does sit on the committee.

Mr. Lentz: The decision of the Fusarium Action Committee was supposed to be by consensus. At the last meeting that we had, a vote was taken to proceed with requesting that changes be made. The first vote was a tied vote, 4-4, so it was lost. Then it was noted that there were, possibly, some people there that could have been voting but weren't. So the vote was retaken, and then it was decided that a majority was in favour of asking the province for change. It was just done by a simple majority and not by consensus.

I might add that the plant science people in Alberta have been, you know, working quite hard to try to help the agricultural producers in the province with a proactive approach. I think that they have maybe downplayed the seriousness of Fusarium right from the start.

Mr. Hale: That's good.

The Chair: Thank you, Mr. Hale.

Thank you, Mr. Lentz.

We'll move now to Mr. Young.

Mr. Young: Thank you. Thank you very much, Garry, Carolyn, and Jason, for coming here today and presenting your perspectives as well as your representation of your organizations. I don't farm, okay? But I do know a little bit about enforcement. It seems to me that while people advocate for zero tolerance, I think we're naive to think, from what I'm hearing, that that's even been followed. We've had a wonderful presentation from many people that have represented management best practices in terms of managing this, but they also have been voluntary. As a collective group we can all agree that those are the best practices, but when you drill that down by certain regions and certain individuals, there are people who opt out, and there is very little control. I would even suggest that there's inconsistency in terms of other recognized practices, things like seed cleaning and testing at seed cleaning plants.

Carolyn, does AAMD and C have a position on mandatory testing at seed cleaning plants?

Ms Kolebaba: No, we don't. But we do have a position on zero tolerance: however you need to meet that, meet it.

Mr. Young: Okay. But is it not recognized that testing at seed cleaning plants is a recognized best practice?

Ms Kolebaba: They bring the test there, and the plant sends it out.

There are how many labs? Two labs?

Mr. Lentz: At least three.

Ms Kolebaba: There are three labs in Alberta that they send to.

Mr. Lentz: There are probably more.

Ms Kolebaba: In certain areas in this province the seed cleaning plants are not allowed to take Fusarium. There have been some changes. Like, some of the Fusarium graminearum has a DNA trait to it, so it might say that you have Fusarium graminearum, but some would argue that that's not the case. Our position is that we want to stick with zero. It's like with rats. Do we want one rat, or do we want no rats?

Mr. Young: No. I appreciate your position. I'm trying to understand the context. As much as we think we live in a silo, not affected by the outside world, we are. This invisible border called Saskatchewan: things flow freely back and forth. So with putting a regulatory regime or maintaining one of zero when we have failed, I think, to enforce that effectively or comprehensively across the province and we can't effectively enforce anything across the border – rats or Fusarium or seed or anything otherwise – and we've failed to get full buy-in, if that's the right term, in terms of all the voluntary management best practices, I somewhat think that we have more of an enforcement thing rather than the maintaining or changing kind of issue. That's what I'm hearing. I'd like some comment on your thoughts on that because, really, our role here is to look at the proposed bill of moving off that zero per cent, but I think the conversation is far bigger than that in terms of how we deal with the real problem, which is Fusarium head blight.

Ms Kolebaba: Well, I do know that, you know, the fieldmen in the ASB are creatures of the municipal government. I mean, it's no different than you sitting here as MLAs. One of your MLAs brought this forward because she was asked to do so by her people. Now, these fellows carry out their positions under the direction of the municipal government. The municipal government has failed in some places because they have not enforced the law. The law is there. Now, I am thinking that if municipalities do not enforce what the legislation says, what kind of governments do we have?

I mean, I feel for these fieldmen or the ASBs because they have those people sitting there who are elected by the people for the people, and they're told what to do and where to go. The ag fieldmen want to be able to do their job, but they have a government that's saying: don't screw with my neighbour; leave him alone because he'll phone me at night and harass me. So what are they to do? They go out, and they want to enforce the law, but there's a problem.

You know, I still believe that the majority of the municipal governments have met their obligation. They have enforced the law, as Garry has spoken to, around Medicine Hat. I mean, they have how many thousands of acres that aren't infected? So where is this big hoopla that is being created? It's being created by people wanting to line their pockets, whether it's the seed growers or the big feedlots or whatever. They can buy it cheap if it's infected. That's not fair to the rest of us.

Seed needs to be clean; seed needs to go in the ground clean. Alberta needs to sustain its markets, and for the slight number of municipalities that aren't following regulations, Alberta Agriculture should have been in there a long time ago.

10:10

Mr. Young: Agreed. Well, thank you very much. I just think that one of the considerations of this committee that I'm certainly going to put forward is that regardless of where we land, on that zero or 5, even if we go – just bear with me – to the 5 per cent tolerance, if we fail to enforce that, then it's going to 10 and 20 and 30. Wherever we land, let's not be so naive as to think that by just sort of putting down the gavel and saying, "Let it be so," it's going to happen. All you have to do is drive down highway 2 and see the 110-kilometre-an-hour speed limit and get run over by

everybody who's driving. Enforcement and changing behaviour need to be part of that mandate there.

Thank you very much for your feedback. I do think that, like I said, the enforcement piece needs to be part of the recommendation. Outside is simply the yes or no on MLA Kubinec's bill.

Thank you.

The Chair: Thank you, Mr. Young.

That brings us to Ms Johnson.

Ms L. Johnson: Thank you very much. Thank you very much for your presentation. I know that it's only been two days, but I can't believe how fascinated I've gotten by this topic. While it may be in Calgary-Glenmore, I'm more concerned about zebra mussels right now in Calgary-Glenmore.

Ms Kolebaba: We're working on that, too.

Ms L. Johnson: That's right.

First off, I want to say thank you to our agricultural industry. We have to remember, as we discuss this, that this is the number two economic driver of our province, and all the pieces of the puzzle that we put together as we deal with Bill 201 have to support the industry. I thank you individually for what you do in the industry, and I thank you for taking the time to be with us here today.

I want to approach this from the perspective of the tools that we already have to make sure that it doesn't get worse. You know, we're having a lot of questions about enforcement and best management practices. It's so that we can understand what happens in a reasonable agricultural operation. I have a very basic question. Who employs fieldmen? I thought it was municipalities for a minute, then I heard reference to Alberta Agriculture. So who does employ them?

Mr. Storch: It is the municipality that employs the agricultural fieldmen.

Ms L. Johnson: So would the city of Calgary have an agricultural fieldman?

Mr. Storch: They could if they had an agricultural service board under the Agricultural Service Board Act.

Ms L. Johnson: See, this is where I get confused.

Mr. Storch: My understanding of history is that at one time Calgary did have an agricultural fieldman.

Ms L. Johnson: Okay. Actually, I think there is grain grown on Heritage Park land in my constituency. There we go. It all ties together.

Ms Kolebaba: You might have a partnership with someone because our agricultural service board services towns and villages. We just assist them in the areas that we have the expertise in.

Ms L. Johnson: Hector is going to give me the lesson afterwards.

What does enforcement mean? The fungus is in seeds, and it's in grain. So what does enforcement mean?

Ms Kolebaba: Seed is the grain.

Ms L. Johnson: Okay. They have a seed plant down south, and it's just the black seeds from canola.

Ms Kolebaba: And that's a seed.

Ms L. Johnson: Right.

Mr. Lentz: The seeds that we're concerned with are cereal grains. That would be mainly wheat, oats, and barley. Corn and canary seed can fall into that as well. It's not the oilseeds or the other specialty grains: pulses, legumes. It's basically grains that are made into cereal products; I guess that would be an easy way to explain it.

The agricultural service boards have to take some blame for not enforcing the law because each agricultural service board determines the level of enforcement of the different acts within their community, and they direct their fieldmen to either go out and enforce it or not enforce it. We have had some agricultural service boards that have basically ignored the law right from day one and did their own thing. As well, one time the Alberta seed cleaning association requested all of their plants to have a zero tolerance policy, and I know of about three of them that completely ignored their organization right from day one. You'll always have some people that tend to ignore the law and do their own thing. I think perhaps the province's pest regulatory branch should be, you know, having a conversation with some of those ag service boards that aren't following the law.

Mr. Storch: I don't know if it has come up in any of this yet. I shouldn't speak to the pests act because I can't exactly remember if it's in there or not. Certainly, it's under the Weed Control Act, so it makes me think that it's under the pest control act. Yes, the municipalities are the ones who are delegated to deal with this legislation. Yes, the ag fieldman is the one that the municipalities hire to deal with the enforcement at their level, but Alberta Agriculture also reserves the right in the legislation that if the municipality is not enforcing the legislation properly, Alberta Agriculture will send in its own inspectors, and they will enforce the legislation and send the bill to the municipality at the end of the day. Those tools exist for that to happen.

Ms L. Johnson: Well, thank you for those clarifications. It's important to have it in *Hansard* as we review the material going forward. How does it work? If an outsider's looking at it, the information is there.

Garry, in your presentation you spoke about the import of diseased grain. Here we've spent two, three days talking about the wind and animals moving it. We as a province are allowing the diseased seed, grain to come into Alberta at a time when we have legislation that says that we have a zero tolerance?

Mr. Lentz: Okay. The law states that you can't bring grain in to use for planting as seed, but it allows for feed grain to come in. With an allowable tolerance, if the pest act is changed, that will allow the pedigreed seed growers to import tolerant varieties that are infected, to bring them in legally and multiply them, resell them in the province. That's what I was referring to.

Ms L. Johnson: Okay.

Thank you very much. Thank you for your answers. Thank you, Mr. Chair.

The Chair: Thank you, Ms Johnson.

We'll now go to Mr. Goudreau.

Mr. Goudreau: Well, thank you. Thank you for answering all these questions. Just to build on Ms Johnson's comments about the agriculture and the state of agriculture, I do want to recognize, as Ms Johnson did, that agriculture is extremely important to Alberta. I want to leave that opinion with you and with our

committee, that we probably have some of the top-notch farmers in the world. Both Alberta and Canada have some of the best farmers. Certainly, with our discussion here you might be led to believe that we don't. I want to re-emphasize that. It's in good part due to the work that you do as a service board, as municipalities, as seedling plants, as associations out there to have those kinds of things happen, and, as well, the willingness of farmers to produce the best. There's no doubt in my mind that that's happening out there. You know, sort of ignore some of the comments that we said, or it might be perceived that we don't have that quality of farm here.

There has been some discussion, though – and that's maybe my comment – to look at a regional approach to tolerance levels. Dr. Brown alluded to that very, very briefly, that we may look at a zero percentage in the north, maybe half a per cent in the centre of the province, and, say, 1 per cent in the far south. I'd like your comments on that.

10:20

Ms Kolebaba: Yeah. No. Zero is zero. You know what? I go back to MLA Young. Those laws are there. They were there for a reason. Zero is zero. You can't have one rat in Medicine Hat and think that there's not going to be 3,000 within a short period of time in Peace River. It just doesn't work. This is a dangerous disease. We learned from Saskatchewan. We learned from Manitoba. We need to grip it and figure out how to control this thing. Zero is zero. If you say, "Okay; well, you can have one," then that area is going to end up at 10. It's enforcement. Do it. You have the hammer. Use it. Let's protect our agricultural industry. Cereal grains are too important to us.

Do you want to say something?

Mr. Lentz: Yeah. I can't see how allowing some areas and not others, you know, would work. For example, in my Cypress county we have an irrigation area that does have Fusarium graminearum, but we have a large dryland area that doesn't. How can we possibly enforce a law that is not exactly clearly defined? I think the only way to keep it clearly defined is with zero tolerance for the whole province.

Mr. Goudreau: Thank you.

Thank you, Mr. Chair. That's all I have.

The Chair: Well, thank you.

I'm hopefully going to conclude with a few comments, and I think there may be a few questions contained with my comments. One of my asks, if you will, is that it's interesting that yesterday we heard some testimony that told us that there is Fusarium in trace levels in the north and in central Alberta. I made the same request to them that I will make to you, that if you have any data or any sources of data that can demonstrate that there is no Fusarium in the north, as you presented to us, that would be very, very helpful to our committee. One of the challenges that we have as a committee is that we need to make our decision based on science and data as much as possible because we fully acknowledge that this is an emotional issue. It's a passionate issue.

While I'm on the topic, I want to thank our presenters today for the obvious passion that they bring to this subject. I think it makes for a better presentation and a much better dialogue when somebody cares as much as our presenters obviously do about the subject. I want to thank them. But if you do have sources for data that substantiate the assertion that there is no Fusarium presently in the north, that would be very helpful for our committee.

Now, I'll move along. Again, some comments that may in and of themselves contain questions. It's our deputy chair who actually made a comment earlier that it's just unfortunate, due to the logistics, that we couldn't have had all of the presenters in the room hearing each other's testimony because I think that would have presented a really well-rounded experience for not just the committee but for everybody testifying, but we did hear from three of the most pre-eminent scientists in this field in the world, I think. Mr. Lentz, I want to assure you that they have committed their lives in many respects to the study of Fusarium and the adverse effects of Fusarium and the impacts that this disease has on livelihoods and our economy. I want to assure you that they take the issue very seriously and imparted that upon this committee.

One of the things that they've told us, you know, was sort of good news, bad news. Ms Kolebaba, I do appreciate your analogy between rats. They are on the pest list, rats and Fusarium. Although we know that rats can be eradicated, one of the things that they told us about Fusarium and the way that Fusarium moves is that Fusarium is inevitable. They've also told us, you know, that there are regions such as Manitoba, that if you focus on best practices – we've talked about best practices as something that's a commonality. Everybody agrees that best practices are certainly a route we need to pursue. But if you're smart and if you use best practices and if you manage things as best you can, you can actually be very productive even with Fusarium present, as Manitoba has clearly demonstrated.

Where I'm going with this is that one of the reasons – I mean, it was good news, bad news. They said that it's inevitable. They also told us that the silver lining is that they believe that science inevitably will catch up and there will be full resistance to Fusarium once science moves in that direction, and they say that science is moving in that direction. But as we've talked about enforcement – and we've spent a lot of time talking about enforcement and best practice – one of the reasons they believe Fusarium is inevitable is that one of the areas we haven't quite figured out how to enforce just yet is the weather. What the best scientific minds in the world have told us is that the number one condition and factor to the spread of Fusarium is weather, and we cannot control the weather.

One of their approaches in best practice that we've heard from other presenters is this concept of regionalization. Ms Kolebaba, I think I understand where you sit on that issue. One of the things that I learned from yesterday is the fact that we've had zero tolerance, and even though we haven't been able to achieve no Fusarium in Alberta, the fact that we have a zero tolerance policy has perhaps been one of the reasons why we haven't had such a large-scale infestation of Fusarium in this province.

One of the things they're telling us, you know, is that whether we like it or not – there was an argument presented that we are currently living in a regional solution to Fusarium. Whether we want to say that there's zero tolerance in Alberta, the Fusarium doesn't respect our borders. We've received testimony from a number of farmers who farm on the eastern side of Alberta and actually farm on Alberta and Saskatchewan that our current legislations make life difficult for them.

I guess what I'm going at in terms of a question is that that side of the argument is that we are currently living within a regional framework, if you will, when it comes to managing Fusarium, given that Saskatchewan has different legislation and different laws when it comes to containing Fusarium. I'm just curious as to, perhaps, the opinion from our experts today about that. How would you answer that argument, that even though we may say that we want to have zero, and we've talked about some of the challenges of enforcing zero in Alberta, the fact remains and a strong argument can be made that we are already currently

existing in a regional framework in terms of the legislation for Fusarium? I'm just curious as to your comments.

Mr. Lentz: The statistics that we have on levels of infection in the province are all gathered by the accredited testing labs, I believe, and are directly related to postal codes. As far as I know, those labs don't share that information with the local ag service board. I've never had a lab contact us and say, you know: we've got numerous samples from your area that have come in. We've never had that kind of correspondence. I think the people to go to for those statistics on which areas have it and which don't would be best coming from the testing labs.

Manitoba has no other alternative but to try to use the best practices because they got so heavily infected with Fusarium that they're struggling to try to make a go of it. Fortunately, here in Alberta we haven't reached that level yet, but absolutely best management practices have probably prevented it from spreading in Alberta to that extent: getting seed tested, using pure seed that is free of Fusarium, treating the seed, possibly even foliar applications, rotation. I've been at numerous conferences with some of the best speakers from around the world, and they say: "Rotation, rotation, rotation. Break the disease cycle by using other crops." Every farmer in Alberta does not have to grow cereal grains. He should be rotating with other crops. That's where we stand on that.

10:30

The Chair: Mr. Lentz, I am just curious as to your thought on the argument being made that we're currently existing in a regional framework, as it is, when dealing with Fusarium. Do you have any thoughts about that?

Mr. Lentz: Well, I guess it's like I said. Any municipality can have areas that are infected and areas that are not. You know, it's not just a matter of regions or areas. It's a matter of almost every rural municipality in the province that is going to have to struggle with how they are going to enforce that type of legislation.

Mr. Storch: With the regional framework, even on a national level, did you consider Manitoba, Saskatchewan, Alberta each on its own?

The Chair: Right now when it comes to legislation and dealing with Fusarium, our immediate neighbour to the east, Saskatchewan, has a completely different policy when it comes to the issues we're speaking about in Bill 201 and the fact that Fusarium doesn't honour our border with Saskatchewan. It's an airborne toxin and can cross the border without a passport, so to speak.

