



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

Wednesday, June 25, 2014
9:05 a.m.

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Standing Committee on Resource Stewardship

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Standing Committee on Resource Stewardship

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Dr. T. Kelly Turkington	
Dr. David Bailey, President and CEO, Genome Alberta	
Alberta Grains Council, Canadian Seed Trade Association	RS-702
Mr. Greg Porozni, Chairman, Alberta Grains Council	
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Alberta Beef Producers, Alberta Pork	RS-711
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Chief Medical Officer of Health.....	RS-713
Dr. James Talbot, Chief Medical Officer of Health	

9:05 a.m.

Wednesday, June 25, 2014

[Mr. Khan in the chair]

The Chair: Folks, it's 9:05, but we're waiting on one of our guests. Hopefully, he can get here, and we'll buy him a little bit of time.

At this point I'd like to call the meeting to order and welcome 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 am the chair of this committee. I would ask that the members and those joining the committee at the table introduce themselves for the record, and then we'll hear from those who are joining us on the phone. We'll start on my right with our deputy chair.

Mr. Hale: Yes. Jason Hale, MLA, Strathmore-Brooks.

Mr. Donovan: Ian Donovan, MLA, Little Bow, Agriculture and Rural Development critic for the Official Opposition, and sitting in for Joe Anglin.

Mr. Goudreau: Good morning. Hector Goudreau, MLA, Dunvegan-Central Peace-Notley, and I'm sitting for myself.

Ms L. Johnson: Linda Johnson, MLA for Calgary-Glenmore, representing the big agricultural constituency we have there.

Mr. Bilous: Good morning. Deron Bilous, MLA, Edmonton-Beverly-Clareview.

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

Dr. Brown: Neil Brown, Calgary-Mackay-Nose Hill.

Mr. Tyrell: Chris Tyrell, committee clerk.

The Chair: Terrific.

Now, if we can go to the phone lines for introductions, please.

Mr. Casey: Ron Casey, Banff-Cochrane.

The Chair: Thank you.

Mr. Cao, are you there?

Mr. Cao: Yeah. Wayne Cao, MLA for Calgary-Fort, the most historical site in Calgary.

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

A few housekeeping items to address before we turn to this business at hand. The microphone consoles are operated by the *Hansard* staff. Please keep cellphones, iPhones, BlackBerrys off the table as these may interfere with the audiofeed. Audio of committee proceedings is streamed live on the Internet and recorded by *Hansard*.

We'll move now to the approval of our agenda. Has everyone had a chance to review our proposed agenda today? I'm looking for a motion for approval.

Ms L. Johnson: So moved.

The Chair: Thank you. Ms Johnson has moved that the agenda for the June 25, 2014, meeting of the Standing Committee on Resource Stewardship be adopted as circulated. All in favour? Any objections? That motion is carried.

We move on now to the approval of our meeting minutes. Again, has everyone had a chance to review the posted minutes from February 26? Any corrections, any omissions? All right. Then I'm looking for someone to move that the minutes be adopted. Mr. Goudreau, thank you very much. Let it be shown, then, that Mr. Goudreau has moved that the minutes of the February 26, 2014, meeting of the Standing Committee on Resource Stewardship be adopted as circulated. All in favour? Any objections? That motion is carried.

Now, that brings us to . . .

Mr. Goudreau: Mr. Chair, if I may.

The Chair: Certainly.

Mr. Goudreau: I'm just wondering: did we not have other meetings since February 26?

The Chair: The minutes from our last meeting are not quite ready.

Mr. Goudreau: Okay. I was wondering because the last time we had our initial discussions on Fusarium.

The Chair: We most certainly did.

Mr. Goudreau: Yeah. Thank you.

The Chair: I'm glad that somebody is bright-eyed and bushy-tailed this morning. Good catch. Terrific.

Okay. Moving forward, we're getting to the portion that I think we're all excited about and very much looking forward to, and that's the expert and stakeholder presentations. Our panel 1 is our expert panel.

As members are aware, Bill 201, the Agricultural Pests (Fusarium Head Blight) Amendment Act, 2014, has been referred by the Legislative Assembly to this committee for review. At our last meeting we heard from both the sponsor of the bill, Ms Kubinec, and two representatives from Alberta Agriculture and Rural Development. Over the course of the day today and tomorrow we will be hearing from various experts and stakeholders with knowledge of *Fusarium graminearum*. They have 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 we have gained and will be gaining over the course of the next two days will help us in our deliberations when it comes time to write a report for consideration by the Assembly.

We also have sent out requests for written submissions to various stakeholders. The deadline for written submissions is June 30, 2014. Written submissions will be posted to the external committee website following the June 30 deadline. I would also suggest that unless there is good reason not to, written materials received during our stakeholder meetings be made available on the external committee website after the meeting at which they are received. Is the committee in agreement with this notion, that we make our written submissions public?

Okay. Terrific. Seeing no objections, then, we'll carry on. We have three PhDs who have been gracious enough to agree to join us first this morning as members of our expert panel. With us via video conference is Dr. Andy Tekauz. Dr. Tekauz, am I pronouncing your name correctly?

Dr. Tekauz: No, you're not, but I'll get to that in a moment.

The Chair: Okay. We tried.

Dr. Tekauz: You're close.

The Chair: Well, hopefully one of the many things this committee is going to learn from today is maybe, first and foremost, how to pronounce your name. Sorry about that, sir. The doctor – I'll call you Dr. Andy for now – is a consulting plant pathologist.

On the phone we have Dr. T. Kelly Turkington. Dr. Turkington, are you with us via phone?

Dr. Turkington: Yes.

The Chair: Okay. Terrific. Thank you again for joining us. Dr. Kelly Turkington is a research scientist with Agriculture and Agri-Food Canada who, I understand, is here on his own behalf.

On behalf of the committee, gentlemen, we want to extend our deepest appreciation to you for agreeing to join us today and sharing with us some of your expertise.

Dr. Andy, if it's all right, we'd like to start with you.

Dr. Andy Tekauz, Dr. Kelly Turkington, Genome Alberta

Dr. Tekauz: Sure. That's fine.

Anyway, thank you for the opportunity to join you today. Perhaps I'll just introduce myself since I'll be an unknown entity to probably all of you except Dr. Kelly Turkington. I have had a 40-year career with Agriculture and Agri-Food Canada in Winnipeg, working at the Cereal Research Centre. I began working with Fusarium head blight in 1986, so for the last 26 years of my research career I have had an involvement with this particular disease and problem on the prairies. I was asked at the end of last year by Dr. Ron Howard on behalf of the Fusarium Action Committee to review their management plan for Fusarium here in Alberta, and I did so. I don't know if that report was circulated to the members of the committee, but in any case it would be available somewhere.

My last name, just to get to that, is pronounced Tekauz. Just to make life easy for everybody, think of takeout service and add an s on the end. That's how you pronounce it. Dr. Andy is just fine.

The Chair: Dr. Tekauz, thank you very much for that clarification. We'll make sure not to mispronounce your name moving forward.

We've just had a few folks join us at our table, and I'd like to take a quick break here so the folks who've joined us can make some introductions at the table, then we'll come back to Dr. Tekauz.

Mr. Young: A very easy name to pronounce, Steve Young. Common spelling. I'm the MLA for Edmonton-Riverview.

The Chair: Maureen, you're welcome to join us at the table, and please introduce yourself.

Ms Kubinec: I'm Maureen Kubinec, MLA for Barrhead-Morinville-Westlock and the author of this bill.

The Chair: Thank you very much for joining us this morning.

Dr. Tekauz, I'm going to turn the table back to you. Thank you very much.

Dr. Tekauz: Right. I had the opportunity to look at the *Hansard* record of your last meeting, which, I believe, was in the last week of May, and read over the presentations that were made by Drs.

Jim Calpas and David Feindel, and I certainly think that they did an excellent job of introducing Fusarium to the group.

One of the things that struck me was that, obviously, not everybody on the committee has a farm background or represents a rural riding, and the members of the committee were quite candid in saying that they didn't have any expertise in this area. Nonetheless, they did ask some very probing questions, which I thought was very good.

9:15

What I thought I would do today in the 10 minutes that I've been given to make a short presentation is cover a few basic things that will put the situation that you're debating in context and perhaps make it a little bit easier for you to understand where all of this is coming from.

I see myself here as a resource type of person, as the chairman indicated. I don't have a particular position on what you're actually debating, the amendment to the bill, but I hope that just these four or five slides that I'm going to present will clarify the situation somewhat.

I believe that you have a hard copy of the slides in front of you and also on the screen. You may just be interested to know that on the first slide the middle image is a photograph that I took 10 years ago in a field of wheat just south of Winnipeg. As was explained to you at the previous meeting, all of those white-coloured heads are affected by Fusarium head blight, and all the heads in that field should actually be green coloured because the crop is not mature yet. So what I want to emphasize here is that you can get this level of damage by Fusarium head blight, but nobody in Alberta has seen this level of damage because, from my knowledge, you have never had the disease anywhere near this level of severity. But Manitoba producers have had to deal with this disease, and some years it is as bad as you see here.

If we can move on to the second slide – and my apologies to those of you, especially, who have a farm background or represent a rural riding and have attended some farm meetings. You've probably seen this slide before, and certainly Dr. Kelly Turkington, who is involved in today's meeting as well, has presented this kind of information before. What I wanted to do is just explain why Alberta is doing what it has been doing since 1989, when it declared Fusarium head blight a pest. I would just like to remind everybody that Fusarium graminearum causes a disease. Okay? It's the causal agent of a disease, and that's what that pathogen is in green there at the bottom, Fusarium graminearum. The reason we're concerned about it is because it causes a disease on very important crops on the prairies, and that includes spring wheat, durum wheat, barley, oats, corn, rye, and many grass species. It's a very important pathogen affecting very important crops.

Now, what this disease triangle here tells you is that you need to have three things in place for a disease of a crop to occur. One of these is the pathogen, which in this case is Fusarium graminearum.

The second thing you need is a host, so the plant that the pathogen is going to affect – and let's say that this could be wheat, barley, or oats – and that host has to be susceptible. In other words, it has no resistance or no genetics in it that prevent the pathogen from infecting. You could compare that, although it's not exactly the same, to a child that has been immunized against a disease versus a child or a person that has not been immunized. So if the flu bug is going around and you got your needle in the fall, you might be okay during the winter whereas somebody else who didn't get that might get the flu. In the case of crops, we're dealing with genetics that have been introduced into the crops by plant

breeders to make them not susceptible but to give them a level of resistance or tolerance, if that's a term that is more usual for you.

Now, on top of that, we need a third component, which is a favourable environment. Most plant pathogens are fungi, and most fungi require considerable moisture and a certain range of temperatures to infect a plant and to develop within it. In the case of Fusarium head blight, that's usually quite a bit of moisture; i.e., rain. Secondly, all things being equal, Fusarium prefers warmer temperatures versus cooler temperatures. But moisture is the real driver here.

To get a disease to start, we need to have all of these three things in place at the same time. Now, you can understand that we have little control over the environment. In other words, when you're growing a crop outdoors, you've got to take what you get.

If we go to the next slide, we still have the disease triangle there, but as a plant pathologist our ultimate goal is to manage diseases, prevent them from occurring, mitigate their effects, et cetera. By knowing how a disease has to start, there are really only three ways that we can manage it, and we call those the cultural option, the resistance or genetic option, and the chemical option.

The cultural option targets the pathogen, Fusarium head blight. That's what that cultural option is trying to do. It's trying to reduce the amount of that pathogen that is present in a field, in a county, in a province, or whatever. That can be done by a number of means. If you already have had Fusarium head blight in a field, if you rotate away from a susceptible crop such as a particular wheat variety for one or two or three years, that will reduce the amount of that pathogen in that particular field. If you cultivate – in other words, if you bury the straw in which Fusarium graminearum and other Fusarium species survive over the winter and put that straw underground, where other organisms can act on it – it's not at the surface of the ground anymore, and the pathogen is no longer present in that field.

What you have done in Alberta, which is quite unique, because of the bill that you had from 1989, is that you've said: "We can only use clean seed in Alberta to plant a crop. In other words, we don't want any seed to be used in Alberta that has any Fusarium graminearum on it." Obviously, that's another means of doing what that whole cultural option possibility does. Again, you're affecting the pathogen. By removing the pathogen from the equation, you're preventing the occurrence of Fusarium head blight or minimizing its occurrence as much as you can.

Now, the other way to manage a disease is through genetics or resistance, and I'll get into that in a moment in the next slide. Obviously, in situations where you have the pathogen there, there is really no good means to eliminate it completely. You want to target that susceptible host and change it from being susceptible to having more tolerance to the disease, and that is done through breeding. Plant breeders are constantly trying to improve varieties. One of the improvements that is always one of the main objectives is an improvement in disease resistance to the various important diseases of that particular crop.

Now, if neither the cultural option nor the genetic option is available or is not a hundred per cent effective, we always have that third option, which is the chemical option, which includes seed treatment – so you treat the seed before you plant it – or foliar fungicide sprays. Those are sprays that are put on a growing crop. What that does is that even if the environment is favourable and the host is susceptible and you have the pathogen, there is the possibility, because that chemical is there on the surface of the leaf or on the surface of the head, that even though the pathogen lands there and the host is susceptible and it's been wet, you will reduce or possibly even eliminate the infection from occurring.

It's important to know that we have three options to manage Fusarium head blight. The option that you are concerned about here is that cultural option of clean seed as far as the act is concerned, but I do want to emphasize that there are other options as far as management of Fusarium head blight is concerned, and these options have been used both in Alberta and in other parts of the prairies for many years.

9:25

Now, if we go to the next slide, there was something in *Hansard* a month ago about how perhaps changing your act would make research on improving resistance to Fusarium head blight in Alberta easier to do. I just want to emphasize here that while you have not been able to do the kind of research that we have been able to do in Manitoba or Saskatchewan, where the disease is much more prevalent and we don't have this act in place, there has been a lot of work done since 1986 on improving the disease resistance of our crops. What I've put on this slide and in looking at a 2014 seed guide: you can see that we have probably about a dozen wheat varieties now that are either resistant or moderately resistant to Fusarium head blight.

One of the tenets of the disease management plan for Fusarium in Alberta was to prevent or slow down the establishment of the disease until resistant varieties were available. All I want to point out here is that we do have some varieties that are perhaps not fully resistant although there are two now that are actually fully resistant. One is a winter wheat, Emerson, which, by the way, was developed in Lethbridge, which is at the bottom on the left, and the other one is a CPSR wheat, which has traditionally been a more susceptible wheat class. We have a number of wheats there that are moderately resistant. It's the same thing on the barley side, where we have both hull-less and feed barleys and some malting barleys that have either moderate or intermediate levels of resistance or tolerance to Fusarium head blight.

Again, I just want to emphasize that there are other means to manage Fusarium head blight, and a lot of work has gone into breeding for improved resistance to this disease, and we have these examples, wheat and barley, which are certainly improvements over what we started with.

The Chair: Dr. Tekauz, just to let you know, you've got a couple of minutes to wrap up your portion of the presentation.

Dr. Tekauz: Yeah. That's fine.

I just want to point out that of those three options that I mentioned with respect to managing a disease, usually no one alone is a hundred per cent effective. This is why, usually, we talk about integrated disease management and where you apply two or three of those options, none of which might be a hundred per cent effective but which when done together will do the job that you want it to do.

The final slide. Simply, I just wanted to point out about the spread of Fusarium head blight and what may lead to it occurring in areas where it has not been very prominent before. This is information from Saskatchewan seed-testing laboratory results published since 2005. I've compiled nine years of results here in one table. What I want to point out is that if you look at the first few years, 2005 to 2009, in that first column you'll see that there's very little Fusarium graminearum in Saskatchewan in those years.

In 2010 and again in 2012 – and I've highlighted those in red – you'll see that the level jumped significantly. The reason for that is that both of those years had excessive moisture during the growing season, were very wet years. The other thing I've done there is just highlighted crop districts 7A, 7B, and 9B in

Saskatchewan because those are the ones that are adjacent to eastern Alberta, and they represent the area from Red Deer up to Edmonton. If you look at that table, you will see that it's that moisture that has really driven up that level of *Fusarium graminearum* and also total *Fusarium*.

I think I'll stop there, Mr. Chairman. I think I've used up my time. If this is a good time to answer some questions, that's fine, or if you want to do that later, that would be fine as well.

The Chair: Thank you very much, Dr. Tekauz.

I think what we'll do is that we'll have our other two presenters present to our committee, and then we'll have a round of questions at the end of the submissions.

At this point, though, we have a few more people who have joined us. If we can get in just a couple of more introductions, then we'll move on to Dr. Turkington on the phone.

David.

Mr. Xiao: Thank you, Mr. Chair. David Xiao, Edmonton-McClung.

Dr. Bailey: Good morning. David Bailey from Genome Alberta.

The Chair: Thank you for joining us, gentlemen.

At this point we shall move to Dr. Kelly Turkington, who is on the phone. Dr. Turkington, are you ready to go?