That's an argument – that's not my argument – that's been presented to us by other folks testifying on behalf of a regional approach to try to contain Fusarium, making the argument that we already live within this regional concept, if you will. The whole concept of zero: you know, we can say zero, but how practical is that? Any thoughts about that?

Mr. Storch: I had not thought about it in that regard until you mentioned it, but if you thought of Manitoba, Saskatchewan, and Alberta as each a distinct region with their own rules, the regional framework with different rules in the framework, it sort of lends itself to what Carolyn was saying, that that sort of doesn't help with the long-term keeping it out.

My understanding is that it started in Manitoba. Manitoba didn't want it, but they got it. Saskatchewan probably didn't want it, and they got it. Here we are sitting with a zero tolerance policy with it knocking on our door, and now we're asking: well, maybe we should go change our tolerance level. Even if we took that same model and used it within the province, exactly what Carolyn had said, like, 1 per cent in the south, half a per cent in the central, and zero in the north, well, then it's just going to keep changing, perhaps.

Ms Kolebaba: You know, the boundaries are there – yes, the boundaries are there – but, you know, under the agricultural act or under the pest act or under whatever, it's different than Saskatchewan. Even the weed enforcement on that boundary is different. It is upheld by those municipalities that are in Alberta. They have to. I mean, it's there. Whether you have mayweed on the Alberta side and Saskatchewan has it on that side, that Alberta municipality says: "You will eradicate it. You will pick it. You will get rid of it." Saskatchewan doesn't have the same rule, but we still respect that boundary. That's what's there. I still say that Alberta should lead the way, keep it at zero, and let's find a way to speed up research or help the municipalities to enforce what the law already is.

The Chair: Thank you very much.

Dr. Brown, did you have any concluding comments? Okay.

As with our opening session yesterday, we've run a little bit long, but the reason we've run long is that the testimony and the questions and answers were so very compelling. I want to thank Jason and Carolyn and Garry for your time and your energy and your expertise today. We appreciate how busy you are, and taking time out of your day to come and be here with us speaks volumes.

I also would like to follow up on the comments from some of my colleagues around the table to state that the position of this committee is that the farmers and the farmer community and the agricultural community in Alberta take a back seat to no one. We are world leaders in terms of agriculture, and we are grateful for everything that you do today to support that industry. Thank you all so very much for being here.

We are going to take a quick comfort break. Chris is going to need 15 minutes to set up our video conferencing. You're already there? We're going to take a quick nine-minute break. We will come back at 10:45 and proceed with our next panel.

Thank you all so very much.

Ms Kolebaba: Thank you for having us.

The Chair: It was a pleasure.

[The committee adjourned from 10:36 a.m. to 10:50 a.m.]

The Chair: Welcome back, everyone.

We're now set to hear from panel 6, our extrajurisdictional stakeholders' panel. From Manitoba Agriculture, Food and Rural Development, joining us via video conferencing, we have Dr. Vikram Bisht. On the phone from the Canadian Grain Commission is vice-chair Dr. Tom Gräfenhan. Also on the phone with us this morning is Ms Beverly Stow, board member of the National Farmers Union, region 5, from Manitoba.

Thank you, folks, for your patience. If you're on the phone, can you please introduce yourself?

Mr. Cao: Wayne Cao here. I can't hear anything.

The Chair: Hello, Wayne. MLA Cao, are you on the phone?

Mr. Cao: Yes. I'm back on the phone now. I can hear you.

The Chair: Wayne, we're so glad you're with us. We're just about to begin. Thank you very much for joining us.

Mr. Casey, are you on the phone?

Mr. Casey: Yes, I am.

The Chair: Thank you, sir, for joining us. We're just about to begin. Unfortunately, you cannot see the video presentation, but we're about to go to Dr. Bisht, whom those on the committee can view by our two-way video conference.

Dr. Bisht, whenever you're ready, please begin your testimony.

Manitoba Agriculture, Food and Rural Development; Canadian Grain Commission; National Farmers Union

Dr. Bisht: I'm going to get my presentation up. Are you able to see that now?

The Chair: Yes. Fantastic. It's wonderful when technology works.

Dr. Bisht: Yes. Good morning, everyone, and thank you for the opportunity to speak to the group. My name is Vikram Bisht. I'm a plant pathologist with Manitoba Agriculture, and yes, we have had Fusarium head blight in Manitoba. Some of you may have heard of it.

This committee knows and the people in the audience know that FHB has a lot of impact on grains, reducing quality, and because of the mycotoxins other industries are affected as well. There is a very wide host range as all of you probably are aware: grass families, now there are reports of the pulses being infected, and the roots of some oilseeds are affected. A lot of Agriculture Canada scientists have written papers on that.

Just a brief introduction on the pathogens. There are mainly four pathogens involved in North America, but the Fusarium graminearum is the most important. It could change, but currently that is the most important and most prevalent. It has an asexual stage, where they produce microconidia, and the sexual stage, which are the ascospores. These are moving westwards, as we see.

Here is the map from the Canadian Grain Commission, which shows that in 1994 it was mostly in Manitoba and eastern Saskatchewan and just one dot for graminearum here. But in 2007 the picture has changed a bit, and I think that in 2013 the picture would be more dark on the Alberta side, too.

The sources of inoculum, you probably know: crop residues. The fungus survives in the soil as chlamydospores or as perithecia – this is the sexual stage – and it will also move long distances from other areas. It can be in the root zones of many of the alternate hosts. Of course, seed is one of the most important aspects of the transport or movement.

The head blight is present in many areas of North America. Manitoba and eastern Saskatchewan are predominantly heavily infected. Northwest Saskatchewan and Alberta: we understand that it is getting there. B.C. has the infection. Ontario, Quebec, and the Maritimes have a lot of infection. The Midwest U.S. has a lot of infection. In Alberta, I understand, wheat is produced under irrigation, there are a lot of field peas grown everywhere, and, I suppose, the grassy weeds can't be controlled everywhere.

This is the news from the Canadian Grain Commission on the soft white spring wheat. In 1 to 2 per cent – not 2 per cent but slightly higher than 1 per cent – by weight FDK was found in some samples from the south, so it is present there.

Just the updated map, from 2014, from 20/20 Seed Labs. It has the number, the percentage of samples which were showing infection by Fusarium graminearum, and there is a wide range. Many are zero, but .5 is also there and samples where every sample was infected. This is the updated list.

You would know that weather is changing, and the patterns may be affecting the geographical distribution of the pathogen. The long-distance dispersal studies have been done, and it is possible that the spores are coming into Alberta from other regions. Your B.C. neighbours may be sending you the westward wind spore rain shower, and a lot of it may be coming from the south. You get rust from the south, so why not Fusarium?

The spores can come, but if the conditions are not right, you will not get the infection. Just to understand the changing patterns, I took a brief snapshot of the last 10 years, and here you can see that 2004 was rather dry, but after that the percentage of the normal monthly rainfall in relation to the long-term average is getting wetter. This is from the Alberta weather mapping system. It means that many areas in Alberta are now more moist compared to a few years ago.

This is a study by a group in the U.S., and they have said that long-distance transport of the spores can be from 50 metres to one kilometre above the earth's surface. They had some drone studies where they put a petri plate with the selected medium for Fusarium in the air, and they got viable FHB spores. In their opinion significant long-distance transport would suggest that management of inoculum in individual fields would have little or no regional impact unless a very extensive area was managing it in the right way.

Here in Manitoba we use Fusarium head blight forecasting, which has proven to be extremely helpful to us. This model uses rainfall accumulation and duration and the temperature for the last seven days. We integrate that into our risk assessment, and then we publish the risk forecast for different days. Currently the risk is very high in Manitoba because of lots of rain. This is the perfect stage – good rainfall, warm air temperature, and inoculum in the area – where we need to be concerned about the inoculum coming, and I'm sure that if you have spores in the area coming long distances, with this kind of rainfall and wetness on the heads, you will have infection. But if the conditions are right – spores are present, but the flowering is all over – the infection of FHB will not occur, so there would be an escape.

This is June 19. You can see that the rains and the lake effect hold very high risk for Fusarium in this area. It's likely high here and much lower on the western side, but currently almost the whole province is high to extremely high risk. We are currently sending out this information to our wheat growers by e-mail or on the Internet and basically suggesting that if your fields have heading or near heading, you should spray fungicides.

11:00

What's the difference between Manitoba and Alberta in relation to FHB? We do not have it regulated. You have it regulated. We have only visual grading. You have lab testing. We have .5 per cent, at which the seed companies may sometimes decide to reject, and if the seed is in short supply, I think they can put the tolerance at a bit more whereas Alberta has zero tolerance.

There are certain principles of pest management that we follow. We avoid, by planting at different times so that the flowering doesn't match the peak spore time. We use chemicals to protect. We try to eradicate pests or disease, but in this case eradication is almost impossible.

The other main principle is exclusion, and that is where Alberta has decided to include FHB in the pest act. However, this regulation will only delay the entry, which is already there, or the spread in the province. It will give time to devise other strategies.

The exclusion in the regulation is effective only for the diseases or pests which have restricted geographical spread and have limited modes of transport. The survival is mainly in the soil. The mode of transport is seed, but airborne is not the main method. Distribution is not wide, and the host range is limited. In that case, the pest act would work.

In some cases it is practical to regulate. For example, PCN and the potato wart have limited distribution, and regulation does help. Soybean cyst nematode, which is not regulated in the U.S., was regulated in the Canadian system until November 2013, but the CFIA either could not handle it or the cost was too high, so in November they decided to deregulate the pest. Now it is a deregulated pest in Canada.

FHB in Alberta. Just to basically wind down, it is present all around. It is not regulated in any other region of the province or in many states. The pest moves by seed, air, and it has a wide host range.

Considering all of this information, I would support the amendment, but some of the points I would like to add here would be that FHB is not Fusarium graminearum alone. It includes a few other species, which should be included in the list.

In certifying seed with a .5 per cent tolerance in a seed lot, the method of testing should be indicated because if it is visual, the results will be different for the same lot compared to the plate testing or the PCR method of testing. So that is important.

The .5 per cent FHB, the next few lines, on a plant crop rotation: I think this needs some modification or fine-tuning because FHB on a wheat head will not be equal to the same percentage of infection on the percentage of seed. I suppose Tom would be able to give a few comments on that.

Not just the seed, but there are a lot of other ways that head blight can be controlled – you all know that – crop rotation; the seed, of course; cultural methods; scouting; as in Manitoba, we have the Fusarium head blight risk maps, which help to time the fungicide; and then at harvesting the chaff and the light seed can be thrown out.

I thank you for the opportunity. If there are any questions, please feel free. Also, this picture just shows the perfect timing. If the spores come here and rain is here, then you will have disease.

Thank you.

The Chair: Dr. Bisht, thank you very much for that outstanding presentation. What we're going to do is that we're going to hear from Dr. Gräfenhan and Ms Stow. Once all the presentations are completed, we'll open up the meeting for questions from our committee. So if you could indulge us and stick around for a little while longer. Thank you very much.

Now we'll move to Dr. Gräfenhan, who's on the phone. Dr. Gräfenhan, just prior to that, I'll give you 20 seconds to get ready. We have a member of our committee who's recently joined us. I'll give him an opportunity to introduce himself.

Mr. Bilous: Thank you, Mr. Chair. Good morning, everyone. Deron Bilous, MLA, Edmonton-Beverly-Clareview.

The Chair: Thank you. Good to see you, Mr. Bilous.

Dr. Gräfenhan, the floor is yours.

Dr. Gräfenhan: Thank you, Mr. Chairman and members of the committee, for the invitation to present some of the research and monitoring results that the research laboratory at the Canadian Grain Commission generated over the past couple of decades.

Before and since joining the grain research lab here in Winnipeg in 2010 as a research scientist and manager of the microbiology program, I gained considerable knowledge and experience dealing with Fusarium graminearum and other species from various perspectives.

I suppose you all have received a copy of my presentation prior to this meeting. Perhaps the slides are up on the screen as well, but I can't see. If so, I would like to ask someone to advance the slides for me as I go through my presentation.

The Chair: Yes, sir. We are on it. Thank you very much.

Dr. Gräfenhan: On my first slide, titled Fusarium Disease Cycle, I would like to start, with your permission, with a brief overview of the disease cycle, which you've probably heard about several times now. It is, I think, quite important, if you consider infected seed as a starting point in the disease cycle, that once seeded, infected seed can actually cause seedling blight and crown or foot rot on growing plants in the field. Infected seed and/or diseased young plants may not necessarily lead to Fusarium head blight but certainly increase the risk of more severe infection later on in the season. Outbreak of Fusarium head blight as a disease depends on a number of additional factors, which were alluded to before, and include available inoculums or spores during anthesis, or flowering, of the plants and environmental conditions in the field such as moisture and temperature.

In spite of a few dry years there have been a series of several years across western Canada where average and above average precipitation has occurred during anthesis. It is at anthesis when cereals are most susceptible to infection by FHB pathogens.

Please go to the next slide, slide 2. The next slide shows symptoms of Fusarium head blight, or scab as it is called in the United States, on wheat that are well known but less pronounced on oats and barley. FHB affects the crop directly through lower yield and grain quality. In western Canada these symptoms can be caused by a number of fungal pathogens, including Fusarium graminearum, Fusarium culmorum, and Fusarium avenaceum. But Fusarium graminearum by far is the primary FHB pathogen on common wheat.

In addition, the leaf pathogen Stagonospora nodorum, causal agent of glume blotch, can cause similar disease symptoms such as Fusarium-damaged kernels, or FDK, on wheat. FHB can reduce the yield, grade, and quality as well as contaminate the grain with mycotoxins. Mycotoxins such as deoxynivalenol, or vomitoxin, reduce the grain's suitability as feed, and even very low levels can result in barley being rejected for use in malting.

The level of contamination with DON, or deoxynivalenol, is closely related to the percentage of Fusarium-damaged kernels. For that reason, tolerances for Fusarium damage are used as grading factors in the official grain grading guide.

11:10

The GRL, the grain research lab, so to speak, also did research on heat treatment of cereal seeds. Heat treatment has the following advantages. It can reduce the chances of national and international movement of some seed-borne fungal, bacterial, and viral pathogens. It provides organic growers with nonchemical means of pathogen control. It eliminates insects and nematodes, and it even can kill some weed seed. We did experiments with dry heat of 70 Celsius for five to seven days, and the method seemed to work best for treatment of wheat and barley against Fusarium graminearum.

Seed viability depends somewhat on grain moisture content, but the viability was only slightly declining from 12 per cent to 16 per cent moisture content. The disadvantage with heat treatment is that heat dryers are not yet available for commercial operations and large-scale treatments. There are also other effective methods of seed treatment like microwave with steam, closed hot air treatment, and radio-frequency electric fields.

Next slide, please. It's entitled How to Measure Presence of Fusarium, which is a very important and interesting question. Over the last decade the GRL has developed and validated various methods for the detection and quantification of Fusarium species in raw grain. We have provided lab protocols, test procedures, and training to seed testing labs and other interested parties for accurate

detection and identification of seed-borne pathogens such as Fusarium graminearum. These test methods include identification of Fusarium species by morphology or DNA-based methods such as polymerase chain reaction.

For seed, however, no officially accepted test method for Fusarium species is included in ISTA's International Rules for Seed Testing. I'm aware that currently a working group under the Seed Health Committee of ISTA is reviewing and validating a number of methods for Fusarium, similar to what has been done and accepted for the detection of Stagonospora nodorum and Microdochium species on wheat. In my opinion, recommendations on a recognized test method for Fusarium on seed would have to come from an international or a regulatory authority.

On the next slide I will talk about advantages and disadvantages of identification by morphology. There are a number of advantages that come with the agar plate method, and they include that it can determine the level of seed infection in the endosperm and germ of the kernel. It is a relatively cost-effective method, especially since consumables are relatively inexpensive. It can help identify only those fungi that are actually alive on the seed, and that is similar to testing that is done for food-borne pathogens. The main disadvantage is that the knowledge and expertise required to identify Fusarium species are crucial in correctly identifying it under the compound microscope. Also, only a limited number of seeds can be tested and analyzed, so a large seed lot may be undersampled, and test results may not reflect the actual percentage of infection.

On the next slide you see the advantages and disadvantages of identification by DNA-based methods listed. DNA-based methods are faster, somewhat more reproducible. Species identification is more objective, and a larger sample size can be dealt with and tested. Also, detection seems to be somewhat more sensitive. Disadvantages are that consumables are more expensive to detect both living and dead fungi, and it is at times difficult to enumerate the number of infected seeds.

There's also real-time PCR, which is on the next slide, number 2, that we have developed and validated for the quantification of Fusarium graminearum in plant samples. Based on the correlation of percentage FDK versus concentration of Fusarium graminearum in wheat, the method can be used for the detection of Fusarium species as well as for setting threshold levels as limits of detection and quantitation. On the slide there are 30 samples from Alberta included, and only four of them were free of Fusarium graminearum using the DNA-based method.