Dr. Turkington: Yes. I gather from Chris that you have a copy of the presentation there. If you could advance the slides, that would be great, or if people have a hard copy, that's fine, too.

The Chair: Absolutely. We have both.

Dr. Turkington: I'll indicate when you can advance the slides. I can start now. The first slide is just simply a title slide. I'm going to give you a very quick and dirty overview. It will complement what Andy has mentioned to you already and, I suspect, what Jim Calpas and Dave Feindel have told you already.

If you can move to the next slide, this slide just simply shows you typical symptoms of *Fusarium* head blight in wheat. The symptoms are quite distinct in wheat. The kicker is: what species of *Fusarium* is causing those symptoms? That has shifted in Alberta over the last 10 to 15 years.

Next slide, please. This is a slide that originally came from Randy Clear at the Canadian Grain Commission. It's just to indicate that often in the past in Alberta, when producers and industry staff and so on heard the term "*Fusarium*," immediately in many cases panic has set in. The issue with that is that we need to know what is causing those symptoms of *Fusarium* head blight. If you look at North America, four species of *Fusarium* are commonly associated with FHB, but if we look at western Canada, the three main ones – and there are other species that Andy has worked with also that are important, too. *Fusarium avenaceum* and *Fusarium culmorum* traditionally in Alberta have been the species most commonly associated with FHB and with *Fusarium*-damaged kernels in harvested grain.

Fusarium graminearum, though, out of these three species – *graminearum*, *culmorum*, and *avenaceum* – is probably the most aggressive and the most damaging. When I hear the term "*Fusarium*," certainly the first question I ask myself is: what species are you talking about? If it's *graminearum*, that's a totally different ball game compared to *culmorum* and *avenaceum*.

If we go to the next slide, just again a bit of background on what Andy has already talked about and, I suspect, some of your other experts will be presenting. Why are we concerned about *Fusarium* head blight caused by *Fusarium graminearum*? Well, as a

pathologist – and certainly producers would see this. It causes yield loss, so less grain harvested per acre, which means less money in their pocket. The other aspect of this disease is the damaged kernels, as you can see. We've got wheat kernels at the top of the picture and barley kernels on the bottom. With wheat, the presence of these chalky-white, *Fusarium*-damaged kernels will quickly cause grade loss, which means a loss in income per acre again. The other aspect is for end-users, whether it's bread makers, pasta makers, maltsters, and so on. The fungus causes a quality loss and in some cases affects the functional characteristics of that grain. If you're using grain to make bread, the bread often will have a reduced gluten content, and your loaf volume will be decreased.

The aspect of *Fusarium graminearum* that sets it apart, though, from a lot of the routine disease issues that I deal with and that producers in Alberta deal with is that this pathogen, as it's growing through that infected plant tissue, whether it's head tissue, kernels, stems, stalks, roots, whatever, produces metabolites, or chemicals known as mycotoxins. These contaminate that plant tissue, and they have implications for animal and human health as well as end-use market acceptability. Now, all these losses are additive, so that also increases the impact of this disease.

Probably for me, the biggest challenge and the biggest thing that sets it apart from some of the other disease issues that I deal with is that it's difficult to control. If you come to me and say, "I have an issue with stripe rust in wheat," I can say: "Well, grow this variety. It is resistant. It will completely mitigate your risk of this disease. Or, if you need to, spray a fungicide; that will mitigate the risk."

9:35

If we look at *Fusarium* head blight, as Andy already mentioned, using a single strategy to manage this issue simply doesn't work. In fact, unfortunately, even producers that are using three strategies – disease resistance, fungicide application, and crop rotation, so not growing wheat on wheat – are still experiencing significant yield losses, significant grade loss, and quality loss due to mycotoxin contamination and other factors. That sets it apart.

Very quickly, if we go to the next slide here, the *Fusarium* head blight disease cycle, it's a pathogen, I should say, that causes the disease, which overwinters on old crop residue, whether that's cereal residue, corn residue, and so on. In June typically, when you have favourable moisture and temperature conditions, the fungus will produce fruiting bodies and spores, which are either rain-splash dispersed or wind dispersed, which blow up on the emerging heads of that cereal crop. If conditions are favourable, those spores will germinate and infect that plant tissue, resulting in infected seed. In areas where this pathogen is established, it's the crop residue that carries it over. It is not a pathogen that is soil borne by itself. If it's present in the soil or on the soil, invariably it's associated with a piece of infested crop tissue.

The other aspect, on the right-hand side of the slide – and this is where the whole question of infected seed and testing seed comes into play – is that if you plant that infected seed and the infection is significant enough, that seed is either not viable or the seedling that starts to be produced from that seed will die very quickly. If it doesn't die, the plant will continue to grow, and the pathogen itself will continue to grow within that plant tissue, thus producing a source of infested residue that can act as a potential source of disease in subsequent growing seasons.

I'm going to go through the next set of slides very quickly because, simply, there's sort of a general theme here. If we look at *Fusarium graminearum* surveys of cereals in Alberta, we've been involved with this along with the province and the Canadian Grain Commission, our own involvement here certainly since 1995.

We've also done major surveys in the 2000s. The province had two years, 2010 and 2011, when they did quite large surveys from the southern part of the province up into the Peace. Surveys included both cereals and corn, and they looked at a variety of *Fusarium* species associated with symptoms of FHB; kernel symptoms, FDKs; or in some cases actually testing pieces of crop tissue that were collected from fields. If we look at the survey findings up until 2006 and even to a certain extent 2010, 2011, *graminearum* was not commonly found in cereal seed, cereal grass, corn stubble, or heads with symptoms in central Alberta and the Peace region. It's mostly other *Fusarium* species like *culmorum* and *avenaceum* and occasionally another species of *Fusarium* which looks like *graminearum* but isn't. It's called *Fusarium pseudograminearum*.

In southern Alberta, though, if we looked at especially the results from the early 2000s, 2001 to 2003, it was becoming established on a few cereal fields and certainly some cornfields. In terms of *Fusarium*-damaged kernels, if we look at the province, invariably most of these at this point in time were due to fungi other than *Fusarium*. In fact, the glume blotch fungus, *Stagonospora nodorum*, was often associated with a lot of these *Fusarium*-damaged kernels. That situation has changed, especially in southern Alberta.

If we go to the next slide, this just gives you a visual representation of sort of the extent of surveying that was done from 2001 to 2003 from the southern part of the province to the northern part. The black pins or dots or triangles indicate either grass, cereal, residues that were sampled or perhaps surveys of crops towards maturity for symptoms. You can see that in most of the fields outside of southern Alberta *graminearum* wasn't detected. Occasionally they did find it at very, very low levels, but in southern Alberta we were starting to pick it up, especially in corn but also in irrigated crops, in things like irrigated durum wheat or hard red spring or CPS.

If we go to the next slide, this just shows you some of the surveys that were done by the province in 2010 and 2011. What you'll see is that in a number of municipalities in southern Alberta *graminearum* was detected. Now, of those municipalities, there were five where *graminearum* was very well established. In fact, if you look at the left-hand side of the screen, 2010, versus the right-hand side of the screen, you'll see that in southern Alberta those five municipalities were not surveyed. The reason they weren't surveyed in 2011 is because we knew that *Fusarium graminearum* was well established in those areas. They continued the survey around those five municipalities and some of the border areas. In 2010 and 2011 there were some municipalities outside of southern Alberta that had trace levels, so they may have found one or two fields with *graminearum*.

Subsequent to 2011, 2012, 2013, and as we get into 2014, the situation has changed quite dramatically in central Alberta, especially along the eastern side of the province, along the highway 16 corridor, and in and around that Edmonton region. Certainly, *graminearum* is becoming more frequently found.

Now, just to back up and look in terms of outbreaks of *Fusarium graminearum*, why do these occur? A colleague of Andy's and mine, Dr. Bob Stack at NDSU – he's retired now – was interviewed by the Western Grains Research Foundation back in 2004 about *Fusarium graminearum*. He said that historical outbreaks and current outbreaks of *Fusarium* head blight could be traced to several causes: first of all, widespread planting of highly susceptible cultivars; presence of colonized residue from previous crops, and that's a key thing here in Alberta; presence of corn in rotation of small grain cereals – corn is often fingered as a significant issue; it can exacerbate the problem, but durum wheat or highly susceptible varieties of CPS wheat can also exacerbate

the problem with *Fusarium graminearum* – lastly, weather favourable for infection. So these are the factors that need to be in play. Andy has talked about the disease triangle: the host, the pathogen, and the environment. These factors all need to be in play in terms of having an outbreak.