On the next slide, slide 3, DNA-based methods, I'd like to mention that we also developed a method which can be used for strain typing and traceability studies of Fusarium graminearum using single nucleotide polymorphism and high-throughput DNA sequencing. Looking at 200 Canadian isolates of Fusarium graminearum, including some from Alberta, we were able to identify more than a hundred unique populations in Canada. That means that in Canada and in North America in general we see a very high biodiversity of Fusarium graminearum. It is very unlikely that there is a kind of single point of origin at a single point in time for any of the historic FHB occurrences. Some of the populations that we have identified from Alberta were quite unique, and we did not observe them from any other province or any other place in North America.

On the next slide I would like to speak to the historical occurrence of Fusarium species associated with FHB across western Canada. As Dr. Bisht alluded to before, the problem started a bit earlier south of the border, where in the early 1980s FHB caused by Fusarium graminearum was reported in wheat and barley in the Red River valley in Minnesota and eastern North Dakota. Also brown and foot rot on winter wheat caused by Fusarium culmorum and graminearum was reported from the Pacific Northwest.

It was in 1984 when Fusarium graminearum in a heavily infected sample of amber durum and red spring wheat was detected in the Red River valley of southern Manitoba. At that time Fusarium head blight caused by Fusarium culmorum was also found in irrigated soft white spring wheat fields in southern Alberta. In 1987 although Fusarium graminearum was widespread in Manitoba, Fusarium avenaceum was still the most common species in samples with Fusarium head blight. However, both types were found only in amber durum back then. Fusarium graminearum was not found in the samples from Saskatchewan. Fusarium head blight caused by Fusarium culmorum was found in, again, irrigated fields in southern Alberta. It was in the beginning of 1989 when the Grain Commission began to detect a few kernels of soft white spring wheat that were infected by Fusarium graminearum in southern Alberta.

Next slide, please. Using these new biomolecular tools, we generated occurrence and frequency data for soft white spring wheat over the past couple of years, speaking of 2012 and 2013. I'd like to invite all the committee members to visit the CGC's new Fusarium website, which also contains additional information on past surveys. The bar graph in the right corner clearly shows that F. graminearum was the predominant species across western Canada, and we found it frequently in crop districts 1 and 2 of Alberta.

11:20

On the next slide, slide 2 of the Fusarium survey, those biomolecular tools now provide us with the opportunity to actually look into certain traits of Fusarium graminearum and other toxigenic species. As such, we also do monitoring on Fusarium chemotype populations, which you may have heard of, the 3-acetyl DON and the 15-acetyl DON populations across western Canada. What we see and what you also can basically research yourself on our website is that those populations change every year and that the 3-acetyl DON type, which is supposed to be more toxigenic and more aggressive, seems to have become the predominant population. In Manitoba it is already, in parts of Saskatchewan also, but also in southern Alberta.

On the last slide I would just like to invite members, again, to visit our website and to review our recent publications on Fusarium and on the grading information that the Canadian Grain Commission provides.

I'd like to conclude here and thank you for your attention.

The Chair: Dr. Gräfenhan, thank you very much for that scientific perspective on Fusarium. I very much appreciate it.

Ms Stow, if you are ready to present, our committee is ready for you.

Ms Stow: Yes. Thank you. I would like to thank the Alberta Standing Committee on Resource Stewardship for this opportunity to present on behalf of the National Farmers Union regarding the review of Bill 201, the Agricultural Pests (Fusarium Head Blight) Amendment Act, 2014. The stated amendment, as I understand, deals with increasing the tolerance from zero per cent to .5 per cent.

I would like firstly to make the point . . .

The Chair: Sorry to interrupt, Ms Stow. We're having a little bit of trouble hearing you. If you could speak up. Don't be afraid to yell at us. We want to hear what you have to say.

Ms Stow: Okay. Sorry about that.

I would like firstly to make the point that we are farmers dealing with this problem in varying degrees annually, and we base our production techniques on a combination of best management practices and our own observations and experience. In short, my information is for the most part anecdotal.

Our farm is located in Manitoba's Red River valley, 60-some miles southwest of Winnipeg in the Carman area, the region of arguably the most serious outbreak of Fusarium graminearum to come along subsequent to settlement. Our soils are deep black sand loam here, and they change to clay farther out into the valley. Soil moisture and humidity, at least until recent years, are some of the highest in the prairie region, ideal for the development of a wide variety of fungal and bacterial plant diseases. Up until 1993 in our area tombstone wheat was something that fathers and grandfathers spoke of as a very occasional occurrence. In 1993 Fusarium graminearum came along in a big way and came to stay.

In the case of wheat, over the approximately 20 years since the big outbreak in Manitoba we have observed that some cultivars are more resistant than others. On our farm an old wheat variety named Columbus consistently came off with lower levels of FDK than other varieties popular at the time. Some more recent varieties with Columbus in the breeding line produced similar results.

Rotations of more than two years are recommended and, indeed, have proved helpful. As the Red River valley is a corn-growing region, it's also necessary to stay away absolutely from following corn with wheat. It is also recommended, if possible, to avoid planting wheat near corn in the same year, a somewhat problematic requirement as one cannot determine what the neighbours will plant on a given field in a given year. Increased plant population in wheat can decrease tillering and shorten the flowering period, thus narrowing the window of infection.

Tillage, as referred to by some of the previous speakers, can impact the amount of inoculum in the soil in Fusarium graminearum infected regions. Dr. Jeannie Gilbert, working at the now defunct Cereal Research Centre, gave a presentation at the 2008 Manitoba Seed Growers annual meeting in which she concluded, and I quote: Intuitively, one would expect greater inoculum production and more disease under tillage practices that leave the most residue on the field surface, such as no-till or zero till. However, studies have shown that producers should avoid minimum till practices as less Fusarium graminearum appears in either zero or conventional till methods.

Most farmers in our region apply fungicide as a matter of course for FHB control. We have elected, after a number of years of doing the same, to discontinue the practice because of the high cost for extremely inconsistent results. While we have not sprayed in a given year, neighbours after at least two if not three applications operating within a couple of miles of our farm have had significantly higher FDK in their harvested wheat samples than we did.

Fusarium head blight has made wheat and barley production in our region extremely problematic. Indeed, barley production has been severely curtailed. While wheat is still being grown in large amounts, Fusarium graminearum has dramatically increased its cost of production, and local seed mills have been required to source seed grains from areas farther west, where the disease pressure is lower.

Fusarium head blight has provided possibly the most significant disease challenge to confront western farmers and Canada's plant researchers in the relatively short history of cereal production on these prairies. The possible causes, life cycles, et cetera, of the Fusarium graminearum family members are various, and the relationship to environment and the natural plants' immune systems are not clearly understood, at least by farmers.

As our researchers attempt to leave no stone unturned in their efforts to solve the Fusarium problem, a persistent and worrisome correlation between the spread of the disease and the spread of glyphosate use has emerged in some studies and adds another layer of possible concern to the issue. However, it is noteworthy that in 2014, approximately two decades after the big Red River outbreak and approximately 20 years of diligent work on the part of Canada's plant breeders, the first R-rated variety of Canada prairie spring red feed wheat, variety HY1615, was supported for registration this past spring. This wheat was developed in Dr. Doug Brown's program at CRC Winnipeg. This development now causes one to wonder that with the shutdown of the centre the door has just been slammed shut on a potential first-step breakthrough worth hundreds of millions of dollars to western Canadian farmers. In this neck of the woods it is widely understood that any variety developed to stay healthy in the Fusarium-friendly climate and soil conditions of the Red River valley will pretty much stay healthy right across western Canada.

In closing, I guess that if we were farming in Alberta and certainly if we farmed in a region where FHB has not yet been detected, if such a region exists, we would be concerned by the proposed increased tolerances as outlined in Bill 201, particularly in regard to seed production. The problem, as we have experienced and as I have learned this morning through the two previous speakers, will spread itself soon enough. Every year without it, these days, is a bonus.

I thank you again for the opportunity to present, and I will conclude.

11:30

The Chair: Ms Stow, Dr. Gräfenhan, and Dr. Bisht, thank you very, very much for your presentations. Thank you also for working through some of the challenges that we're having with our technology here. We were able to hear all of the presentations.

At this point in time we're going to open up the floor for some questions, so if we could beg your indulgence and if you could stick around a little while longer while we ask some questions. Quite shockingly, from our end we have Hector Goudreau up with some questions to start with.

Mr. Goudreau.

Mr. Goudreau: Well, thank you, Mr. Chair. Thank you, Dr. Bisht, Dr. Gräfenhan, and Ms Stow, for your presentations. Certainly, all three of you brought some interesting discussions and thoughts and ideas, which led to a number of questions in my mind that I would hope we could expand on.

The first one, to Dr. Bisht. You indicated that as a pathologist you're starting to see infections on pulses and oilseeds. Is it graminearum? You're talking about infections on roots, and as we talk about one of our best management practices being crop rotations, that really concerns me. I wonder if you could expand on what you identified there.

Dr. Bisht: Thank you. I heard your comments well. There are a fair number of research papers, and some of them are published by Agriculture Canada research scientists. You will be familiar with Dr. Gossen and Dr. Kelly Turkington. He had a research paper in 2001 where they had inoculated and found successfully that the Fusarium graminearum could in fact infect the roots and seedlings. At warm temperatures and good humidity the emergence of some of these seeds was also reduced. Dr. Allen Xue, who works with Agriculture Canada in Ottawa and has been working on pea

diseases, has also returned a few research papers on infection by Fusarium graminearum in pea roots. I would suggest that theoretically it may be not a very important source of inoculum, but it is possible that it is there. So, yes, these roots can be infected.

Mr. Goudreau: Dr. Bisht, if I may, if we use peas or we use other oilseeds as part of our rotation, is it possible, then, that we are not helping ourselves to control Fusarium graminearum? Certainly, it's what we advocate as best management practices with our farm families here.

Dr. Bisht: If Fusarium head blight or Fusarium graminearum is an issue and you are seeing that your pea seedlings are not emerging very well, the survey would show if the Fusarium graminearum is causing the root rot, and, if so, in certain areas it may not be a good idea.

Mr. Goudreau: So it would help to maintain the spores and infection for future crops?

Dr. Bisht: I didn't hear that very well.

Mr. Goudreau: If there were an infected field, for instance, of peas where the roots are infected and if we use peas in the rotation, would the stubble or the trash that's left behind, including roots, add to the possible infection of future crops?

Dr. Bisht: What would happen in many cases – the roots which have infection are also being attacked by other microflora in the fields, so the possibility of other microflora reducing the Fusarium population in those roots by cultivation is there. But at the same time if there are fields where you have patches of high Fusarium infection, a lot of pea seedling root rot, which can be tested by different labs in Alberta, it may be possible to avoid certain fields where peas may not be a viable option. Now, it may not be a very big deal for most people, but in certain fields and in low-lying areas it could be.

Mr. Goudreau: Thank you. Okay.

Moving on to the effectiveness of fungicides at heading, has there been a fair amount of work to identify yield improvements in those particular areas?

Dr. Bisht: Yes, I would say. Quite often if the tillering is happening in the field, which prevents a very narrow window of flowering, if you have sprayed in a very timely fashion for most of your crop – but there will be some tillers which are going to be coming out a few days later or may have already flowered a few days earlier. Those will be susceptible and prone to infection. In many cases that is the reason, as Ms Stow said, that we need to plant heavy.

We need either to plant varieties which avoid that window of infection or in some cases, as Dr. Andy Tekauz had suggested, to plant the same variety on different dates so you're avoiding the flowering period, which is going to be in the window of high moisture, of favourable conditions. It is a very tricky situation, to be able to have the narrowest of windows to manage the Fusarium head blight. One or two applications have been done by some of the growers in the Somerset area of Carman, and they are pretty happy with the forecast and the timing for application.

Mr. Goudreau: Thank you for that.

My next couple of questions are to Dr. Gräfenhan. Dr. Gräfenhan, you talked about the research that's being done on heat treatment of seeds, which brings up an interesting thought in my mind. In a lot of areas, especially in the northwest, we use grain dryers to dry down grain. You know, typically we would use reasonably high temperatures, not high enough to burn the crop or affect germination but certainly to dry down the grain. Would that have an impact on reducing the levels of Fusarium on the seed itself?

Dr. Gräfenhan: To my knowledge, the treatment has to be applied for several days in a row. I'm not sure that this is really feasible for a grain dryer to run that long. As you may have seen on the slide, we recommend five to seven days of heat treatment, of dry heat, which can probably be reduced by kind of adding more moisture to the heat or having a kind of closed heat treatment, but I think that you would have to apply the heat over several consecutive days to make it effective.

Mr. Goudreau: Thank you.

You also indicated that some Fusarium graminearum populations are very unique to Alberta, and we've been led to believe that a lot of Fusarium moves by air. Why, then, would we not have similar populations? I believe that you identified that we've got similar populations, but you also identified the fact that there are some that are very unique to Alberta. Did they originate in Alberta, or where would they have come from?

11:40

Dr. Gräfenhan: Well, to identify the origin of the populations is very difficult. I think that the method is strong and good enough to tell us that there are differences, and the results led us to believe that those may be unique or local populations.

I think it is also important to understand that Fusarium graminearum is a pathogen and a saprophyte at the same time, which means that it can utilize a wide range of organic nutrients to grow on and to propagate. Our field crops are not the only host for the pathogen. We did, for example, experiments here in Manitoba where we collected grass seed, and we were basically able to isolate Fusarium graminearum from many different grass species. It seems to be kind of indigenous, probably to these plants and possibly to other plant species as well. Just when the conditions are conducive, the pathogen may decide to jump onto the field crop, whatever is growing, maybe next to a row of trees or something. That could also be the source of the infection. It doesn't necessarily mean that it has to come from the same field or from the neighbour's field.

Mr. Goudreau: Thank you.

Dr. Bisht: Okay. Can I add to that a bit? The Fusarium graminearum also has a sexual stage, and it is possible that two different isolates in Alberta had a field day, and they made new biotypes.

Mr. Goudreau: Thank you for that explanation. I can appreciate the complexities of all of this.

My next couple of questions are to Ms Stow. Thank you for your information and, certainly, your experiences. No doubt, you've had a huge challenge to deal with this. You indicated a couple of things; maybe, if you can – you might not be able to – expand on them. You did say that cultivation – and you compared minimum till having higher levels of infection to conventional cultivation or even zero tillage. Can you expand on that? We do talk about crop rotations, and certainly we talk about cultivation methods as well, as possible avenues to reduce Fusarium. Could you expand at all on your comments about minimum till at times having higher levels than zero till or conventional cultivation?

Ms Stow: Yes. I really can't explain it. It was a shock to the presenter, as it was when I heard it. Because of the presence of the

Fusarium spores in the crop residue, you would think that the absolute zero till would have had most of the infection. As it turns out – and I believe Dr. Gilbert was quoting a number of studies – it was both ends. Like, it was cultivation to black and no cultivation at all that provided the safest range for Fusarium infection. Perhaps one of the science people on the committee could explain that; I can't.

Mr. Goudreau: Thank you for those comments.

I'm just wondering if some of the other members, having heard the comments, would have additional comments on cultivation methods.

If not, I'll move on to another comment. It's interesting that we've been advocating fungicide applications as a method of minimizing the infection levels. You've indicated that your use of fungicides and some of your neighbours' – basically, because of the inconsistency of the results as well as the increasing cost you've virtually quit using fungicides. Yet we advocate that, again, as a best management practice for some of our producers. Are we saying or indicating that that should not be?

Ms Stow: I understand that, and this is what we have found on our farm. I sort of hesitated to put it in my presentation because it is fairly controversial, but it's something that we have discovered over time. The window being so narrow for application, to get it right and have the fungicide cost benefit realized has become very, very difficult. When we saw these other results from, as I said, two for sure and possibly three applications – it's a year or so ago since this happened – it really called into question the validity of doing it, for us anyway.

We haven't planted any wheat this year, so if we were flowering here right now, it would be terrible for it. We hopefully won't have to worry about it until we grow it next year and it comes back in our rotation.

Mr. Goudreau: That's right. Thank you.

A couple more. One is the correlation between glyphosate use and the disease. I'm just trying to understand that correlation in your comments there. Are you suggesting that as glyphosate use increases, you also see an increase in diseases? I'm just trying to follow that comment.

Ms Stow: Well, first of all, there's an ag Canada scientist working in Saskatchewan and another, a Dr. Huber, from Purdue University who have had peer-reviewed papers indicating this. It's extremely political – and, again, I didn't know whether I should include that – but the spread of Fusarium across the west has corresponded roughly with the spread of glyphosate use across the west. Every so often you have an announcement in the news or in the farm press about another one of these papers that sees a relationship. I'm not saying that there is; I'm not saying that there isn't. It's a question, and it must make our plant breeders stay awake at night, wondering if, you know, we're having to work against two enemies. That's all I can say on the subject because . . .

Mr. Goudreau: Thank you. I appreciate your comments and your willingness to share that with us.

The final one. You've identified the increase in cost to even your local feed mills. You would think that with Fusarium they'd be able to access some cheaper feeds, yet probably because of levels of infection they've had to source their feed from outside the area. Have there been any grains, for instance, destroyed because of grains not being able to be marketed because of levels of Fusarium?

Ms Stow: Well, in '93, when it struck with a vengeance here, there was talk of that. I don't know that any of it ever happened, and since then the outbreaks haven't to my knowledge, at least not in this area, been as massive. Certain livestock, like poultry, are more tolerant of the DON, the vomitoxin agent produced by Fusarium. Hogs are extremely intolerant, and beef cattle are somewhere in the middle. Our feed mills, most particularly for the hog industry, go farther west, where the infection is less as a rule and the corresponding DON content is lower. Some companies have learned to live with it and tailored their operation to accommodate one way or another.

11:50

Mr. Goudreau: Okay. Well, thank you.

I appreciate the comments and the responses from all three of the panel members. Thank you.

That's the end of my questions for now.

The Chair: Okay. Thank you very much, Mr. Goudreau.

We do have some more folks who have questions, but just before we get to Dr. Brown, we have a colleague who's been popping in and out of our meeting, when his schedule permits him to join us, this morning, and at this point I'd like him to introduce himself if he may.

Mr. McDonald: Good morning. Everett McDonald, Grande Prairie-Smoky, MLA. Thank you.

The Chair: Thank you, Mr. McDonald.

With that, we're going to move to Dr. Brown with some more questions.

Dr. Brown: Thank you, Mr. Chairman. I have a question for Dr. Bisht.

Dr. Bisht: Yes, please.

Dr. Brown: Dr. Bisht, you indicated – and this is something new, that we haven't heard from the other scientific experts – that the presence of the Fusarium graminearum would be also found in other families than the graminaea, the grass family. You mentioned the leguminosae; those would be the pulse crops. Also, I believe that you indicated that perhaps in the brassicaceae, the canola crops, it could also be possible. But the experts up until this point have indicated to us that rotation with those other crops from those other families of plants would be an effective way to control. Can you tell us whether or not there's any scientific consensus on that, whether the crop rotation is effective, and whether those other families that I mentioned, the brassicaceae and the leguminosae, would be vectors for the spores?

Dr. Bisht: The amount of infection is going to be significantly lower as compared to the cereals, but it is possible that they will get infected. There is research published by Dr. Chongo Gossen and Kelly Turkington in 2001, where they were able to infect the seedlings with Fusarium graminearum, and Dr. Allen Xue from Ottawa, Agriculture Canada, has also published, in 2009, on the ability and actually isolations of Fusarium graminearum from pea seedlings, the roots. So I just wanted to present and show that there are other crops which it will be able to infect. It may be very low levels, not as serious as in the cereals, but it is possible to have infection on the roots.

Dr. Brown: Thank you.

Dr. Bisht: If you wish, I can send the references to this, but Dr. Kelly Turkington would be a local contact for you.

The Chair: Yes. Thank you, Dr. Bisht. Kelly Turkington did present to our committee yesterday, so we do appreciate that.

I want to add my gratitude to Dr. Bisht and Dr. Gräfenhan and Ms Stow.

I have a few questions, and these may be the concluding questions. Dr. Bisht, in your presentation you echoed some of the sentiments that we've heard in the thought that Fusarium infestation is inevitable, that just with the nature of the disease and as difficult as it is to combat, sooner or later you're going to get it. But you did qualify that – you gave us a little bit of hope – by saying: unless a large region was doing everything right to contain it. I am paraphrasing you a little bit there. Is that fair to say?

Dr. Bisht: Yeah, that is fair to say.

The Chair: Okay.

Dr. Bisht: Now you have inoculum right from the south to Westlock which has been identified in your samples, so it is distributed widely in your province.

The Chair: Yes, it is – you're exactly correct there – but it really has yet to penetrate to any great degree, as far as our data can show us, in the Peace Country, north of Westlock, so you've pretty much described our situation in Alberta.

What we're hearing from some of the presenters, you know – and this speaks to the challenge that we have in Alberta, that is geographically such an enormous entity, larger than most countries, with climatic zones differing from one end of the province to the other. Along those lines, there's a thought that perhaps the right solution would be a regional solution. I'm not prejudicing anything; I'm just suggesting, along the lines of what some others have testified, you know, a strategy that would see zero per cent tolerance in the north, .5 per cent tolerance in the centre, and a 1 per cent tolerance in the south, just to deal with the realities of our current situation.

Now, a hypothetical question, Dr. Bisht, to you would be: under a scenario like that, where there was a regional strategy in Alberta, in your opinion would the north of Alberta be any more susceptible or less susceptible to Fusarium growing?

Dr. Bisht: I think that it's a very good question. The amount of inoculum present during the heading period in the south is certainly, significantly much, much more than what is possible in the Peace Country, in the north. If the rainfall pattern is favourable for the Peace region, it is not a bad idea to have a gradation or regional tolerances. Seed is an important source of inoculum, and if you can avoid it or have a very low tolerance, I would say that it makes practical sense. But if the conditions are going to be favourable at the time of tillering or flowering, you know, some of this may still show up in the northern areas. It all depends on what the weather pattern is.

The Chair: Dr. Bisht, if I'm understanding you correctly, if the north was to stay at zero and the central part of the province was to be at .5 – really, the primary factor for Fusarium spread to the north is not dependent on seed percentage as much as it is on weather.

Dr. Bisht: Correct. However, your suggestion of zero, .5, and 1 or higher for the three different regions would be a practical approach to save the Peace Country.

The Chair: Okay. Thank you very much for that.

Dr. Bisht: That's my personal opinion.

The Chair: That's what we want to hear. We very much appreciate your opinions.

My next questions are directed to Dr. Gräfenhan, but, Ms Stow and Dr. Bisht, please feel free to add your comments as well. We've seen some maps that show the black soil zones across the prairie provinces, that extend from Manitoba across Saskatchewan to Alberta. Predominantly, the black soil zones and south of the black soil zones are where we see Fusarium happening in the prairie provinces. Are you familiar with those maps?

Dr. Bisht: I had presented one of that map, slide 5.

The Chair: Yes. Exactly. So I'm referring to that slide specifically, Dr. Bisht, thank you. My question is: in Manitoba do you see the prevalence of Fusarium north of the black soil zone?

12:00

Dr. Bisht: It would be present in other areas. As I understand, the black soils were holding moisture more and helped release the spores a lot more than sandier soils, and that may have an impact on the presence of inoculum in those areas. Weather would still play a much bigger role nowadays.

The Chair: Okay. Now, my colleague Dr. Brown has just whispered into my ear. I'll confess to you that I am not a farmer. I'm somewhat new to the world of agriculture. How much farmland in Manitoba would exist north of the black soil zone?

Dr. Bisht: Not much.

The Chair: Not much. Okay. That may explain why we don't see a lot of Fusarium there.

Dr. Bisht: I will say that "I don't know" is the better answer.

The Chair: Okay. Fair enough.

Ms Stow: Doesn't the Canadian Shield start immediately?

The Chair: That's what Dr. Brown reminded me. It's just interesting what we're noticing, though. In Saskatchewan there is a large amount of farmland north of the black soil zone, in Alberta there's a substantial amount of agriculture north of the black soil zone, and in those specific areas we do not see a prevalence of Fusarium. Let's take Manitoba out of the equation.

To Dr. Gräfenhan and perhaps to Dr. Bisht, could you explain why, from a scientific perspective, we see a greater prevalence of Fusarium south of the black soil zone than we do north of the black soil zone in Saskatchewan and Alberta?

Dr. Gräfenhan: If I may first, there are two main factors in promoting fungal growth or pathogen growth, and these are moisture and temperature. If we compare seasonal precipitation in, for example, the month of July, Manitoba versus Alberta, there's not much difference. The difference is really in temperature. The further north we go, the lower the average temperature is, naturally. In my opinion, this may be one of the main reasons why Fusarium graminearum is not a predominant species of pathogen in the northern parts of the provinces.

The Chair: Dr. Bisht, do you have an opinion on that question?

Dr. Bisht: I would put it more towards weather and the ability of the soils to help release the spores a lot more than in other areas. I will have to dig deeper into this to be able to answer in more detail.

The Chair: Okay. That's fair. Thank you.

Just a few more questions. Now, in some of the written materials that we have, Dr. Tekauz has spoken to this, but I'm curious to hear the opinions from the folks in Manitoba. I guess it's a two-part question. Is Fusarium transmittable via farm machinery; for example, if there was farm machinery being used in the southern part of the province that then came up north and was used? Is it possible, and is there any scientifically based evidence of this ever happening?

Dr. Bisht: Let me interject here. Theoretically, yes. Practically, not a big source. If the equipment is full of mud and straw from the previous crop and is going without cleaning, theoretically it can carry, but the amounts would be not of any significant impact. It's not like clubroot.

Ms Stow: That would be my . . .

The Chair: Thank you, Ms Stow.

Dr. Gräfenhan, do you have an opinion on this question?

Dr. Gräfenhan: I think we have to keep in mind that Fusarium graminearum is a seed-borne pathogen. Soil, for example, is not a real substrate for the organism to survive in. It always needs kind of organic matter, organic material, plant material to survive. I see that there is probably just very limited risk in relocating or transporting spores through machinery.

The Chair: Terrific. Thank you for that answer.

My final question. Again, this is a completely hypothetical question, so we're not going to hold you to this answer. Dr. Gräfenhan, given your expertise in this area – Ms Stow and Dr. Bisht, please feel free to add your opinions as well. Given how hard science is working on eradicating Fusarium and coming up with a resistant seed strain, do you care to offer us a ballpark guess in terms of a timeline as to when we may get to a stage where we could see Fusarium eradicated in the prairie provinces?

Dr. Bisht: I don't think it is possible to eradicate. It is possible to manage. It is widely distributed throughout the world, and the long-distance spore dispersal will bring the inoculums again. Control, yes; eradicate, no.

Dr. Gräfenhan: I agree there with Dr. Bisht. Eradication will be very, very hard. I'm not aware of any other organism, for example, where it kind of worked over the mid or long term, so I think management and control of the pathogen is probably the best and most promising approach you can take.

Ms Stow: That would be my opinion as well.

The Chair: Well, on that note, speaking of management and control, we've had some other folks familiar with Manitoba and from Manitoba present to the board who have shared similar stories as Ms Stow. On behalf of our committee we would very much like to congratulate you and thank you for demonstrating and persevering through a very trying time and showing the rest of the world, really, how to manage and control Fusarium through best practice and really being a beacon in terms of management and control.

With that said and speaking of more management and control, I think we've come to the end of our questions. I do want to thank you very much for your expertise and your time today. Thank you for bearing with us through a little bit of the technological challenges. They were very effective presentations, and we're grateful for your work today. Thank you.

Dr. Bisht: Thank you very much.

Dr. Gräfenhan: Thank you.

Ms Stow: Thank you.

The Chair: Now, with that said, somehow we appear to be ahead of schedule, quite slightly. If there's no other business, we can break for lunch. We're scheduled to return at 1:15 sharp for our afternoon stakeholders. We do have some guests who have joined us, who have been on the edges of their seats for the morning's presentation. Thank you very much for coming and joining us. We'd like to invite you also for lunch. [interjection] Well, you'll have to come back this afternoon to find out, won't you?

Dr. Brown: A point of order if I could, Mr. Chair.

The Chair: Please.

Dr. Brown: Given the fact that we are at 10 after 12 right now and we may not need a full hour, I would suggest that if our next presenters are here a little early, we should perhaps start at quarter to 1 instead of quarter after 1.

The Chair: Dr. Brown, that is a fabulous suggestion; however, we don't have our full roster here as of yet.

Dr. Brown: I'm saying: contingent on the arrival of those individuals.

The Chair: If we had our other presenter here, I would offer that suggestion, that perhaps we could even run right through the afternoon and have a late lunch. If so be it and it is the will of the committee and our presenters, if our presenter does show up early, I have no problems starting our afternoon a little earlier. Seeing no objections to that, let's break for lunch and see if we can't come back a little early.

Thank you.

[The committee adjourned from 12:10 p.m. to 1:00 p.m.]

The Chair: Well, folks, I'd like to begin this afternoon's presentation by thanking our presenters for being flexible and permitting us to start a little earlier. I'm grateful, but I don't believe that anybody is more grateful than my colleague Dr. Brown, so I'm passing on his extra gratitude.

Welcome back, everyone. As part of our last panel of the day and, not to put any pressure on, perhaps our best panel of the day – is that fair? – we have with us Ms Lorena Pahl, the executive director of the Alberta Seed Growers' Association.

I should also introduce at this time Don Sendziak. Am I saying that right, Don?

Mr. Sendziak: Close enough. Thanks, Steve.

The Chair: He is president of the ASGA.

As well, we have Monica Klaas, general manager of the Association of Alberta Co-op Seed Cleaning Plants, and two esteemed gentlemen, whose cards I don't have in my hands. At this time just go ahead and introduce yourselves, please.

Mr. Peregrym: I'm Blair Peregrym. I'm the general manager of Stony Plain Seed.

The Chair: Thank you, Blair.

Mr. McBain: I'm John McBain. I'm president of the Alberta Co-op Seed Cleaning Plants of Alberta.

The Chair: Thank you very much.

Thank you very much for being here today. You know, what we're going to do quickly is just introduce the committee members who are with us today. We'll proceed with Mr. Young.

Mr. Young: Good afternoon and welcome. My name is Steve Young. I'm the MLA for Edmonton-Riverview. We do have a farm in my urban constituency, at the University of Alberta, but that's about it.

Mr. McDonald: Good afternoon. Everett McDonald, MLA for Grande Prairie-Smoky.

Mr. Goudreau: Hello. Hector Goudreau, MLA, Dunvegan-Central Peace-Notley.

Ms L. Johnson: Hello. Linda Johnson, MLA for Calgary-Glenmore.

Dr. Massolin: Good afternoon. Philip Massolin, manager of research services.

Mr. Xiao: Good afternoon. David Xiao, MLA for Edmonton-McClung.

Dr. Brown: I'm Neil Brown, MLA for Calgary-Mackay-Nose Hill.

Mr. Tyrell: I'm Chris Tyrell, committee clerk.

The Chair: I am Stephen Khan, MLA for St. Albert.

On the line with us today I believe we have Mr. Casey. Could you please introduce yourself?

Mr. Casey: Ron Casey, MLA for Banff-Cochrane.

The Chair: Thank you very much for joining us, Ron.

And with perfect timing, that he always has, our deputy chair.

Mr. Hale: Jason Hale, Strathmore-Brooks.

The Chair: Thank you, all, for being with us today as we continue our review of Bill 201, the Agricultural Pests (Fusarium Head Blight) Amendment Act, 2014.

Without any further ado, Ms Pahl, if you're ready, the floor is yours.

Alberta Seed Growers' Association, Association of Alberta Co-op Seed Cleaning Plants

Ms Pahl: Absolutely. On behalf of the Alberta Seed Growers' Association we certainly would like to thank everyone here for providing us the opportunity to present to you, the standing committee, with respect to the review of Bill 201, the Agricultural Pests (Fusarium Head Blight) Amendment Act, 2014.

Alberta Seed Growers' is one of seven branches of the Canadian Seed Growers' Association, and we represent over 700 seed growers across the province. Our vision is to ensure that pedigreed seed produced in Alberta strengthens global crop-based value chains. ASGA has been a very active participant in the Fusarium Action Committee since 2002, when Fusarium graminearum was added to Alberta's pest act to prevent the establishment of Fusarium graminearum in all regions of Alberta.

Unfortunately, actual enforcement of the pest act with respect to Fusarium graminearum is lacking to nonexistent, even since inception. Twelve years later the incidence of infection by Fusarium graminearum has increased and is present in all parts of Alberta.

Next slide, please. Hard copies of this are available in the handout that I provided. This slide just kind of illustrates the movement of Fusarium graminearum across Alberta. Provided by BioVision Seed Labs, this is data from 2009 to 2013, percentage of samples submitted that were detected with Fusarium graminearum. This same data was also presented to the Fusarium Action Committee back in February.

Basically, it started with 2009 – area code 403 is how they've broken it out – and about 20 per cent of samples that were detected with Fusarium graminearum, and that's in barley. This past year we're looking at 27 per cent. Of course, there's going to be some variability with the years in between, and that's all depending on the growing conditions and the environmental effects that are affecting crop production. If you look at area code 780, in 2009 we're at about zero per cent reported. Last year that increased to 8 per cent in barley.

Moving over to wheat, the 403 area code in 2009 was about 21 per cent, and last year that increased to 34 per cent. Then you look at the 780 area code for wheat. In 2009 no samples were detected, and that has increased to 17 per cent.

Alberta seed growers are committed to testing all seed for Fusarium graminearum and have adhered to the nondetectable tolerance as required by provincial law under Alberta's pest act. Unfortunately, this has come at a cost to the Alberta seed industry, and that's a substantial cost. A small sample of 14 southern Alberta seed growers in 2010, going back three previous years, indicated an economic loss of $670,000. We did a very small subset of a survey recently, going back the previous three years, from 2011 to 2013, indicating that over 2 and a half million bushels in southern Alberta tested positive for Fusarium graminearum. That equated to approximately a $4 million loss for the past three years to Alberta's seed industry.

Dr. Brown: Is that each year or over the three-year period?

Ms Pahl: Over the three years.

Mr. Young: I'm sorry. A quick question: is that extrapolated to the industry, or is that just for your sample size?

Ms Pahl: That's just the sample size.