If we look at my last two slides, I just want to talk a bit about the key strategies for managing *Fusarium* head blight caused by *Fusarium graminearum* in areas where *Fusarium* is not present or is infrequently found. This was the scenario that we looked at probably in the late '90s, throughout a good chunk of the 2000s. But the situation has changed now. If we look at the situation where *Fusarium graminearum* is not present or is infrequently found, you want to be careful about your seed source. So the recommendation is to test your seed and that the sample that's tested is negative for *Fusarium graminearum*, and couple that with seed treatment. Seed treatment on its own will not eradicate the pathogen from infested seed, but it will certainly be a strategy that needs to be used in conjunction with other strategies.

Typically in Alberta the main focus has been on testing seed and using seed where the sample that's tested is negative for *graminearum*. The issue is that you need to look at other strategies in terms of an overall approach. Andy has talked about this as far as using a suite of strategies to manage this issue. So grow a more resistant variety. Rotate to nonhost crops, things like canola, flax, field peas, lentils, or forage legumes, for at least two years; so two full growing seasons between cereal crops or between corn crops. If you look at the most common rotation across all of western Canada now, typically it is canola, wheat, canola, wheat, canola, wheat. From a pathologist's perspective, that's simply not a good rotation in terms of managing diseases in canola or managing disease issues in cereals.

Scout fields to ID emerging problems. This gets to the whole scenario of not in my backyard, the NIMBY syndrome: "It's a Manitoba problem. It's a Saskatchewan problem. I don't need to worry about it. I don't need to take precautions to try and mitigate my risk of exposure to this disease issue." So staying on top of this and being knowledgeable about the issue will help to improve your ability to manage it. In the irrigated regions use irrigation management. Producers in southern Alberta have been quite successful in terms of mitigating some of the risk from this particular disease and pathogen. Lastly, again, be knowledgeable about the disease, and use a combination of strategies.

9:45

Now, very quickly, if we look at areas where *Fusarium graminearum* is commonly found – and this would be Manitoba, Saskatchewan, and, I would say, those four or five municipalities in southern Alberta where it is well established on corn residue, small grain cereals residue – the focus is on seed health. So will that seed germinate? Will that seed that's germinating produce a stand that's going to be suitable and will provide a significant yield? It doesn't matter whether the pathogen is present or not in that infected seed. It doesn't matter whether it's half a per cent, 1 per cent, 10 per cent. In fact, if you look at the U.K., where they have guidelines for using seed treatments to try and improve germination of seed infected with *graminearum*, the recommendation is to use a seed treatment when you have more than 10 per cent infected seed. So in areas where the pathogen is commonly found, it really doesn't matter whether the pathogen is there or not. What's key is the level of infection and whether that level will have implications for seed germination, seedling growth, and stand establishment.

Seed treatment: certainly another strategy to improve the ability of that seed to germinate, that seedling to grow and to produce a suitable stand. Grow a more resistant variety. Again, rotate with at

least two full years of a nonhost crop between your corn and your cereals. Scout fields to ID emerging problems, and this includes even testing harvest grain that you've pulled off that field. Use a fungicide as needed. Again, fungicides in the case of Fusarium head blight provide suppression at best. For irrigated areas use irrigation management and couple that with growing resistant varieties, using fungicide to drive down your risk of Fusarium head blight. Be knowledgeable about the disease. Again, use a combination of strategies.

If you look at the situation 10, 15 years ago, we were in the first sort of scenario, where graminearum was typically either not found or found at very low levels. If you look since about 2009, 2010 in southern Alberta, especially those four or five municipalities, we're in a situation where the pathogen is well established. In the last two to three years we're in a transition now in many areas of the province, so that's where things get tricky, especially in terms of trying to figure out the level of seed infection – do we have a tolerance level, or do we not? – and it really depends on how frequently or commonly that Fusarium graminearum pathogen is found.

With that, I'll end there, and as Andy said, I'd be happy to answer any questions, I guess, once the expert presenters have finished.

The Chair: Dr. Turkington, thank you so very much for your presentation, and we hope you can stick around because after Dr. David Bailey's presentation we'll open the floor for questions.

Dr. Turkington: Oh, yes.

The Chair: We have with us Dr. David Bailey, president and CEO of Genome Alberta. Dr. Bailey, thank you so much for joining us today. The floor is yours.

Dr. Bailey: Well, good morning, and thank you for inviting me. I'm really here at the request of the author, the MLA for Barrhead-Morinville-Westlock. I don't have a formal presentation to make, just a few comments. You've heard from the two experts, and they're two former colleagues. Andy and Kelly are indeed the right people to have listened to this morning.

I'm speaking, I guess, in favour of this because, I mean, Fusarium head blight is a problem in Alberta, and we need to acknowledge that. The current bill says zero tolerance, and that really isn't true anymore. I think that if we don't make amendments to the bill, it will hurt us in terms of (a) a recognition that it does exist – we're not really being truthful about it – and (b) it does hurt us in terms of trade. I think the option is to accept a minimum tolerance level, which is stated in the bill. Then from my perspective, you know, how do we combine genomic tools working with plant breeders to actually move forward with this and address the topic? You've heard and seen some of the data from some of the most productive varieties out there. They're also the ones that are most susceptible. There are resistant varieties, but that resistance does break down, and it varies depending on the conditions and the crop and the year that it's grown under.

So I guess I'm just speaking in favour of not only the bill, but: what do you do to move forward to address Fusarium in the future and support the work that you've heard about this morning? Alberta Agriculture is doing some of it. Clearly, Kelly here in the province and Agriculture and Agri-Food Canada people across the prairies have had a long history of effort in this area, and I'd encourage support to do more of that in the future in terms of collaboration.

I'll try to get you back on time here by saying that I'm here, and I'll try to help address comments or questions to it, but the two experts that you have on the line are really the right people.

The Chair: Dr. Bailey, thank you very much for your comments.

At this point in time, folks, we're going to open the floor for questions of our gathered experts. We'll start with Mr. Goudreau.

Mr. Goudreau: Thank you, Mr. Chair. Please bear with me. I've got a number of questions. Any one of the three experts – Dr. Tekauz, Dr. Turkington, or Dr. Bailey – can respond, but my first questions will certainly be directed to Dr. Bailey, who is president and CEO of Genome Alberta and acknowledged that it is a problem in Alberta. I'm just wondering, you know, after the presentations by the other two individuals – it is a problem in certain parts of Alberta, not necessarily all over Alberta. My first question, then, is: if you increase the percentage of pathogens in seed, do you also increase the possibility or the probability of additional and greater infection?

Dr. Bailey: Yes, very much so.

Mr. Goudreau: Thank you for that answer.

If I go back one step, we've had a measles outbreak in the province of Alberta. Only a few individuals were affected, yet we spent millions of dollars and advocated for tremendous measles control and sort of indicated that it is a serious problem to human health. Yet on this side you're advocating for an increase from a current zero tolerance in seed production to a percentage in seed production. My understanding, and correct me if I'm wrong, is that seed producers stand to gain by this – they will be allowed to sell more seed – on the backs of ag producers, who stand to lose in terms of what the other presenters talked about: in terms of yield, in terms of quality, and in terms of exportability. There are also human health implications. There are livestock production implications. There's a tremendous amount of negative to an increase in Fusarium across western Canada and certainly in areas where we do find Fusarium from time to time but, for the most part, a limited amount of Fusarium.

Are you telling me that by increasing the percentage level in seed, it's okay to allow seed producers to sell more crop, yet it's also okay to see a potential decrease in yield, quality, or exportability and enhanced human health issues? You know, when we talk about all of those kinds of things, why would we even advocate for an increase in Fusarium levels?

Dr. Bailey: Well, you raise really good points. I think both Kelly and Andy are probably in a better position to address some of those points. I guess what I'm saying is that it's already here. By saying that we're going to leave the bill as it is, the current one, at zero tolerance, it doesn't acknowledge that we actually have that problem here. It does not allow us as a province to actually allow the trade of product. If you say, "We will only ship zero tolerance," that's not what you're selling. Seeds are affected.

You've seen by the data here quite vividly, both Alberta Agriculture and Agriculture and Agri-Food data, that it's throughout the province. It's not that it's a very isolated case. It's not going to go away. I mean, these spores can overwinter very easily in the soil for years, and it does take management strategies to intervene here. This is a long-term problem that we've had across the country. It's in Alberta. It'll be a long-term problem here. Just acknowledging that you've got levels and allowing trade to actually happen I think is a positive thing. It doesn't mean that we won't continue to try to invest research dollars to address the problem, though.

9:55

Mr. Goudreau: My next question is to Dr. Tekauz. Doctor, certainly, again, thank you for being with us this morning. Part of the management options include cultural, genetics, and chemical. I'm not a hundred per cent convinced. I think you've alluded to that, and Dr. Turkington maybe alluded to it as well, that even though we do try as much as possible to use those three alternatives, we can still be exposed to an outbreak of Fusarium. We talk about cultivation, and no doubt, on the flip side, we're advocating and are very, very strong advocates in terms of greenhouse gas reductions and cost-effectiveness and abilities to manage farms to move away from cultivation to minimal cultivation at best, to even a lot of zero till. That is happening, and it's probably one of Alberta's most successful stories. In my opinion, when we talk about burning the straw, on the flip side, we've eliminated that option as a cultural practice. You've identified as well that, you know, crop rotation and using clean seed at best is questionable as well.

Genetic resistance. I agree with that, and we're probably still a couple of years away from having full genetic resistance to Fusarium. But, as well, I'm concerned about the varieties that are being brought out that are of equal productive value, especially in the north, when we talk about maturity, maturity abilities, and the qualities of those particular new crops. So I wouldn't mind having comments on that.

Then the effectiveness of the actual chemical seed treatment and full-year fungicide sprays: I'm also concerned about that aspect. You know, are the new varieties comparable to those varieties presently grown in northern Alberta, and are they as productive? How far away are we from having a true resistant variety or varieties that could be used right across the province?

Dr. Tekauz: Thank you for the questions. Well, first of all, I'll just re-emphasize that, you know, you're correct in stating that none of these strategies, as I said earlier and as Kelly has alluded to as well, are a hundred per cent effective. It's one thing to tell a producer that he should rotate away from barley or from wheat for two or three years, but the economic reality might be, in an area where cattle are also a feature, that people grow barley every year because economically it makes sense. Some of these recommendations, even though we know through science and so forth that they're valuable, on the ground cannot always be applied, hence the recommendation that you don't rely on just one thing but on a number of strategies. It's the same thing, as you said, with cultivation versus zero tillage. Again, it's nice to say that you should cultivate, but there are reasons not to cultivate and to practise minimum tillage or zero tillage. Again, just to re-emphasize, we don't have a single, silver bullet solution here, and we need to look at an integrated management approach.

With respect to your question of the new varieties that are coming on stream – and most of the varieties that were listed in the table that I presented to you are relatively recent; there are a couple there that have been around for a number of years – it would be very unusual for any new variety of a cereal crop to be registered if it did not have a yield advantage over some of the previous varieties or at least was no different from other varieties in yield and agronomics. Disease resistance is definitely a plus. Improved disease resistance or improved quality is definitely a plus, but most producers are looking at yield. It's very difficult to register a new variety that has, you know, a 5 or 10 per cent yield penalty to pay because it might have better quality or it might have better disease resistance. Now, that has happened occasionally, but in the varieties that I've listed here of wheat, et cetera, I don't believe that that's the case.

Having said that, you are correct in that there are major wheat classes, such as the durum wheats and the Canada prairie spring wheats, in which their level of resistance is not nearly as good as it is in the hard red spring wheats, and also the six-row barley situation is quite different from the two-row barley situation, where the two-row barley in general has better tolerance or resistance than the six-row barley.

So I think I'll just stop there, and perhaps Kelly has something to add.

Dr. Turkington: I would just definitely concur with Andy as far as the recommendations. You know, the comment regarding rotation is from a pathologist's point of view, and as Andy said, if you look at the research in terms of crop rotation that's been around for a hundred years or more, it is a strategy that can be very effective as far as managing disease. But the reality of the situation is: what is going to pay the bills on the farm? If I was farming with my father in Saskatchewan, we'd probably be growing wheat, canola, wheat, canola, wheat. So it's the ideal. It's the recommended approach, but as Andy has said, with Fusarium graminearum especially it's an integration of strategies that will help to reduce the potential of yield loss and grade loss and so on.

I'll leave it at that, and then perhaps there are other questions.

The Chair: Thank you.

Mr. Goudreau are you . . .

Mr. Goudreau: Did Neil have something?

The Chair: Well, Dr. Brown is on our list, but he's way down on our list. We have a number of inquisitive folks.

Mr. Goudreau: Just one final question.

The Chair: Certainly.

Mr. Goudreau: This question is directed to Dr. Turkington. On your slides, your presentation, you look at the crop debris and the spread of Fusarium, with your first bottom-left being sort of winter crop debris, then in June where the infection starts occurring, then it goes on to infected seeds, and then, finally, a blighted seedling down at the bottom. Dr. Turkington, again, if you increase the amount of infected seed being planted, would you normally expect an increased amount of blighted seedlings to come out of that?

Dr. Turkington: Certainly in areas where graminearum is not established or not commonly found in the crop residues that are there. But if you look at Manitoba, Saskatchewan, and those five municipalities primarily in southern Alberta, you've got so much infested residue that's already there that adding a small amount of infection via the seed is really not an issue.

The issue in terms of those municipalities or Saskatchewan or Manitoba is purely the quality of the seed. Will that seed germinate? Will it produce a seedling? If you're in an area where graminearum is either not present or is very infrequently found – and some of our surveys have provided some information with that, but I would suggest that some of the seed testing labs, whether it's a company like 20/20 or BioVision or even the Canadian Grain Commission, would have a much better and current picture of where things are at as far as graminearum.

So in areas where the pathogen is either not present or not frequently found, certainly planting infected seed will increase your risk that you're going to create a small amount of infested residue. Whether that then becomes a problem really will depend

on the rotation that the grower follows and the variety that they use and the weather conditions.

Planting infected seed doesn't automatically mean you're going to have a Fusarium head blight problem. What it means is that you're creating the potential that five years, 10 years down the road, especially with a poor rotation, susceptible variety, and if you have a series of wet years, that pathogen will continue to cycle and build on that cereal or corn crop to a point where you have enough infested residue – you know, you have a susceptible variety you're growing, the weather conditions during that growing season are favourable, and you have the inoculum, or the disease potential, in that residue to create a significant issue as far as yield loss and grade loss.

10:05

Mr. Goudreau: Thank you.

Dr. Turkington: But if you plant infected seed, then initially you may not even realize that you have an issue. It's going to be probably, again, five to 10 years, especially where you've got a poor rotation and susceptible variety.

Mr. Goudreau: Thank you very much.

The Chair: Thank you, Dr. Turkington.

Mr. Goudreau, thank you for those questions.

We'll turn the table over to Mr. Donovan.

Mr. Donovan: Thank you. I'd like to thank the presenters for their presentations. I'm an active farmer in southern Alberta. I cover the Little Bow riding, which covers a couple of the counties and MDs they talked about in the higher risk areas for Fusarium head blight.

In talking with numbers of people – I was on the Agricultural Service Board for Vulcan county from 1995 until two and a half years ago, when I got elected as an MLA. I can tell you, you know, that best management practices are probably the best things to do, and I think that was the intent of this bill going forward. I've spoken on it in the House, and in talking with the producers, seed producers especially, I feel they get handcuffed quite a bit because any amount of Fusarium on their test that comes back quarantines the whole bin. It does not allow them to sell it, which is a fairly large economic driver in my riding especially.

In talking with a number of those seed producers, the conversation still comes around, and I'll quote one of them as saying: I still believe the number of .5 per cent, as an example, does not work for many producers; we'll never get the number right, and some counties will still claim to be Fusarium free, but if they're not testing, it's hard to tell whether they are or not; the policy needs to move towards the education and best management practices with disclosure for producers, and the market can agree on the price; just let freedom do that.

Now, I mean, being an active farmer, I farm about 3,000 acres dryland, and there are about two quarters of pivots I custom farm for a couple of people. What I can tell you is the best management practices: cleaning your seed, making sure you test it before you clean it, which not all seed plants make you do. It's different in different municipalities. I know out at Enchant, for instance, they don't make the producer test it, so if you have a seed producer beside the individual growing some and it is airborne – you know, even with best management practices we need to make sure that everybody is testing their seed, cleaning their seed, and making sure you treat the seed.

I can tell you that I spend as much time in my high-clearance sprayer now as I do in my seeder because of doing preburn, in

crop, and then fungicides, which are almost a standard in our area now, that you put on there, whether it be for rust or if you're treating also for Fusarium. So I think we need to just go back to best management practices.