Mr. Young: Okay.

Ms Pahl: Seed growers are finding it increasingly difficult to find higher generations of the newer varieties. These newer varieties offer better resistance and tolerance to Fusarium graminearum. Seed that is required to have nondetectable levels of Fusarium graminearum has been difficult to find and access. Seed companies are at a substantial risk bringing in breeder seed of new varieties into Alberta due to risk of a low level of Fusarium graminearum infection. Instead, these varieties are being multiplied in Manitoba and Saskatchewan, and the farmers in those two provinces are accessing new and better genetics at a much quicker pace, well in advance of Alberta farmers.

Higher pedigreed seed of varieties that are bred for Alberta are not being multiplied in Alberta due to the risk of infection, nor do our Saskatchewan seed growers really want to multiply some of these varieties in case they also have Fusarium graminearum infection and they are unable to move it into Alberta. Nor do their local Saskatchewan customers want varieties that are maybe not best suited for Saskatchewan growing conditions. For a specific example, there's the identity preserved Navigator durum program, that offers producers premiums. It was indicated to us that a 125,000-acre program was not met in southern Alberta because we were unable to find enough certified seed that had nondetectable levels of Fusarium graminearum.

High-quality seeds with very low levels of Fusarium graminearum are being shipped to Saskatchewan for certified seed or dumped as grain production, leaving only common seed or bin run seed available to farmers. With no enforcement of the pest act, some cleaning plants and mobile cleaners do not require testing of seed for Fusarium graminearum, which can open the door for potentially much larger and higher levels of infection. Unfortunately, by doing this, farmers do not realize the potential impact that Fusarium graminearum may have on their farms until they experience an economic loss due to Fusarium-damaged kernels in their harvested grain.

ASG certainly appreciates the efforts of the proponents of Bill 201 as it recognizes that the status of Fusarium graminearum has changed and that Alberta farmers are currently facing an economic disadvantage. However, we feel that the half per cent tolerance that is proposed is too restrictive and does not effectively address the needs of Alberta farmers. We realize that a one-size-fits-all solution is not feasible, and we support a system that recognizes use of best management practices that will vary according to infection levels of Fusarium graminearum. This will create a level playing field.

1:10

I'll reference Dr. Andy Tekauz, a highly regarded plant pathologist of 25 years who's provided a science-based review of Alberta's Fusarium management plan. His review indicated that establishment of areas in the province where Fusarium graminearum is commonly found and areas where it is not commonly found could be implemented with low risk of increasing the rate of spread of Fusarium graminearum into areas where it is not commonly found currently.

Next slide, please. For areas that have Fusarium graminearum already established, allow them to work with Fusarium tolerances, Alberta Seed Growers' suggests, of 5 per cent. During his scientific review Dr. Andy Tekauz indicated that a tolerance of .5 per cent up to 5 per cent could protect areas that are relatively free of Fusarium.

All certified and farm-saved seed must be tested for Fusarium along with other important quality characteristics such as germination, vigour, and other important diseases, of course. Any seed that has detectable levels must be treated with a seed treatment. Producers in these areas that have commonly found Fusarium graminearum can focus on using best management practices, which is a much more important tool available than focusing just on your seed source. They can employ diverse rotational crops, water during flowering time or an irrigation schedule, use of foliar fungicides, and use of disease-tolerant varieties.

Mr. Casey: Excuse me, Mr. Chair. I don't know whether the presenter is having trouble with their mike or whether there's a problem with *Hansard,* but on the phone you really can hear hardly anything.

The Chair: Thank you, Mr. Casey.

Ms Pahl, if we can just pause for a second.

Ms Pahl: Yeah.

The Chair: Ms Pahl seems to be coming in quite well in the room here, Mr. Casey. I'm just looking at our gentleman from *Hansard*. His suggestion is that you hold the phone tighter to your ear, I believe. If you can hang in there with us, Ron. Ms Pahl is doing an outstanding job here, with no issues in terms of audibility here. So just hang in there, please.

Mr. Casey: Okay. Yeah.

Ms Pahl: Sorry about that. I've moved it closer, so it might blare for you guys in the audience, but maybe he'll be able to hear me over the phone.

As well, pedigreed seed with tolerance levels of over 5 per cent should not face transportation restrictions that currently exist under the Alberta pests act. This will allow movement out of the province into markets that are available.

In the areas where Fusarium graminearum is not commonly found, the emphasis is on preventing the introduction of the disease through a dedicated disease-prevention program. That includes practices such as scouting cereal fields for prevention of disease, testing all seed, proper storage, use of seed treatments. These areas will be able to establish a policy to ensure that seed being planted has been tested and found nondetectable for Fusarium graminearum. As Fusarium graminearum moves across the province, depending on environmental conditions, we all need the flexibility to apply rules and best management practices as we see fit.

Again, we certainly appreciate the opportunity to review and provide direct input on Bill 201. We look forward to and encourage the standing committee to continue discussions surrounding the scientific reviews of the Fusarium management plan to thoroughly understand the changing status of Fusarium graminearum across the province and to find a solution that is flexible and, at the same time, ensures Alberta farmers' competitiveness.

Thank you.

The Chair: Ms Pahl, thank you so much for that excellent presentation. I can assure you that everybody in this room heard every single word.

Mr. Casey, thank you for your perseverance on the line.

What we'll do now is that we'll move to Ms Klaas. Hopefully, Mr. Casey, you'll have better luck hearing Ms Klaas' presentation.

Ms Klaas, the floor is yours.

Ms Klaas: Okay. Well, thank you. I would like to thank the committee for their hospitality here today. It was with great interest that we sat in on some of the other presentations. It certainly gives us perspective on some of the other testimonies that the committee heard. I would like to thank you for being so patient and sitting through an agricultural issue.

So with that – next slide, please – I just want to tell you a little bit about who we are. We're the Association of Alberta Co-op Seed Cleaning Plants. We represent 67 seed-cleaning plants right across Alberta. We have seed plants down in Milk River, and we even have seed plants up into the Peace block of B.C. Geographically we cover all cropping areas of the province, and in the past year we cleaned close to 31 million bushels of both farm-saved and pedigreed seed, which roughly equates to about 17 million acres of cereal and pulse crops.

Next slide. Why are we stakeholders? Well, our plants are on the front line of handling and processing planting seed. We daily interface with this legislation by taking samples, submitting the samples to accredited testing labs, and in turn identifying seed lots that can or cannot be planted. Arguably, our organization has some of the most involvement in the actual hands-on dealing with the legislation regarding pathogen incidence on the seed. We sample, submit the seed for testing, and discuss the results with the seed owner.

The impact of Bill 201. Bill 201 is proposing a minor change to legislation that is outdated. The Fusarium plan was created in 2002, and the plan was created as a preventative or prophylactic measure, which was awesome in its day. I've taken a snippet from

the Canadian Grain Commission showing the incidence of Fusarium graminearum back in 2002. As you can see from the map, the incidence of Fusarium being identified in the province of Alberta – again, you'll notice that there are dots in the northern part but, again, very, very low levels.

The presence of the pathogen, fast-forwarded to 2012, has changed dramatically. In 2012 our organization had a survey, and of our plants 27 out of 56 reported incidents of Fusarium graminearum. That means over half of our plants had seed samples being submitted, and those seed samples were coming back with Fusarium incidence in them. Again, this is an internal survey that we did.

Here's a map from 20/20 Seed Labs. Fast-forward to 2013: we now have the presence of the disease in many regions of the province, also noting that there are still regions that do not have the disease reported. The fact: Fusarium has spread despite the moratorium of the pathogen on infected seed. I believe the committee has heard from some really good experts on this, and we can agree that Fusarium is present and resident in this province.

Next slide, please. The current legislation of nondetectable and the proposal in Bill 201 is obviously unenforceable. This morning I really enjoyed the comments of, "Well, how are we enforcing?" and sort of the idea of: if we have a piece of legislation, we do have to follow up with an enforcement plan. As the seed growers have just said, this can be arguably viewed as a nontariff trade barrier in the seed sector, not only within our province but also between provinces.

The proposal in Bill 201 identifying a finite number, which is .5 per cent, that instates a blanket legislation for all parts of the province, will be obsolete sooner than the ink is dry on the document. Data shows this level is much too low – sorry; I apologize for the technical error. The two blank slides were actually data from BioVision Seed Labs of testing from 2014 showing the presence of the disease in samples from this current planting year. The incidence ranges anywhere from zero up to I believe the number was – I can't even remember what the slide is. But, again, it does show that there is a range of Fusarium right across the province.

1:20

Then the other slice of the data that I had was actually echoing a slide that the seed growers just showed you. It was just showing that the levels of infection of the seed ranged – 90 per cent of the wheat samples sampled from area code 403 were actually well over the .5. Again, speaking to Bill 201, having that level of .5 would be obsolete before we actually went down into Bill 201. Our position statement is to remove a legislated level from the act all together. This would require the reclassification of the pathogen from a pest to a nuisance. By doing so, municipalities still have the jurisdiction to elevate the pathogen to pest status should they see fit.

I can see some people raising eyebrows at that statement. But, again, we recognize that there are places in this province that have really low or no detectable levels, and let's try to keep them that way. On the other hand, we have people who have absolutely no freedom to operate under the current law. By doing this, the topic of seed infection would be a recommendation rather than legislation, and the focus of a management plan could go back to all of the best management practices rather than focusing on a politically slanted fixation on a seed infection number. I'm here to tell you that when I say political fixation, I by no means am saying that it's a provincial political fixation; I'm meaning that it's a seed industry political fixation. So it's on our side of the fence, honestly. We want a practical approach to this.

Next slide, please. In summary, one size does not fit all Albertans. Focusing on all best management practices is key to protecting the Alberta advantage. Being fixated on one aspect, like seed infection levels, of a three-dimensional issue does not create a solid plan. Alberta seed-cleaning plants are committed to serving and protecting our vibrant, ever-changing ag sector. Please help us do this in all regions of the province by overhauling the pest act as it pertains to seed-borne Fusarium graminearum infection levels.

Thank you.

The Chair: Ms Pahl and Ms Klaas, thank you very much for those excellent presentations.

We are now going to open the floor for questions, and quite shockingly Hector Goudreau is not going to be the first to ask a question. He got scooped quite remarkably by my colleague Steve Young.

Steve, you're up first.

Mr. Young: Actually, I will defer to Hector if he chooses. You're on a flow here.

Mr. Goudreau: No, no. Go ahead, Steve.

Mr. Young: Okay. A couple of questions. We've seen a lot of charts, and I've seen maps of provinces, maps of counties. We've heard data on postal codes, and now it's by area code. I know our area code, 780, is a big expansion; 403 is as well. We've also heard lots about the regional approach. I guess my first question is about: when we talk about the regional approach and not a blanket thing, I think that kind of makes a lot of sense. But you also mentioned the transportation across borders in terms of seed. How is that currently happening, and what is the effect of the use of infected seed or standards around that seed?

Ms Pahl: Thank you for the opportunity to comment on the transportation as we certainly had some topics of discussion surrounding that at our board meeting yesterday. If you look in the details of the pest act, it prohibits transportation of anything with a pathogen that's listed under the pest act. Some of our seed production, seed growers, seed companies don't even want to risk moving a half per cent of infected seed out of the province to sell into Saskatchewan. So it's just a lost opportunity, and they're dumping it down the pit.

Mr. Young: Do we find examples – and we've heard from previous presenters – of producers going to Saskatchewan and bringing it? I mean, these borders or regions or lines are all fine. We talk about free trade, and that's all a good thing, but when you're trying to control pathogens, this free flow of borders seems to be counterproductive to those sort of policy statements which assume that these are sort of sharp lines that nobody crosses. Is there transmission of seed being bought across borders?

Ms Pahl: Absolutely. I referenced trying to access higher pedigreed seed. Don gave me an example earlier. He couldn't find any in Alberta, had to source some from Manitoba, which is very risky because, of course, Manitoba has best management practices, but they have no defined tolerance levels to use. He brought it back because it was nondetectable for Fusarium graminearum and did multiple more tests to ensure that, okay, this seed is not infected and, of course, utilized other best management practices as far as full-year fungicide to ensure he doesn't end up with infected seed. That's a lot of extra cost, but I guess he was fortunate to actually be able to find some higher generations.

Now, in Saskatchewan they use a 5 per cent best management practice tolerance for suggested use for seed with Fusarium.

Mr. Young: Okay. Just a couple more questions. One is about: we heard a lot of factors relating to the infection. I really haven't got a good sense of this, and I'd like your opinion. What is the correlation in terms of tolerance level, whether it's zero or five or whatever, in relation to the rate of infection we see in crops? Is this really a small factor, or is it all weather? I mean, we're regulating that portion. But as the chair has pointed out very well, we can't regulate weather or management practices or these other things, and I won't bore you with the discussions we've had around enforcement. But what is the correlation? What is the percentage, like I said, the correlation of the infection that has to do with the actual seed?

Ms Pahl: I'll be quick. That is a great question, and I'm glad you brought that up. There's no linear, direct correlation from per cent Fusarium graminearum to the actual DON levels. That's the mycotoxin that we're concerned about. That's the one that causes your excess foaming in beer, that's very detrimental to hog production. There's no direct correlation. So if you have a 10 per cent Fusarium graminearum, it doesn't mean you're going to end up with high levels of DON. You might end up with lower levels of DON. There's no direct correlation there.

Now, as far as infected seed into what you're going to get out of your harvest or production, there has been no defined correlation in that route that I'm aware of.

Mr. Young: If I were to put my statistician hat on, I'd be asking, "What is the R-value in as it relates to the percentage and the incidence?" But the data seems to be a challenge here as well. I mean, even your own surveys are sort of a voluntary survey off a certain selection, and it's probably self-recorded and all that kind of stuff.

Ms Klaas: Okay. Just to the question of the correlation from the incidence of per cent infection on seed to the actual result of Fusarium. Earlier today one of the Grain Commission presentations had the disease life cycle on it. Unfortunately, it wasn't really explained, but if you want to go back to the Grain Commission website at some time and take a look at that, you will see that you can plant a Fusarium-infected kernel today and you will not get Fusarium head blight in the same year. There is no seed-to-head transmission of the disease in a single growing season. Where the infection danger comes is that that infected seed produces a weak seedling. That seedling, therefore, is more apt to die, and that dead crop material in your soil is where your infection level comes from.

1:30

Some of the best management practices revolve around using the best quality seed, looking at your germ and your vigour levels in addition to your Fusarium infection level, treating that seed – and not just treating it but using a professional to apply that seed treatment – good fertility, good seeding practices, all of the gamut. That does go hand in hand to reducing that seedling death. So that is one of the things that lots of people lose. They think: well, if I don't plant Fusarium-infected seed, I'll never get Fusarium. That, in fact, is not true.

The committee had referenced that earlier today insofar as: you know, infection can move on the wind, and it can move with crop residue, not so much as soil but as in trash and intact stalks or organic matter from fields. There hasn't been a scientific correlation from seed infection to Fusarium infection. It does not exist.

Mr. Young: Thank you.

I stole the limelight from you. Sorry.

The Chair: You're on a roll. Keep going.

Mr. Young: This relates specifically to the seed cleaning. The first question is: of all the seed cleaning in the province, how much is within your co-op? And is it a policy to test before you do the seed cleaning?

Ms Klaas: With the first question can you please . . .

Mr. Young: Are all seed cleaning plants part of your organization?

Ms Klaas: No, they are not.

Mr. Young: So you represent what?

Ms Klaas: I'm going to hazard a guess, 80 per cent of cereal and pulse cleaning in the province.

Mr. Young: Okay. Is it a requirement of your association to test for Fusarium before doing seed cleaning?

Ms Klaas: It is the stance of our organization that individual boards instate individual policies at their level for testing. Now, having said that, I can in no way guarantee that each and every one of our member plants has indeed created a policy ensuring that every seed is tested. But, again, it's our organization's goal. That's why we're sitting here. We understand the challenges that some of our member plants have in that regard.

Mr. Young: I hope you don't test every seed, just a sample. That's not what I'm advocating for.

Thank you very much, and thank you for your answers.

The Chair: Dr. Brown, do you want to speak to this point?

Dr. Brown: Well, he raised a question here. It confused me a little bit. Are you saying that if you're doing a custom seeding for a farmer, you don't necessarily test the seed? He wants to self-seed; he wants to bring it into your seed-cleaning plant and take it back. You're not selling it; you're just doing the seed cleaning. Are you saying that some of your plants don't test necessarily, that there's no mandatory testing?

Ms Klaas: Again, it's the policy of our organization for seed testing. That is carte blanche. That is definitely a policy of our organization. However, each individual seed-cleaning co-op has their own policy, and there could be a handful of them that do not require mandatory testing, but I would not know that.

Dr. Brown: Thank you.

The Chair: I believe that's consistent with what we've heard over the past two days, that not every seed cleaning operation does test in the province.

Now, presenters, I present to you Hector Goudreau. Good luck.

Mr. Goudreau: Well, I really don't know where to start, but I want to thank you for being with us today. You know, there's no doubt that with the presenters over the last couple of days we've had some great discussion. I want to ask for pardon before I start. You might say that I'm the worst guy in the world here by the time I'm done, certainly with some pretty direct questions, I guess.