You know, I definitely know that there are some people that consider snow a rotation with canola, you know: snow, canola, snow. It's not maybe the best way to farm. Most people don't do that. Most people do the rotation. The maps that have been provided here definitely show most parts of southern Alberta. We talk of the humidity with irrigation, so there are challenges there. In saying that, though, there's a lot of grain produced under irrigation down there. Does anybody have a number of the percentage of Fusarium that's being found in these counties versus the productive value on the acres, on the tonnes that are being written back to it. I mean, you can grow corn in parts of these counties and MDs due to the heat units and with the irrigation there. Yes, there might be a trace of Fusarium on it, but what's the percentage versus the bushels per acre? Does anybody have a number on that, by chance?

Dr. Turkington: Well, if you look at southern Alberta – and Jim Calpas and Dave Feindel and maybe Ron Howard would have some of the specifics – chances are the majority of cornfields in southern Alberta have graminearum, and in especially those five municipalities the majority of small-grain cereal fields would have graminearum.

The question is: what is the prevalence within the residue? If it is a low percentage – so you go out and collect pieces of corn node tissue or cereal node tissue and test it. If it's a trace level – so let's say that it's half a per cent, 1 per cent, 5 per cent – chances are that you're not going to see a significant issue as far as yield loss or grade loss. But if you're starting to find that you can easily detect 30 per cent, 40 per cent, 50 per cent, or even more in the pieces of tissue that you test from that field – you sample 200, 300 pieces of tissue, and 30, 40, 50 per cent or more of that starts to test positive for graminearum, which is not unreasonable. We were seeing that in some of the corn fields in southern Alberta in 2002, 2003 and in one or two small-grain cereal fields. In those fields you're going to see an impact, especially small-grain cereals.

If you have favourable weather conditions, a susceptible variety, or, in the case of irrigation, you're putting on a lot of irrigation between the middle part of June through to the end of June and into July, the impact on small-grain cereals, where you have an established problem, a favourable environment, and a susceptible variety, is much greater than on corn. In corn, typically – and Andy can maybe add to this – you're probably not seeing as much of an impact in terms of yield and so on. A lot of the corn that's being grown is for silage. That's going into beef feedlots, and in the case of beef cattle, with the ruminant digestive system, they can tolerate some of the mycotoxins that Fusarium graminearum has. The impact in terms of corn is sort of apples and oranges comparing that to small-grain cereals.

Mr. Donovan: I think I was trying to emphasize the yields that are coming off if you're talking bushels per acre. I'm just trying to get a percentage. You know, under some of these irrigation crops definitely a lot more tonnage comes off them due to the water that they could add to it. You're going to have higher odds of finding some percentage of Fusarium in these areas just due to the pure fact of how much more yield comes off some of the irrigation. Would that be a correct assumption?

Dr. Turkington: No. It's purely related to the fact that you're adding moisture to that crop and creating an environment that

would increase your risk of *Fusarium graminearum*. There might be a subtle effect on the microclimate within that crop, but if you've got an average yield and a susceptible variety and a favourable environment, whether you create that through irrigation or Mother Nature creates it for you, you're still going to have an issue with *graminearum* where it's well established in the crop residue.

The main factor in terms of irrigated crops is simply the moisture that's put on in late June and throughout July. We saw this in some of the work that we did way back in the early 2000s, where most of the fields that were testing positive were under irrigation. If you looked at comparing that to dryland fields, the detection was either not present or the detection level was trace at best simply because of an effect on the environment within that field. If you look at the disease-screening nurseries that you have in Manitoba, even though the weather conditions are favourable there typically, they're still irrigating these diseased nurseries to create an environment that's favourable for disease. Under irrigation the main effect will be on the microenvironment within that crop canopy.

Mr. Donovan: Okay. Thank you for that.

I guess that on the rotation side I think it goes back to best management practices. Being an active farmer, I know that management is much more part of the game now, and I think that definitely we're stewards of the land, so when you're trying to make your living off it, you're not going to make any higher risk for yourself than you need to. I'd say that most of the ag producers that I know are going to take the steps to make sure that they go the best way they can to do the best management practices to lower the risk of *Fusarium* on that. I'd say that definitely one of the challenges in my riding is to see producers that are going to do, you know, the best they can, but even a trace of *Fusarium* is going to cause some definite economic hardships.

We're not on the same playing field as our other neighbours, provincewide, and we're going to end up with, I guess, challenges that way, trying to be on the same playing field. Other seed producers, companies that are looking for different items are not going to risk having seed grown in Alberta because that seed could be quarantined due to the fact that they can't sell the seed with a trace amount of *Fusarium* on it.

You know, I think best management practices – the one slide here talks about the three different things: the culture, the genetics, and the chemical. I think that it's something that definitely could be managed.

10:15

The Chair: Okay. I think that was more of a comment than a question. Thank you, Mr. Donovan.

Thank you for those answers, gentlemen.

We will now move to Mr. Steve Young for his round of questions.

Mr. Young: Well, thank you very much. I can confirm that I am not an active farmer, and my constituency of Edmonton-Riverview has absolutely no *Fusarium* head blight at all or farming. Actually, I shouldn't say that. At the south campus we do have a bit of a farm in there.

My question is mainly in relation to the proposed bill. Right now we have a zero tolerance, and then we have a proposed tolerance level. It almost seems that there should be a spectrum, depending on the area, depending on the management practices and the issue. Is there is a case to be made to my colleague Hector Goudreau for a regional rather than provincial approach? I will tell you that not every part of the province is the same, so the same

solution for a province that experiences, as we've seen from all the data, varying degrees of soil type, conditions, crop tolerances, and those types of things – is there not a case for a regional approach to that tolerance or that management-practice approach?

Dr. Tekauz: Are you looking for us to answer that question for you? From what I've read and from what we've heard today, I think that what you gentlemen know is that there is a difference between what's going on in southern Alberta, what's going on perhaps in central Alberta, and what is going on in the Peace River region with respect to *Fusarium* head blight, the disease, or *Fusarium graminearum*, one of the causal agents of the disease.

I guess I'll just reiterate that in my review of the Alberta *Fusarium graminearum* management plan, with that knowledge that was given to me, my recommendation was that it be a regional situation. I didn't have this bill at that time, but just in the general management plan a level of .5 per cent tolerance had been mentioned, and I thought that that might be appropriate for the southern part of the province. But perhaps the Peace River region in particular, where you have a bit of a geographical disconnect between central Alberta and the Peace, if I'm correct, would be an area where it would make sense – I think Kelly has alluded to this as well in his presentation – to retain a zero per cent tolerance to reduce the possibility of further introduction into that area while allowing a certain level of *Fusarium* on seed in the southern part of the province. I want to emphasize that I'm just talking about seed. I'm not sure what to do about central Alberta, and probably Kelly might be better there.

I even feel that a .5 per cent level – and I think Dr. Jim Calpas alluded to this a month ago – is not very different than zero. It's, you know, 1 seed out of 200 versus 2 seeds out of 200. To be honest with you, the biggest problem with doing this seed testing is: how do you sample? In other words, I could send in 10 samples to a seed lab from a grain bin, and I might get 10 different results. It's almost easier to have a zero tolerance than to have a .5 because somebody could send in a whole bunch of other samples, and they could end up being .4 or .6 or something else. I have a bit of a personal problem with that.

But just to answer your question, I think that there is scope for a regional approach to this. Having said that, my personal opinion is that you could go higher on that .5 per cent, and I think that that would probably – obviously, under the current situation we have folks in the seed growers, that were mentioned, that aren't happy with the zero tolerance. I have a feeling that if you go to .5 tolerance, there will be people in the Peace River region that won't be happy. I think that a regional approach, as you've mentioned, might be the most palatable approach to the province as a whole.

Dr. Turkington: Just to follow up on Andy's comments – I concur with Andy – if you look at the nature of this pathogen, if you look at its epidemiology, a regional approach is likely the best direction to head in. In fact, we're in a regional approach right now. Saskatchewan and Manitoba are regions where it's well established, so you're simply shifting the region to account for the fact that you have a well-established pathogen in southern Alberta, and it may be difficult for some seed growers or even growers who want to use their own seed to meet a .5 per cent level of infection in southern Alberta, where it's well established.

In areas where the pathogen is infrequently found – and you can probably argue, based on the seed testing lab information and on previous surveys, that the Peace could fit into that – you'd want to be very cautious about planting seed with any level of infection. The seed test is simply a risk management tool. It's no different

than testing for noxious weeds and so on. You're basically trying to mitigate some of the risk that you're exposing your farming operation to this particular pathogen. I think the long-term goal, if you look at the Fusarium Action Committee, which I've been associated with since 1998, is to slow down the introduction and spread of this particular pathogen in Alberta.

The committee looked at the experience that Alberta had with virulent blackleg in canola, *Leptosphaeria maculans*. In that situation they had a similar approach in terms of recommendations regarding seed that tested negative for blackleg and other recommendations, and they simply bought some time. The thing with canola and blackleg is that you had the development of varieties with excellent levels of resistance, and that's largely mitigated the risk of blackleg. Unfortunately, with the tight rotations we're seeing some shifts in the blackleg pathogen. The approach there was to delay it until we had other, better tools to manage the problem.

With *Fusarium graminearum* we're moving in that direction. It's a bit slower, but as Andy has already mentioned, we've made some pretty significant strides as far as varieties developed. Our fungicides have improved and continue to improve. Other management strategies, certainly, are improving, but we're not at the same point, I would say, that we're at with canola. If you look at canola and virulent blackleg, virulent blackleg is present in all areas of Alberta. It's not an issue because we have an excellent management tool in terms of variety resistance to manage that, but we simply bought time for producers in the '80s and '90s, when most of the varieties at that time were highly susceptible or susceptible or moderately susceptible.

The Chair: Thank you.

Dr. Bailey, do you care to offer an opinion?

Dr. Bailey: No. That seems like a reasonable approach, to use the regional model.

The Chair: Thank you.

Mr. Young: I just have one other question, and it really just speaks to the management of the problem. It seems like we're carving out one of those points on that triangle or one element of the points on the triangle and regulating around it and relying on proper management parts to sort of do the right thing. I'm certainly far from being an overregulator, but it seems more like we're just picking one element in there and putting a regulation around there. Some may not follow the best practices that may be appropriate for their certain situation.

That's more of a comment.

10:25

The Chair: Okay. Thank you. I would agree. That is more of a comment, and we appreciate your comments, Mr. Young. Thank you.

We'll move now to Dr. Brown.

Dr. Brown: Thank you, Chair. I have two questions. One is regarding the maps that we've been presented with. They appear to be based on a very coarse scale of counties alone. I'm wondering whether it would be fair to say that even within counties where the *graminearum* is well established, there could be areas which are essentially free of the *graminearum* due to things like dispersive barriers – like native pasture, forage crops, or whatever, that may be extensive, you know – surrounding the area, also due to factors like microclimate, the soil, the cultivation practices, tillage practices, crop rotation, et cetera. Is that the case,

or are we looking at something that if it's in a county, it's everywhere in a county?

I guess I'll direct that to Dr. Turkington.

Dr. Turkington: I'll maybe make a quick comment. It depends on the prevalence within a county, so you have to look at the dispersal potential of the organism – primarily, it's from field to field – but given the scientific information that we have, it certainly could move a kilometre, two kilometres, perhaps 10 kilometres. The main driving factors in terms of the presence and development of it are primarily the weather, the environment, the variety that's being grown, and the rotation that's being followed. Once you have it well established within an area, it is unlikely, highly unlikely, that you'll ever be able to eradicate the pathogen from that area. It affects corn, small grain cereals.

Dr. Brown: That's my point. What is the area, though?

Dr. Turkington: You know, the two maps from the province: basically, what they did is that they took field locations, and they grouped it according to municipality. If you go to the seed testing labs, they would have more specific information. The problem then becomes confidentiality and client, sort of service provider confidentiality.

But if you're looking at the municipalities in southern Alberta, chances are that it's present in most regions. It might be in a municipality. In some parts of that municipality it may be at a lower level because, maybe, it just hasn't had a chance to develop to an extent. They're not using extensive irrigation. Corn or durum wheat may be crops that are not produced as extensively.

Where you would probably see more of a differential in terms of presence and prevalence within a municipality would be in an area in transition, so probably along the highway 16 corridor, in and around Edmonton. In those regions, certainly, you might expect that you've got hot spots within that municipality and other areas within that municipality where essentially the pathogen is not present.

Dr. Brown: Okay. Thank you.

The second question I have is regarding the viability of spores and how long resting spores can remain. I know from my biology background that spores are notoriously resistant. Some of them, like potato blight, can stick around in the soil for decades. What is the viability of this? Are there ways to stimulate or trick the spores into germinating, which might facilitate the eradication of the spores? How does that relate to the crop rotation idea?

Dr. Turkington: Go for it, Andy.

Dr. Tekauz: Well, thank you, Kelly. I think that with respect to *Fusarium* the spores themselves don't have that much longevity, but as Kelly has indicated, when the fungus is present in stubble or in straw, that's where you can get carry-over for . . .

The Chair: Dr. Tekauz, can you still hear us? That's unfortunate. We'll do our best to mend the technology issue with Dr. Tekauz.

Dr. Turkington, you're not here, so you can't see that we've temporarily lost Dr. Tekauz's video feed. We were right in the middle of an answer there.

Dr. Bailey, do you care to offer us some additional insight into this question?

Dr. Bailey: I think Kelly would be in a better position to answer it, but what Andy was saying there is that, you know, they don't

last that long. There are conditions that you can do to try to move that along faster.

Kelly, do you have a comment on that? [interjections] I don't think he's there.

The Chair: You know what? Perhaps what we'll do is just take a quick five-minute break, and we'll try to get the gentlemen back online. We'll resume in five minutes sharp.

Thank you.

[The committee adjourned from 10:31 a.m. to 10:35 a.m.]

The Chair: Dr. Tekauz, we've got you back.

Dr. Tekauz: Yes.

The Chair: It's good to see you again, sir.

Dr. Tekauz: Thank you.

The Chair: You were right in the middle of your answer when we lost the connection, so if you'd care to just rewind a bit, we'd really appreciate it if you could complete that answer.

Dr. Tekauz: All right. I'll try and be brief. The question posed was to do with the longevity of *Fusarium* spores in relation to cultivar rotation, et cetera, as a management option. My answer was that the spores themselves are not necessarily long lived and may actually be quite short lived. What is long lived is the fungus that has invaded the plant tissue and that is left over in farm fields over the winter. That's where the organism can survive. Then when conditions are favourable, usually in the spring with moisture and warmer temperatures, the fungus is revived. It produces these so-called fruiting bodies and produces a new set of spores, which under favourable conditions can infect a crop.

The other thing I wanted to mention was one of the strategies that has been used by producers in Manitoba and Saskatchewan that have to deal with *Fusarium* head blight on an almost annual basis although, certainly, I want to point out that *Fusarium* head blight is not a problem every year. It's a problem in years that have conducive environmental conditions. There will be some years when *Fusarium* head blight is a minor annoyance. There will be other years when it's a major factor.

One of the strategies to mitigate the disease from the point of view of economic loss is to blow the *Fusarium*-damaged kernels out the back of the combine by increasing the air flow during harvesting so that they are not present in the harvested grain. As such, the level of FDK will be lower in the grain sample, so when grading takes place, a producer does not take as big a hit as he might. That level can be as low as .25 per cent, for example, in a Canada western red spring grade 1 wheat. Anything over that and it gets bumped into the second class. So it's an important consideration economically.

The point is that those kernels that are blown out the back of the combine, the so-called *Fusarium*-damaged kernels, have or can have the fungus in them, and that fungus can survive on that seed for up to two years, in an experiment that I was involved with, if they're on the surface of the soil. If they're incorporated into the soil, it's no longer a problem because *Fusarium* is not that good a competitor vis-à-vis some other soil-borne fungi and bacteria and, as such, is destroyed much quicker if it's incorporated into the soil. If that answers the question.

The Chair: Thank you very much, Dr. Tekauz.

Dr. Turkington: I would concur with what Andy had said. Just

for the committee, in terms of the fungus, if you can imagine when you leave bread on the counter for a long period of time and it goes moldy, you'll find that you've got the fine, threadlike structures, which are typical, the hyphae of the fungus. That's actually what's growing in or ramifying through that infected head tissue in cereals or corn cobs or corn stalks or wheat stems or barley stems. The hyphae of the fungus has grown in that tissue. With tissues that are resistant to decomposition – corn nodes, corn cobs, cereal stem nodes, cereal head tissue, and the kernels that Andy had mentioned – as long as that tissue is present and the fungus is present within that tissue, there is potential for the fungus to persist. Some tissue will decompose more rapidly than others, but once that tissue decomposes, the pathogen no longer has a food base or a substrate to survive on, and it typically does not survive by itself either in or on the soil.

Dr. Brown: Dr. Turkington, you mentioned five to 10 years down the road at one point during your presentation, and I wondered under what circumstances that *Fusarium* would persist for five to 10 years. Is it something like you mentioned, where the corn cobs or the corn stems are left untilled?