Maybe to start off with, to Ms Pahl, you indicate that through the Alberta Seed Growers' Association Alberta has one branch out of

seven in Canada and you've got 700 growers across the province. How many of those growers are, say, in the northwestern part, in the Peace Country? Would you have a breakdown, generally speaking? I know we've had some over the years, off and on. I've just received a letter here from a grower from the north.

Ms Pahl: Just to clarify, the northwest?

Mr. Goudreau: The northwest, the Peace Country.

Ms Pahl: The Peace Country. I don't have those exact figures with me. The majority of our seed growers in the northwest, in the Peace Country, are grass seed growers, alfalfa seed growers, up in that area. We do have a few seed growers that are in coarse grain production as well. To hazard a guess: a fifth.

Mr. Sendziak: It would be a very small percentage, 10 per cent. I couldn't venture any more than 10 per cent.

Mr. Goudreau: That's fine. Just to get an idea. So we've got 700, generally, seed growers in the province of Alberta. Am I right to say that we've got between 40,000 and 43,000 farmers in the province of Alberta? Typically those are the numbers that we use.

I guess I look at revenues and costs, and both presenters did identify the fact that as seed producers you're losing money and losing opportunities with the restrictions that we presently have. By changing the regulations, seed producers stand to gain, you know, in a sense, to be able to sell more seed, to be able to market seed in various parts of the province. But there are a whole pile of others that stand to pay the cost for increased Fusarium potential out there by increasing levels in seed. I'm just wondering if you might want to comment on others that might get an associated increase in risks.

Ms Pahl: I think I'm going to defer to Don.

Mr. Sendziak: You ask a good question, Hector. That's why we mention in our proposal that we would like areas where Fusarium graminearum is not commonly found to stick to the protocol of trying to have it nondetectible in their area using best management practices. I must applaud our area in Leduc county. It seems to be free of Fusarium graminearum still, and we as producers are very diligent in trying to use best management practices to prevent the disease from coming in. I tell you that if it comes in, it's too late.

As Monica has mentioned, if you have an inoculum that starts with the seed and you let it be there for a year or two without detection, it remains in the trash, and you have no hope or chance of getting rid of the disease in your field.

Mr. Goudreau: My comment and my question, then, is: if you increase the concentration elsewhere, aren't the chances greater that others are going to get it? I'm thinking, you know, that any time we deal with diseases or pests, we've got some very specific examples in the past where – and if I may, Mr. Chair, I'm just thinking of scentless chamomile, for instance.

That, in this particular case, was a weed. We did everything to prevent its introduction and spread in the province of Alberta, and it gradually moved. It was established in, certainly, industrial areas. Talking about Leduc, there was a lot in the Nisku industrial yard, and we're trying to keep it there. But one particular company moved a pile of equipment to the Peace Country, for instance, and wherever they worked, all of a sudden there was a little bouquet of scentless chamomile.

Now, I recognize that diseases don't spread quite the same as weeds, but I'm using that as an example of trying to keep things out and doing that. Now, the more scentless chamomile there would have been in Nisku, the greater the chances of moving that seed up. I'm asking the same thing. If you get a higher concentration in one part of the province, it's going to make it that much tougher for the others to keep it out.

1:40

Mr. Sendziak: Well, you're absolutely right, Hector. However, I think we lost the ball 12 years ago, when the ag service boards and whatnot were not duly diligent in preventing the disease from spreading. They're still not diligent in doing that. I must applaud the counties and MDs for trying to prevent the spread of clubroot, and even our county is really diligent in making sure that the rotations are followed and that sort of thing, but they have done nothing for Fusarium graminearum. I'm going to be very critical on that from that point of view.

Mr. Goudreau: Thank you.

Out of 700 seed growers, no doubt you've had seed conventions, where seed growers get together. You would have discussed the Fusarium issue.

Ms Pahl: Yes.

Mr. Goudreau: Is it unanimous that you would change the regulations or encourage the regulations to be changed by the province of Alberta?

Ms Pahl: I'm going to address this question directly, and then I would like to go back to some earlier comments really briefly. Two years ago at our annual general meeting we had a resolution passed by a majority – resolutions are not required to be unanimous – that we investigate the use of tolerance levels. That's why we came today proposing a 5 per cent tolerance level in areas with Fusarium graminearum. We did have a resolution pass.

Mr. Goudreau: So using tolerant varieties or changing the levels of tolerance to 5 per cent?

Ms Pahl: Changing the levels of tolerance of seed being used from nondetectable.

Mr. Goudreau: If we're looking at 5 per cent – and you're indicating that some of that seed, then, has a higher level than zero and that it has to be dumped – the grain standards set by the Canadian Grain Commission are set at a maximum of .25 per cent Fusarium infestation tolerance for No. 1 hard spring wheat and a maximum of .5 for No. 2 hard spring wheat. You know, we're having to blend sometimes to meet those export standards. We're seeing added cost to the grain companies. We're seeing some changes at that particular level. Japan, being one of our major customers, is really starting to raise concerns about the quality of materials that we're shipping to them.

I can respect the fact that a seed does not necessarily generate more Fusarium in that particular crop, but over years it will. I think we all agree the trash is there, that the numbers are there. As we increase that concentration, we're making it tougher, then, eventually to blend and to be able to meet that. When I talk about added costs, I just want to hear your comments when it comes to our abilities to export and be good producers and to maintain our good names overseas as an export market.

Ms Pahl: Some great comments, and I absolutely agree. I've seen some data from our overseas – Asian, Japanese, Chinese – millers questioning some of the quality of the wheat, but that was more in

reference to dough strength and gluten and protein. That's a totally different topic.

Mr. Goudreau: But affected by Fusarium.

Ms Pahl: There was no direct correlation presented at that time with the data I have seen, so I'm not able to comment.

This Canadian Grain Commission data: that's Fusarium-damaged kernels. Again, there's no direct correlation with infection of Fusarium graminearum, because, of course, there have been several other species of Fusarium across western Canada.

The one comment that I would like to challenge back is that if we went with the tolerance level or removing it from the pest act, you would automatically assume we'll see higher concentrations of Fusarium graminearum in southern Alberta. I would challenge you on that. A lot of that seed is not being tested. So who knows what kind of infection levels are being put into that ground? We're dumping a half per cent, 1 per cent of seed, and some of the common seed not being tested could be 10, 20. I'm just extrapolating numbers. I would challenge and really question: are we going to see a higher concentration? What we suggest is that all seed must be tested. We'll actually know what's being put in the ground and focus on best management practices.

Mr. Goudreau: Lorena, would you agree with me, then, that as we increase the legal, if I can use that word, limits of Fusarium in seed and feed grains or wherever, there's a probability that we're going to increase our potential grain contamination overall, generally?

Ms Pahl: In commonly found areas – and I'll reference Dr. Kelly Turkington, who I've heard several times comment on this – where you have Fusarium already, your source of seed and the level of infection are important, but they actually play a much smaller part. Those other tools I talked about, as far as using tolerant or resistant varieties, irrigation timing with flowering, diverse crop rotations, play a much bigger factor and a role in what your harvested grain production is going to look like, so that's what I'll comment on.

I made some more notes here. One more thing: you commented on Alberta seed growers looking at a tolerance because you want to sell more seed. We've lost a lot of the seed industry, and we're going to lose more in southern Alberta. We want a sustainable industry. We want to be able to provide new varieties bringing new genetics to Alberta farmers, because they're losing when you look at Saskatchewan and Alberta. So we're not looking to sell more seed. We just want to make sure that those genetics to keep Alberta farmers are going to be there and accessible in the future because we want to be competitive to compete in those export markets.

Thank you.

Mr. Goudreau: Thank you. Thank you for that.

I want to carry on. We've heard about the potential impact on the livestock industry, the hog industry, over the last couple of days and even about the impact on health. We've also heard numbers being thrown around of $30 million to a few hundred million – I was just looking for that particular number here – in losses by other producers faced with Fusarium. You know, I find it difficult to say that we're going to increase all of those numbers. You identify the fact that there's not necessarily a direct correlation, and I can buy some of that. But the same kind of thing: you know, the more it's out there, to me, the spread is going to be there. If I'm diseased, whether I'm really diseased or not badly diseased, Steve might be able to pick it up somewhere down the line. Now, is that a fair comparison? I don't know.

We need to recognize the economic cost to our other grain producers and to our society in general when it comes to health of livestock and hogs. We need to recognize the fact that people with Fusarium have a yield loss. We need to recognize that people with Fusarium typically will have potential quality loss – they might lose grade – and that concerns me when we start looking at overall cost to our 43,000 people. We're saying that we're going to make it easier for seed producers, that we're going to make it a little better that way. We're going to change the rules, we're going to change the regulations, but who's going to pay for it? To me, it's the rest of the 43,000 farmers that will have added risks or increased risks. That's my way of thinking.

Now, I might be totally out in left field, but that's how I see this happening. We talk about using proper management techniques. You know, a few years ago, without Fusarium, maybe we didn't test, so now we're paying for testing costs. We're probably using seed treatments that we weren't using in the past. We've added seed treatment costs to our producers. Some will say that it's good management practice to use seed treatments, and I agree with that.

The other one is that – and we heard testimony this morning from a lady from Manitoba – we say that if you've got Fusarium and the conditions are right, use a full-year treatment. One individual might use a full-year treatment once or twice or even three times to try to minimize that. Those are all good management practices, but they're all added costs to the 43,000 producers that are out there, and that's my concern. The more we open things up, the higher I see those added costs go.

My next question, maybe to Monica, on the same kind of thing. We've got 67 seed-cleaning plants in the association, and you do a great job in terms of encouraging people to do testing and enforcing. No doubt you've had those discussions at your AGMs. The same kind of comment or question, then: is it a unanimous decision to see changes in the levels of Fusarium in seed?

1:50

Ms Klaas: Certainly. I have to ask for a little forgiveness. I've just taken over the role of general manager two months ago, so I don't have the history to quote the resolution, but I do know that we have a documented resolution from our annual general meeting asking for a change to the act. Out of that was the direction for flexibility. Again, our members that operate in the Peace block are very, very adamant that they want, you know, a very harsh or nondetectable level in place. However, if you go to the other end of the province or even into some areas right around here, that changes because the disease level changes.

To answer your question about unanimous, we do work on a majority rule, so it was not.

Mr. Goudreau: Yeah. Thank you.

You know, we may go from zero to .5 or even 5 per cent Fusarium or in some cases wide open. I guess my concern is: where do we start and stop? Where do you start to say, "This is enough"? We're getting ourselves into a real pickle here. Leduc doesn't have it yet, and they've got a different attitude. I agree that there may be others that have it, but had we started way back when, 12 years ago, before the horse got out of the barn . . .

Ms Klaas: A very, very good comment. We try to look at problems as problem and solution. It's not just good enough to come here and say, "This is the way, you know, it needs to be" or "That way is the way it needs to be." We have a done a little bit of brainstorming over: how would the enforcement work? Again, in

our proposal, once a municipality puts their stake in the sand and says, "We want this level," that then puts the onus on that municipality to enforce that. Again, I by no means want to insinuate or point fingers or say anything negative about enforcement. I'm just saying that in our vision going forward, if municipalities are allowed to choose, that puts the onus of responsibility on them.

This morning there were some pretty good questions about enforcement to the Agricultural Fieldmen representative. I really started to think: well, yeah, what would it cost? If this zero or .5 goes through, then those municipalities do have a responsibility to enforce that. I would sit back in a chair and scratch my head at that insofar as: if I'm in an area that has a known presence and has had for years and years and years, where is the cost benefit? So it's going to cost me a whole bunch of money to go out and enforce this. My producers are going to lose money. I will have to invest in training and employing more inspection officers, for sure, definitely.

All I'm doing is looking at one thing, and that's one seed infection level. Again, I think that over a couple of days of you people patiently listening to stakeholders, you know that this is more than just a seed infection issue. This is a bigger issue. Again, I look at it from the perspective of maybe a taxpayer saying: "Why am I paying taxes to do something that really has no net benefit? We have the disease; we have to live with it." I understand people wondering: well, if I have it in ABC, how do I not get it in LMNOP? Like, we get that.

However, there is one thing that really rules in the agriculture sector of Alberta, and that's this thing called capitalism, free enterprise. Farmers have to make money. Over lunch we got talking about hail insurance, and there was a figure from a small- to medium-sized grower who indicated that his hail insurance bill for a relatively smaller farm, a more medium-sized farm, would be $35,000. That's staggering because that's just one little thing. The farmers of Alberta cannot afford to be stupid, to be lazy, to ignore the facts.

I'm a member of the Alberta Institute of Agrologists, and in 2013 I think we were up to just over 2,400 registered, licensed agrologists here in Alberta. Back in 2002 we probably didn't have that number. I tried to look up that stat, but it wasn't available. We also have growers standing in the middle of their fields with iPhones and data. They have access to information. I think that this whole process is an awesome opportunity for everybody in the ag sector to say: "Okay. Let's really do something. Whatever it is that comes to be, then let's put our shoulders behind it, and let's make it so." Some of the bickering and fighting that has gone on on our side of the fence – you know, we need to put that energy into solutions.

Thank you.

Mr. Goudreau: A follow-up to Monica if I may?

The Chair: Mr. Goudreau, if I could just get you to pause for a moment. I completely want you to ask all of your questions, Hector, and we appreciate your thoroughness. I'm being very sincere when I say that. If we could just take a break and permit Mr. Bilous to ask a few small questions.

Mr. Goudreau: Yeah. It was just a follow-up to her past answer, but that's fine.

The Chair: You know, let's finish the follow-up, and then we'll jump to Mr. Bilous, and then we'll come back to you.

Mr. Goudreau: Yeah. Sorry about that, Deron.

Just very quickly, the bill suggests that we go to .5. What I'm hearing you saying, Monica, is that .5 will not work for the industry.

Ms Klaas: For all of Alberta, no, it won't.

Mr. Goudreau: Okay. Thank you.

The Chair: Mr. Bilous, please proceed.

Mr. Bilous: Thank you, Mr. Chair. I was going to say that I just have a couple of quick questions, and then I'm happy to turn the floor back over.

You know, first of all, I'll say that I'm an urban MLA. I represent northeast Edmonton. Well, I do actually have some farmers that live in Beverly that still have land outside of the city.

[Mr. Hale in the chair]

This is a topic that I've been learning quite a lot about in the last few days. I can't speak with authority like some of my colleagues can. I'm trying to get my head around this. I don't want to oversimplify this bill or this conversation, but it sounds like there are a couple of different competing interests going on here. We've got seed growers that are looking for an allowance so that they can still make use of their seed. Then we have, you know, farmers, on the other side, in areas in Alberta that have a zero level and want to keep it that way, and their concern is that if we increase it to .5, it's going to increase the chances or the risk of Fusarium disease spreading to other parts of the province or spreading much more quickly.

You know, from what I'm seeing, I like the idea of the multipronged approach to combat this. I think the idea of developing Fusarium-resistant varieties seems like one of those approaches. The way the law currently is, at zero: is that impeding seed growers from developing Fusarium-resistant seeds here in Alberta?

Mr. Sendziak: Can I answer that?

Mr. Bilous: Sure.

Mr. Sendziak: That's correct. We can't because we can't get Fusarium-free breeder seed and grain from other provinces to be able to propagate it in our province. We're taking a huge risk in order to propagate Fusarium head blight resistant varieties. I've done that by doing best management practices and in importing grain from Manitoba. It wasn't heat treated. At that time it was grown under agronomic conditions that didn't promote Fusarium head blight. I had it tested. It was tested before it was shipped to me. I had a DNA sample done. It tested positive, but in saying that it tested positive, it was dead Fusarium graminearum. The plate test indicated that there was no live Fusarium head blight, but I took further steps, doing best management practices, by putting fungicide on the seed. I put fungicide on the plant as it was growing, at the heading stage, and I was Fusarium head blight free.

[Mr. Khan in the chair]

Just by doing all that, a different-pronged approach, by doing best management practices – allowing a tolerance level is not enough to be able to contain the disease. It's best management practices all the way through.

2:00

Mr. Bilous: Right. I don't disagree with that at all. I guess I'm still trying to get my head around increasing the allowance to .5

whereas you folks pointed out that that wouldn't even be enough. You know, increasing it all the way up to 5 per cent – I mean, unless my thinking is very wrong, it seems like when you increase the allowance, you are increasing the chances or how quickly Fusarium is going to spread. I know that you have stated: well, we don't have that correlation yet. Well, maybe so – and maybe this is naive – but when I think of things like Dutch elm disease or pine beetles or rats in Alberta, we have a zero tolerance, not .2, not .5, not 5 per cent. The second that it's no longer zero tolerance, they are going to pop up and grow. I don't know if we have the stats from Saskatchewan or other jurisdictions that have tolerance. I'd love to know: year over year, is that number going up, the cases of Fusarium?

The Chair: Mr. Bilous, my deputy chair and I have been engaged in a sidebar conversation. I'd like to give Mr. Hale an opportunity to share with you some of what I think we've been able to distill over the last two days in direct regard to your question. Then our experts can tell us if we've been paying attention.

Mr. Hale: Deron, the issue is that it's here. It's here now. So the zero tolerance has got us to where we are now. I think that what the panel is saying in their discussion is that increasing the per cent to .5 or 5 doesn't increase the chances of getting it if the farmers follow the best practices. A lot of them have been following best practices at zero per cent, and it still is here.

I think, personally, that it's all about education and making sure that with the issues that we're facing now, we continue to do best practices. As we heard yesterday, you can plant that seed that has Fusarium in it, and if you do nothing for years, you can then have it spread in your crops. But you can plant that seed, follow best practices, with watering rates and different crop rotations, and the way you manage it is how you're going to contain it.

Mr. Bilous: Right.

Can I respond to that, Mr. Chair?

The Chair: Absolutely. Please.

Mr. Bilous: This is an interesting discussion. It sounds like there are almost two different things going on here. I get that it's here – right? – but we want to reduce the spread of it because there are parts of Alberta that have zero or at least zero detectable at the moment. The fact that it's here, to me, reflects not that we need to increase tolerance levels but that clearly there's a shortfall in our monitoring or testing or acting on it.

My concern: a comment was made earlier of passing responsibility to municipalities. You know, in the province of Alberta we have 349 municipalities. Some have sizable reserve funds, and some are struggling to make ends meet. I would be extremely concerned if municipalities suddenly had to take on the burden and responsibility of either testing or monitoring or enforcing. I think that some of them simply wouldn't have the capacity.

Anyway, in this discussion – I think it's interesting – there are the two different sides. There is what is being done to minimize the spread of Fusarium and the effect that it's having, which I think is very, very important, for folks in their sectors to be doing that, but again I'm not sure if opening up the tolerance in the province is a solution to, you know, trying to keep it out or keeping it minimized.

The Chair: Thank you, Mr. Bilous.

Further comment from the panel to Mr. Bilous?

Ms Pahl: Thank you for the great discussion, and, Jason, you summarized a lot of very important tidbits from a couple of days, so thank you. You're a quick learner.

Just a comment, you know, that when you put something under the Alberta pest act, it should be enforced, and it's up to the counties and MDs. Who else is there? It's the ag fieldmen, ag service supports. They were responsible right from 2002 to enforce farmers' using nondetectable levels or zero tolerance, back then. Then it was switched to nondetectable, to using that. Then also couple that with the fact that not all seed is being tested.

Now, I'm not an expert, but I keep referring to that scientific review that Andy Tekauz has done, and in one of my messages I had indicated that in that study any tolerance levels from .5 to 5 per cent could be implemented with low risk of increasing the rate of spread of Fusarium graminearum. So he's quite comfortable with tolerance levels under 5 per cent, that we're not going to increase the rate of infection across all areas of the province.

The other thing is your growing environmental conditions. That highway 2 corridor, the Westlock-Barrhead area, and higher moisture regions have a huge impact on the amount of disease infection, and we can't really do much about that.

Mr. Bilous: Right. My only other comment to that is, you know, the enforcement, much of carrying it out falls on municipalities, but again, I mean, in my view, then, there simply isn't adequate funding that is going toward this . . .

Ms Pahl: Absolutely.

Mr. Bilous: . . . so I will direct that comment to my colleagues in this room.

I guess I'm just trying in my mind to see that – yes, I acknowledge that we have a problem. It exists in some areas of the province to our knowledge; it could exist in more areas of the province that we're unaware of at the moment. Again, what is our best path forward? I appreciate all of your comments and information, and at this point I'm still undecided as to the best way forward.

Thank you, Mr. Chair.

The Chair: You and the rest of the province. Thank you very much for that, Mr. Bilous.

If I can ask a further indulgence from Mr. Goudreau, we have some questions from our colleague Wayne Cao, who's been listening online, and I have an obligation to ask the questions. I'm not certain that you folks have the answers to Wayne's questions, but if you'd like to give it a shot, by all means. I'll read Mr. Cao's questions into the record. He's got three questions; I'll just read them in order. His first question is: Fusarium knows no provincial border. What is the federal government doing about it? Second question: Canadian grains need a good reputation and good quality in global markets. Is there a comparison with BSE, and how serious is Fusarium? And his third question is: are there incentives and compensation for Fusarium controls, quarantine, or burnings?

Again, the scope of Mr. Cao's questions perhaps doesn't lie within your area of expertise, and I fully understand that, but I did have an obligation to read his questions into the record. If you'd care to offer your opinions or insights on those questions, by all means.

2:10

Mr. Peregrym: Okay. I can only answer on the federal one, from what I know, because I am a CFIA grader for seed. I can do that through my plant. So if I use Don as an example, if he brings his seed to my plant, I can clean it. If it makes the grades, I put my signature on it. He now can sell it as certified seed.

I've talked to some CFIA officials. Now, with Lorena and Don's request: they want all certified seed to be tested for Fusarium. It isn't under the CFIA grading table, so it doesn't matter what provincial rule we put in place. It still wouldn't have to be tested under the grading table under federal, and that's what we're grading under. It would have to go to the federal level for that. Now, I've talked to some CFIA officials about that, and they have said that they are in discussions, but it isn't hot topic for them because they've got more things, I guess, to fry. I discussed with people in Edmonton about that at that time, but that's the only information that I can give you.

Their comment that it has to be tested and certified: really, I agree with that. I think everything should be tested, a hundred per cent – I think we're all agreeing to that; it should be tested – and in our plant, of course, it's mandatory. We do make it that it's tested no matter what. But it cannot be enforced by the Alberta rule. It can only be enforced by federal at that point.

The Chair: Thank you. Okay. Fair enough.

It looks like we can come back to Mr. Goudreau and resume his line of questioning. Thank you, again, Mr. Goudreau, for waiting.

Mr. Goudreau: My pleasure. I'm just about finished, Chair.

The Chair: Oh, no. Keep going.

Mr. Goudreau: Again, I guess, the suggestion was made to remove Fusarium, period, from the ag pest act, ideally to remove it as a pest under the ag pest act, and to leave it, then, rather than having provincial support, up to individual municipalities to decide what they're going to do. Am I right? That's what I heard, in that sense. So have we wasted all of our time, then, in terms of, you know, the bill suggesting .5 per cent?

Ms Klaas: I would certainly never, ever say that this has been a waste of time. I've been in the ag industry for 27 years. I used to be in a sales and marketing position, where I sold seed-placed technology, so seed treatments and the like, and hence have a really, really good understanding of the disease and how it works and the agronomy side of it. I would never for any consideration say that this has been a waste of time.

In fact, on Tuesday morning our association's managers had a training session, and we were lucky enough to have Minister Olson stop in to chat with us informally. We mentioned that we were going to be here. Before we could start our rant, he said: "Oh, wait, wait, wait. You know, I've heard a lot of passionate dissertation on polar opposite ends of this, but you know what? The really good thing is that the subject of agriculture has reached us." He was looking at this whole process as being a positive.

Again, from sitting in the back this morning, I would have accolades for every member of the committee for their awesome questions because questions are when you really get your learning, so thank you for that.

Again, our stance to, you know, move it from being a classified pest to a nuisance: we recognize that our membership has spoken to us, and farmers, boards of directors have given us direction to say that we cannot have a blanket approach to this. There is a utility in watching this, but also for parts of the province where we have the disease – it's already there – we have to face the facts.

Again, just a disease 101 lesson for you. We have something we call the disease triangle when we look at it from an agronomy standpoint. There are sort of three pieces to it. One is the host. So when we start to talk about resistant varieties – and I do have to classify or clarify that when we talk of resistance, that's what it is. It's resistance; it is not immunity. There is something built into that plant on the side of the plant breeder. To answer the phone-in question "What is the federal government doing?": if anything – again, this is opinion, not a fact – I would have to say that the federal government has invested or given money to a few agencies, wheat commissions in Canada, hoping that they're taking those dollars and putting them towards plant research to find these resistant varieties to this disease. Again, resistance is resistance. It's not immunity.

Then we have the environment, and I think there's a really good understanding from the people in the room that it's Mother Nature. We know this disease likes moisture. We also know it likes heat. The other thing that maybe wasn't mentioned is that it likes hot nights.

Mr. Goudreau: Me, too.

Ms Klaas: Thank you. I love people with a sense of humour. I usually do that.

When you're tucked against, you know, the mountainous regions or certain little climatic areas, it's just not conducive to the disease.

Then, of course, you have to have the pathogen. Remember: host, environment, pathogen. By this Fusarium management plan and the conversation about what infection levels we can allow in the seed, that's how we're trying to manipulate that one edge of the triangle. Again, we can see that for long-term effects, we really do need, you know, all of those sides of the triangle to come forward. We understand that our proposal is maybe a little bit different, but we see it as a way that municipalities and regions, if you want to even use that term, can take a look inward and then take responsibility for their actions.

One of the committee members brought up, you know, the cost of enforcement and the whole nine yards. That is very real. Again, if we're going to spend money, let's make sure that we're spending smart money. Why would we have zero tolerance or .5 tolerance in an area where we already know that it's impossible to get there? Why would we do that? Why would we spend the energy and the enforcement money trying to get there?

That's kind of the challenge we have, and again I do want to defer to the farmers of Alberta. I've worked with them for 27 years. I have learned a lot, and I'm still learning a lot. They're a very savvy, smart bunch. They've had great support from departments of agriculture over the years, and from the short conversation Tuesday morning with Minister Olson we are confident that the hand up, not the handout, is very much part of the path forward of the province.

Thank you.

Mr. Goudreau: Thanks for those comments, Monica, and I hope my next comment won't be insulting, but as a past practising agrologist – I was a crop specialist for 27 years and district agriculturalist – I certainly advocated for the reduction of pests, not for an increase or allowing processes to happen a little bit more rapidly, you know, to open things up. I would always advocate to tighten things rather than open things.

The other one is that I represent an area where, hopefully, we've got a minimum amount of Fusarium in my part of the world. If I were to vote in favour of any changes to make things easier and Fusarium would become widespread in my constituency, I would lose my seat tomorrow. I'm hearing from my producers out there that they don't want it, period. We need to do whatever we can to not have it.

I see a couple of things. One, has there ever been an attempt to encourage propagation or multiplication of breeder seed or

foundation seed in areas outside of Saskatchewan and Quebec, specifically in the Peace Country, for instance? We've got research stations there. We've got some excellent seed producers there. Why are we not pushing, then, our multiplication of those types of seeds in areas that have little to no Fusarium, that I'm aware of, rather than going to Saskatchewan and Manitoba or, again, in certain pockets of southern Alberta where there's a higher infestation?

2:20

Ms Pahl: I absolutely agree with you on why our breeder seed is produced in Indian Head, Saskatchewan, a hot spot for Fusarium just because of the environmental conditions. Alberta Seed Growers', since I can recall, has always tasked Ag Canada with that question. There are facilities outside of there that would certainly be more conducive. I would encourage Alberta Agriculture to take this further and task Ag Canada to continue to review because we're not getting anywhere. Of course, when you look at what's happening with their funding of research programs, their funding of plant breeding, it's going to be a tough, tough sell to move it, but we've been advocating for relocating the production of breeder seed.

Mr. Goudreau: Beaverlodge has a great research station or has had probably greater impact and, you know, even going up to Fort Vermilion. We can grow mature crops there as well as a lot of other places across Alberta.

Ms Pahl: The breeder seed has to be heat treated coming out of Indian Head to come into Alberta. The research indicates that it doesn't have much of an impact on germination but certainly kicks the crap out of your vigour. So we have both Saskatchewan and Manitoba seed trade commenting: "Well, we don't want it heat treated because we want better quality seed. We want more vigorous seed." It's kind of a balancing act. So I certainly agree with you and appreciate that comment.

Mr. Goudreau: My final one is a thought. I've heard economics being said over and over again over the last couple of days, that it's all about economics. I still don't have it clear in my mind. It's economics and allowing seed producers to maybe, hopefully, make a few more bucks, but I'm still not convinced that the economics, when we look at the big picture of all of our growers, our exports, the impact on livestock, the impact on beef, the potential impact on human health, that everybody else is going to gain by this. When I look at the big picture, I'm seeing negative economics. I know that for seed producers it's all about the buck, but for the rest I'm not convinced.

Thank you.

The Chair: Dr. Brown, do you have some questions?

Dr. Brown: No. I'm moving that we allow our guests to depart.

The Chair: Well, Dr. Brown, we're working through this very quickly. We have just two more speakers, two more questioners. Oh, you thought Hector was it? But we have Mr. Xiao, who would like to pose a comment or a question, and then I have just a couple of quick wrap-up questions, Neil.

Mr. Xiao: First of all, thank you for your presentation. I've been getting myself educated about this matter. I, too, am not a farmer, so I was not necessarily familiar with this issue, but I tried to apply common sense to this. During our lunchtime we had some conversations that compared this with our speed limits on the highway. Knowing that so many people are not following the speed limit on highway 2, as you know, when you come up – most of the people are probably driving at much higher speeds – doesn't mean that we should eliminate the speed limit. Then probably, I think, you're making the matter worse.

My question to you. Just assume that we never had the legislation of zero tolerance on this. Would you think that Alberta could have a much larger area that might be affected by this disease? That's my question.

Ms Klaas: That's a good question. In the scientific review that the Fusarium Action Committee has undertaken, that was a comment from Dr. Tekauz in his closing remarks. He said, you know, that hanging a whole bunch of faith on the fact that having nondetectable seed is going to protect the province in the future is possibly a flimsy thing without the rest of the management program, but he did say that possibly the zero tolerance had helped educate growers. Through education it probably helped instill those other management practices and, in turn, slowed the spread of the disease or contained it to some degree. That comment was made.

Mr. Xiao: Okay. On this point, just one more supplemental. I know you are representing the seed growers. By increasing the tolerance level, that would allow the seed growers to sell more seeds in Alberta, right? There is no question that there's a huge economic benefit for your membership.

I'd like to ask you this. To maintain the status quo and at the same time to improve the situation, what do we have to do as a government? You know, what do all levels of government, municipalities and provincial governments as a whole, have to do to raise your membership with the farmers in order to tame the spread of this disease? That's my final question, Mr. Chair.

Ms Pahl: Just to make sure I am understanding and on the same page, if we were to maintain nondetectable tolerance levels in the pest act, what would Alberta Agriculture have to do?

Mr. Xiao: No. What will we have to do as a government? I'm talking about municipal governments and the provincial government.

Ms Pahl: If you wanted to maintain that nondetectable levels of seed only be used, you have to enforce it. You have to mandate that all seed be tested, and your ag fieldmen, your municipalities, and counties must enforce it. That's going to require some dollars and some huge political push-back in areas where Fusarium graminearum is a serious concern, such as southern Alberta, to keep it short.

Mr. Xiao: I think you just answered my question. It's all about enforcement.

Mr. Sendziak: There's one thing further, David. Not only enforcement, but you have to have a best management practices plan in order to mitigate that disease because just enforcing the low level of tolerance on the seed is not enough anymore. Where the Fusarium inoculum is present right now, you have to use different management practices to reduce it.

Mr. Xiao: Yeah. You know, I agree with you. Everybody over the last two days has been talking about the best management practices. How do you define that? I think the best management practice is to find the most effective way to enforce the legislation, the law. I'd like to see that if we have to do this enforcement. That means incentive with a carrot and a stick. That's what I would do. It's all about money. Let's put it that way.

If you help your membership to minimize their cost at the same time as enforce the legislation, that might have a better payback than to just keep raising the tolerance level.

Mr. McBain: I'm going to put on my producer hat. I'm a commercial producer. If you want to enforce it now and you want to have your ag fieldmen and stuff go out there, you're going to have a lot of producers going broke because: how are you going to enforce it? Are you going to go out there and force them, say that they've got to burn that crop in the field and not produce cereals on there for two years, three years, five years, eight years? That's a huge economic hit to those producers south of the Trans-Canada highway.

2:30

What is the government going to do for those producers over those eight years? You can't go back to grow canola, canola, canola. We have to keep a rotation. If you go in and start to minimize what producers can grow, you're going to limit what they can sell, what they can produce. It's going to really hurt the Alberta economy.

I am lucky enough to be in an area that doesn't have it. I am just northwest of Calgary. We have had a couple of positive Fusariums in the eastern part of our county, but we work with our ag fieldmen. We go: "Okay. What do we do now?" Our seed plants test. We talk to the producer and we say: "Okay. You've got it. Let's go use some better seed." You get into southern Alberta, and that's not an option for these guys. Don't forget that some of these seed plants are operating in areas that are using farm-saved seed, right? This is not seed that's being sold. It is farm-saved seed. He's taking it back and seeding it on his own property. It's not the same as the seed grower, who is marketing seed. There is a lot of farm-saved seed out there that is saved by the producer and produced back on his own farm.

Now, we can go into another offshoot of that with the PBR rights and everything else, but this is not the forum to do that. We're talking about Fusarium and that sort of thing. We are going to assume that producers are doing the right thing, okay? Sure, those seed plants may not be testing every sample, but when a producer brings it in and is using his own seed back on his own farm and he already knows he has that infection, he's going to use his best management practices with seed treatment and Folicur and do the best he can to get the crop that he can. He's also going to use certified seed on fields that have low infestation for that economic advantage.

Don't forget that we think about this all the time. We are after the best possible return we can get. We will do what we can to get that return. We can't be limited. In the south part of the province this is why the seed growers would like to have some of the newer varieties brought in. They've already got low levels of Fusarium. Let's not restrict those farmers' advantage to use new genetics for their production.

Now, keep in mind that we're a vast province, and certain areas can't grow certain crops. I can't grow wheat. I can grow malt barley, canola, and we do export timothy into the Asian market. That's what we do best. People in the south can grow durum. They've got irrigation. They grow vegetables. They grow potatoes. They're very diverse. Each has its own . . .

Ms L. Johnson: Adventure.

Mr. McBain: Right.

It's a very complex issue, but keep in mind that the producers are out there to do the best thing for not only themselves but also the environment. That's their living. They're going to do the best they can given the tools provided to them. Keeping it limited to a certain number like this is making it very difficult. Nobody wants to break the law, right?

All these analogies with rats and speed limits and all this other kind of stuff: that's all great, but we're dealing with a disease – okay? – like the measles outbreak just a few weeks ago. Did we just condemn Calgary and Edmonton? They had measles. You know, we're dealing with a disease.

Mr. Goudreau: On that particular point, Mr. Chair, if I may?

The Chair: Oh, you got him going now.

Mr. Goudreau: If we're going to argue analogies, on the measles side we said, "We don't want measles in the province of Alberta," and we did our utmost possible to get rid of it. We're doing that, and we're spending all sorts of public money to do it.

Mr. McBain: But we've still got it.

Mr. Goudreau: I know we still have it, but we're trying to eradicate it, move it out.

Mr. McBain: And you're using public money to do it.

Mr. Goudreau: If you're going to use that analogy, then we have, you know . . .

The Chair: Folks, if I may, I think it's more constructive and helpful to focus on Fusarium at this point, for the purposes of this committee, rather than on rats or cats or elephants.

Mr. McBain: I do, too. Exactly.

The Chair: I'm going to follow up on Mr. Xiao's question just because there has been a stream of consciousness, if you will, about enforcement and enforcement being a solution. I'm going to ask a very specific question, and I hope you can provide that. This is an opinion question. Today, if there was absolute enforcement of our zero per cent policies, what would that do to the ag industry in southern Alberta? Please. You can all answer that question.

Ms Klaas: Okay. Well, I want to answer from two perspectives. The first perspective is mitigation of the disease.

The Chair: No, no. We've covered mitigation. Let me just frame it. After you guys go, we're going to have a committee. We're going to talk, and we won't have the experts in the room, and there will be those amongst us that will say, "This is just an enforcement issue; all we have to do is enforce our current law," wipe their hands, and say that we're done. From just that perspective, what would that do to our farming cousins in southern Alberta?

Mr. Sendziak: Can I answer that?

The Chair: I wouldn't mind an answer from everybody, actually.

Ms Klaas: It would not mitigate the disease, number one. The losses from the disease would continue because we have field infection of the disease. Even if we had planting seed with zero, the disease still lives, and that's a fact.

From an economic standpoint, we would have a double-pronged loss insofar as we'd still have the Fusarium issue; plus, we'd have an issue of having to dump seed lots, both farm-saved as well as certified seed lots. You know, again, I'm not prepared to put a dollar figure on that, but acres and acres and millions of bushels.

The Chair: Thank you.

Anybody else care to take a stab at that one, hypothetical question that it is?

Mr. Sendziak: Sure. I will. It would be an economic disaster for southern Alberta because if you enforce the law for using zero tolerance or zero infected seed, you would have no seed, that being brown bag seed, homegrown seed, or pedigreed seed. Plain and simple, you would have no seed to seed the future crops.

The Chair: Thank you.

Ms Pahl: I'll make it brief. It would certainly put certified seed on a level playing field because all seed would have to be tested for you guys to enforce. All your common seed, your bin run seed, would be tested. That being said, a huge economic disadvantage as far as multiplying new crop genetics, bringing in new varieties. All of a sudden our southern Alberta growers will not be able to compete with Saskatchewan and Manitoba growers, and I don't think that's what you want to do.

The Chair: Please go ahead.

Mr. Peregrym: Also, I'd like to add to that. Now, I'm going to just talk on the economics of the regular farmer, not just the seed farmer anymore. That would affect them greatly because they could never put seed back in the ground. They couldn't reproduce. That would affect the cattle guys there. The cattle guys now produce locally there as well as by in-bound. From the north I sell into that area, but they don't buy everything from me. It would affect us up here as well. I think it's going to definitely destroy every farmer down there economically as well as in the north.

Mr. McBain: You're also going to affect downstream. You're going to affect the malt plants. You're going to affect the bread guys. So it's huge. If you were to go out tomorrow and say, "Okay; we're going to enforce this to the full extent of the law," it wouldn't be pretty because there are so many other industries involved.

The Chair: Thank you.

For the sake of time, Mr. Xiao, we're going to move on.

As the chair, I have the pleasure of some concluding comments and questions. Actually, I really want to thank you for your candid answers, your informative answers, your entertaining answers, and for being so engaged with our committee. I hope you can make that last for just a few moments longer.

I'm really interested in that area code slide. Matt has got the area code slide up already. Ms Pahl, could you take some time and just explain again what those percentages mean?

2:40

Ms Pahl: Okay. There are hard copies in the handouts that I gave to Chris as well.

Basically, this was provided by BioVision Seed Labs, so it's per cent of samples submitted that were detected with Fusarium graminearum levels.

The Chair: Okay. Now, can I just stop you there? Fusarium at what level? Do we understand at what percentage those levels were?

Ms Pahl: It would be anything over a half per cent.

The Chair: Okay. So this is anything over a half per cent.

Dr. Brown: The testing protocol is 1 in 200. They sample 200 seeds. So if there's 1 in 200, then that's a detectable level.

The Chair: Okay. This slide is a clear illustration that already, you know, the current law as it exists is just not enforceable. I'm not trying to put words in anybody's mouth – I should ask you for your comment – but given this slide do you believe that the current law as it exists is enforceable?

Ms Pahl: Just to use an example to further drive home the point, you got 52 per cent of your durum samples testing positive for Fusarium graminearum last year. That would lose half of your production of durum in southern Alberta.

The Chair: Okay. Now, I want to also come back to Ms Pahl. In your presentation you talked about the competitive disadvantages that farmers have in acquiring seed that is available to farmers in Saskatchewan and Manitoba. I'm connecting the dots in that they don't have access to that seed because it exceeds the zero per cent quota that we've put on.

Now, further to that – I'm trying to connect the dots – you made a suggestion about some of that seed that the farmers in Alberta do not have access to. Even though it contains more than zero per cent – it may contain more than half a per cent – are those strains more resistant to Fusarium than some strains that don't contain any Fusarium whatsoever?

Ms Pahl: So you're talking about different varieties?

The Chair: I apologize for that inelegant phrasing of the question. I guess what I'm trying to get at here is that currently there is seed available to farmers in Saskatchewan and Manitoba that we can't access in Alberta.

Ms Pahl: Correct.

The Chair: And the reason is that that seed exceeds our threshold for Fusarium. Now, for the seed that we cannot have access to, that they're currently using in Saskatchewan and Manitoba, where we know that there is Fusarium, are some of those new seed genetics more resistant to Fusarium than some current seed that we use that has zero contaminant?

Ms Pahl: Thanks for clarifying that. Now I clearly understand.

The Chair: Did I get it right?

Ms Pahl: You did awesome. Thank you.

Absolutely. Some of those new varieties that we can't bring over – nondetectable levels of seed – could offer any type of improved trait qualities, improved genetics, and one of them certainly can be your tolerance to Fusarium, also yield improvements, different quality trait improvements. Any of those varieties that are offering better genetics, we can't access as quickly.

The Chair: Okay. So our current laws are preventing us from bringing in seed that could actually help us prevent the spread of Fusarium?

Ms Pahl: Absolutely.

The Chair: Okay. I was just trying to make sure that I was connecting all of the dots there. Thank you for that clarification.

I'm going to sound like Hector Goudreau here for a second – and I mean that as a compliment – but we've heard time and again from folks who are in the north who, quite understandably, are trying to contain Fusarium and don't want Fusarium where it doesn't exist. If we go to a regional solution, where we say zero in

the north country and whatever, you know, 2 per cent in the centre and 5 per cent in the south, in hypothetical numbers, there's a line of thinking from the folks in the north that somehow it would make it more difficult for them to get seed that has zero per cent. I've heard that argument presented anecdotally. I'm just wondering if there's any science to back that up or anything that you can verify.

Ms Klaas: From a perspective of both farm-saved and certified seed, I would hazard a guess that growers in Alberta would pick the best seed possible. So from their grower of choice or from their own field, if that's what their management is, I believe that growers would pick the best seed possible. We have certified seed growers from tip to tail in the province. Again, there's maybe not a high concentration in the Peace Country, but certainly, you know, there are seed growers in the south, as there are in the north. As well, farmers, under the correct laws, can save their own seed. Again, I think that they would prefer just to use the best seed possible, and if seed was available with zero per cent, that's the seed that they would select.

The Chair: Fair enough. Okay. I've only got a few left, I promise.

There was a slide in Ms Klaas's presentation that demonstrated Fusarium in the province of Alberta. Matt, do you have that magically behind me as well? I noticed that Mackenzie was red, indicating that it had Fusarium. This is interesting to us because we've struggled as a committee with some testimony. We've had people testify that there is no Fusarium whatsoever in the north. There are some who've told us that it's there; there are some who've told us that it's a trace. Could you spend a little bit of time explaining this slide to us, please?

Ms Klaas: Okay. I actually have a set of slides from 20/20 Seed Labs. In the e-mail that they sent the slides in – and I actually asked for permission to give that set of slides to the committee. I was granted permission. The author is 20/20 Seed Labs.

Essentially, what they did is that they took the seed samples that were submitted to the lab, and it's just a number of samples or a percentage of samples. It doesn't show the per cent infection; it shows the incidence, so if it was a yes or a no on Fusarium graminearum. In 2013 from that northern county there could have been only two samples submitted or whatever.

Again, in the e-mail that was sent to me by the seed lab, they were very clear in indicating that they do not give out individual customers' information. In the case that there was an area where the sample size was very, very low, they would put that sample with another neighbouring area just so as not to call out, you know, an individual customer. The other thing they said is that if an address was at a certain postal code, they would just assume the seed was going to be planted at that postal code. Again, we all know that some people might have an address of X but really have a farming operation in Y. They were very clear to say that the map is just a representation that we're getting samples from all over the province with positive Fusarium hits.

I will send you the information.

The Chair: Okay. Thank you.

I know that those missing slides are probably more indicative of our challenge. I think that it's the voodoo that's happening with our committee, just trying to get good information from what's happening in the north.

Now, having attempted to channel my inner Hector Goudreau, I'm going to get into some dangerous territory here and channel my inner David Xiao and come back to an enforcement question, very similar in style to the question which I asked in terms of the strict enforcement of zero in the south, and I do thank you for your candour in those answers. I would again ask you the same question except this time talking about the north and specifically the Peace Country. How difficult and what kind of impact would it have enforcing zero in the north at this time given that there's not a prevalence of Fusarium?

2:50

Ms Klaas: Yesterday we actually did receive a report – and I have to apologize; I don't have the name and the municipality on the tip of my tongue – of an agricultural fieldman ordering a crop destruct on a field because of Fusarium infection. So in the Peace they are taking this very, very seriously, as they should. Also, because they're sitting at a low level, it really makes it much easier for them to, you know, operate at zero.

The economic impact would be – again, it's difficult to tell, but in the event that there was some type of environmental issue in the Peace and they weren't able to get good-quality planting seed or they wanted to buy a new variety of certified seed or something happened with their planting seed supply, they would have to go outside of their area to source planting seed.

Again, we would expect and hope, mostly expect, that the growers, if they're investing in seed, would be buying the best seed. That means germination, vigour, variety as well as disease counts. Lots of growers look at diseases more than just Fusarium infection as well.

Ms Pahl: Just quickly, I think that – it's much smaller, but it's still an impact on producers up in the Peace – there's a lot of seed that is not being tested. Certainly, the costs of having it tested for Fusarium graminearum – if you're going to enforce it, it will require actual testing.

Mr. Goudreau: Mr. Chair . . .

The Chair: I'll come to you right away here, Mr. Goudreau.

I'm not trying to put words in anybody's mouth, but we spoke about enforcement in the south as perhaps not being reasonable or practical. Is it fair to say that zero enforcement in the north would be more reasonable and practical?

Mr. Sendziak: I'll answer that one. Yes, Stephen, I totally agree with you. Where you have a low incidence or it's nondetectable, it's easier to enforce. If the ag service boards can take the initiative to make sure that that happens in every seed plant up north, those being mobile seed treating or seed cleaning or processing plants and the seed plants themselves, I think you've got a win-win situation. I think the ball was dropped 12 years ago in southern Alberta. That's all I say.

The Chair: Okay. Anybody else care to weigh in before we come to Mr. Goudreau?

Hector, it looks like you're up.

Mr. Goudreau: Thanks, Chair. Ms Pahl, I do want you to provide this committee with statistics and information as to where you got your data about not a lot of seed being tested in the Peace. Please file with this committee as soon as you can.

The Chair: Folks, with that, I'm going to thank you very much, particularly Ms Klaas and her team, who have been with us all day long. Your stamina is remarkable. Thank you very, very much for being here.

Ms Klaas: Likewise. Thank you.

The Chair: Ms Pahl, thank you for an outstanding presentation. Thank you to all of you. Your time and energy are incredibly valuable, and for you to share as much of it as you have today is quite remarkable. We're grateful to you as a committee, but I know that all Albertans are equally grateful, so thank you so very much.

Mr. Sendziak: We thank you.

The Chair: Okay, folks. We're getting there, guys. We're getting there.

That brings us to other business for our committee. At this time is there any other business that we care to discuss?

Mr. Goudreau: Mr. Chair, as I indicated yesterday, I want to reiterate my disappointment in some of our members from other parties that have chosen not to be present at these important deliberations. To me, it's an indication of how they value agriculture in the province of Alberta, and I just want to say that I'm disappointed not to see them here on the committee.

The Chair: Mr. Goudreau, I think that you speak for a number of us who have invested our time and energy into this issue, which is oh so important to agriculture in Alberta. Ms Johnson has testified for us as to how important the ag sector is to our economy here in Alberta and to the livelihood of so many Albertans, so I thank you for those comments. They're noted by myself and the deputy chair, and we'll bring the issue up at an appropriate time. Thank you for that.

As well as other business, we're going to move on to Dr. Massolin because he has an update for us regarding a research request that was made by the committee a few weeks ago.

Dr. Massolin: Well, Mr. Chair, I was thinking that at the next meeting we could present our research. As well, of course, subject to committee approval, we could present a summary of all the information the committee has received to date, including these two public meetings, today's and yesterday's, and format that in a way in which the committee can digest it, if you will, through looking at the major, key issues. The idea behind that would be that the committee could start its deliberations at that point with that information. So if that's acceptable to the committee, we'll both report on the earlier research task and as well present that summary of issues and information at the next meeting.

The Chair: Dr. Massolin, that would be more than welcomed. It would be very much appreciated, I think.

Anybody on the committee have anything to offer?

Mr. Goudreau: I'm just wondering: how much time do you need for that process to happen?

Dr. Massolin: Well, I think that as the committee discussed sort of in a preliminary way yesterday, the mid-July time frame would work.

The Chair: On that note, Mr. Goudreau, it looks like we don't quite have a date set for our next meeting, but I believe that we're looking at targeting July 14, which is that Monday. Now, that meeting is likely not an all-day meeting. More than likely it could be accomplished, Dr. Massolin and Chris were thinking, in a couple of hours. So it would be more than appropriate to call in for that particular meeting if that's going to be easier for members of this committee.

Just prior to asking for a motion for adjournment, I just want to take a moment to acknowledge the remarkable work of our colleague Hector Goudreau. We very much stood on his shoulders as a committee during these proceedings.

Some Hon. Members: Gold star.

The Chair: Duly noted. Hector, you're a phenomenal example of what an MLA should strive to be, in my humble opinion, so thank you for your efforts on this committee.

Mr. Goudreau: Well, thank you very much, Chair. I hope that I didn't come across as being too passionate. It's difficult to separate the passion from, you know, sometimes having to be a little bit more calm in this situation, but it does impact a lot of producers in the province.

Part of my ability to be here is due to your direction, Mr. Chair, as a chair with the ability to take care of a group as well as to the rest of the staff, with the background and the materials that help me do a better job. So I want to thank everybody that's been involved in this process.

The Chair: Just as I said, he's a fine example of what every MLA should be. Absolutely, I'd like to echo Mr. Goudreau's words and thank everybody on our staff. To our security: thanks for keeping us safe from the bad guys. To *Hansard*: thank you for all your work, working the lines and our technology, which worked very well. To our stalwart pages: thank you again. To the staff: for feeding us and particularly to Mr. Tyrell and Dr. Massolin for keeping us on track and guiding us through the way, thank you, all, so very much.

I'm looking at my friend David Xiao. I think he would like to make a motion for adjournment.

Mr. Xiao: Yes.

The Chair: Be it noted that David Xiao has moved that the meeting be adjourned. All in favour? Thank you very much. This meeting is adjourned.

[The committee adjourned at 3 p.m.]

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