Dr. Turkington: Well, no. The five to 10 years would be in relation to allowing enough time for buildup of infested residue. So you plant, let's say, a trace level of infection. Let's say that there's no *Fusarium graminearum* present in that field or adjacent fields, and you plant infected seed. Depending on the seeding rate, you know, you could have tens of thousands of seeds per acre that have infection. Those seeds will germinate, and they may die because they're infected with *graminearum*, or the seedlings may be viable and produce an adult plant. The fungus will grow into that plant tissue, so now you have a piece of infested tissue that can act as a source of inoculum for a subsequent growing season.

Planting a trace level of infected seed doesn't mean that if you go back to wheat that next year or you go to canola and then back to wheat the following year, you're going to have a full-blown *Fusarium* head blight problem. What needs to happen is that you need to build up the level or amount of infested residue within that field.

If we look at our experience in southern Alberta back in the early 2000s, we had one field – I think it was either in 2001 or 2002 – of wheat that had 50 per cent seed infection with *Fusarium graminearum*. Coincidentally, that same field had about 50 per cent infection of lower stem node tissue. So the fungus was well established on the crop residue. It built up on that crop residue. In fields where we didn't find *graminearum* or we found it at a trace level, invariably the level of infection within that crop residue also either wasn't present or was very, very low.

So that five- to 10-year time frame is really – you know, if you're on a poor rotation, whether it's continuous wheat or you're on a wheat-canola-wheat-canola rotation, you're not allowing enough time between your wheat crops for decomposition of the residue. With that tight rotation you're creating the potential to build up the amount of infested residue over a five- or 10-year period. You're going from, essentially, no infested residue to having a significant amount of infested residue maybe in five or 10 years, and that all depends on the weather, as Andy said.

If it's a series of dry years, the pathogen isn't going to go anywhere; it's not going to build. If it's a series of wet years and you've got a highly susceptible variety of cereal, there's a greater potential to build that amount of infested residue up rapidly, to a point where you have enough infested residue within that field that's producing spores, you have a susceptible variety and a favourable environment, and all of a sudden you have infection

within that field that results in a yield loss, that results in a grade loss, and so on.

Dr. Brown: Thank you.

The Chair: Okay. Thank you.

Gentlemen, I too want to echo my colleagues' appreciation for your expertise and for being here. I have a reasonably quick question, I hope. I, too, like some of my colleagues here, am not a farmer. As Dr. Tekauz in his opening comments suggested, I would be one of the sort of more urban folks, so forgive me if my questions contain a little bit of agricultural ignorance, as it were.

I've taken the liberty to reprint one of the pages from our research materials for this committee that was prepared by Krysten Bachmier, who did an excellent job for us in our research materials. Dr. Tekauz, we're trying to see if you can see this graphic, and I'll do my best to describe it for Dr. Turkington. It's a graphic that shows Manitoba, Saskatchewan, and Alberta and the black soil zone, the dark brown soil zone, and the brown soil zone geographically that span Manitoba, Saskatchewan, and Alberta. Those zones, as I'm sure you gentlemen know, are contained within the southern part of all three provinces, and that's also where, predominantly, the incidence of Fusarium exists.

Dr. Turkington, are you familiar somewhat with the graphic I'm describing?

10:45

Dr. Turkington: Yes.

The Chair: Okay. My question there, just from the layman's eye, is that that would appear to be a natural containment area for Fusarium across the prairie provinces. Again, forgive my agricultural ignorance here. You know, we know that in Alberta we have a tremendously large geographical area of thriving agriculture in the Peace Country. My question would be: how much agriculture activity exists outside of the black soil zone in Saskatchewan and Manitoba?

Dr. Turkington: Well, in Saskatchewan you have a significant amount of agricultural activity in the brown and the dark brown soil zones. The issue there is that it's a relatively dry environment, which in itself is not conducive to the disease. That being said, if you look at the Outlook irrigation district in Saskatchewan or areas in central and western Saskatchewan that are under dryland conditions, you likely don't have very conducive conditions for the pathogen unless you're irrigating. It's a very similar situation to what's happening in southern Alberta.

The Chair: If I can stop you there, let me be more specific in my question. North of the black soil zone how much agricultural activity exists in Saskatchewan and Manitoba?

Dr. Turkington: Well, Andy can maybe talk about Manitoba, but in Saskatchewan you get into the grey soil zones. You know, there's certainly a significant amount of agricultural activity in that area north of North Battleford and north of Lloydminster up into Makwa, Meadow Lake, Dorintosh, that area. Then you start getting north of Saskatoon and out of the black soil zone.

Now, in Manitoba, Andy, you'd probably start running into the Canadian Shield.

Dr. Tekauz: Yes, you would. Of course, our agricultural area in Manitoba is considerably smaller than that in Alberta and especially in Saskatchewan. We're largely into the dark soils or brown soils.

Just to re-emphasize something that Kelly mentioned about the importance of the environment and climatic conditions on the expression and occurrence of Fusarium head blight, the reason that Fusarium head blight showed up as significantly as it did first in the Red River valley of Manitoba, North Dakota, South Dakota, and Minnesota in 1993 and 1994 is that the Red River valley has very heavy clay soils. In these types of soils, when it rains, you get puddling for several days after a rain, so it produces a microenvironment that remains very humid, especially when you have a crop growing and you have a closed canopy. Within that canopy of the crop things stay very humid because it takes a long time for the rainwater to percolate through. The environment was ideal for Fusarium head blight in this region. Since 1993 and 1994, when we had these devastating epidemics in the regions that I mentioned, Fusarium head blight and Fusarium graminearum and other Fusarium species have slowly been moving further west.

As Kelly has said, in drier areas traditionally you wouldn't expect to see as much Fusarium head blight, but the climatic conditions also follow the soil type to some degree. It is true that in the darker soils there has been more Fusarium found than in the lighter soils, which tend to be in the drier areas.

The Chair: Okay. My focus here, again, is on the northern regions, north of the black soil zone.

Dr. Turkington: The risk that's there in the northern areas is predominantly going to be driven by moisture. It's going to be primarily driven by moisture. If you look at northern Europe, Sweden, Norway, Finland, and the former sort of Baltic countries are all very north. In fact, they're probably equivalent to Beaverlodge or even Fort Vermilion, and they have a significant, well-established problem with Fusarium graminearum and other Fusarium species. The main driving factor there is not the temperature and not the latitude. It's the moisture, the maritime climate, of course, which is highly conducive to the disease.

The Chair: Dr. Turkington, I'd like to come back to Saskatchewan and Alberta for just a moment if we can.

Dr. Turkington: Yes.

The Chair: We've established that north of the black soil zone in Saskatchewan there is a significant amount of agricultural activity, correct?

Dr. Turkington: Well, especially if you're on the western side of the province as you're moving up north of North Battleford and Lloydminster into that Makwa-Meadow Lake area, yes.

The Chair: Excellent. Thank you for that. Yet we don't see a great deal of Fusarium happening in northern Saskatchewan, correct?

Dr. Turkington: No. If you look at the northeastern part of the province and you get up to Tisdale and Carrot River, in that area they've had some significant issues with Fusarium graminearum. If you look at the survey data from Saskatchewan that Andy presented and that a colleague of ours collates from some of the seed testing labs, they are starting to find it becoming more frequently found in those northwestern crop districts in Saskatchewan.

The Chair: Okay. That is very helpful because, unfortunately, the map that we're going by dates back to 2008.

Dr. Turkington: Oh, no. I would be looking at something from 2011, 2012, 2013.

The Chair: We'll task our research team with trying to get us some more current data when it comes to those maps.

Dr. Turkington: Sure.

The Chair: I was just curious – and I think we've touched on a number of those rationales from a scientific perspective – why there was less of a prevalence of *Fusarium* north of the black soil zone in the prairie provinces.

Dr. Turkington: Why that is?

The Chair: No. I think you've done a good job of establishing that.

Dr. Tekauz: Can I say something?

The Chair: Yes, please. Any additional comments.

Dr. Tekauz: The last comment was with respect to temperature. As I indicated in my presentation, both warm temperatures and moisture are the most conducive factors to getting the disease and for *Fusarium graminearum* to get established and to remain in a region. When there's enough moisture, then temperature does have a bearing as well. Cooler regions will tend to have less *Fusarium* in general than warmer regions. It stands to reason that as you go further north or where perhaps either the growing season is shorter or the climate is cooler, you'll likely have less *Fusarium* head blight than if you're in southeastern Saskatchewan or southern Manitoba, never mind going into the U.S.

That's one of the reasons why perhaps traditionally there hasn't been as much *Fusarium* head blight there. Again, as I indicated also, if you have a very wet growing season, that sort of trumps the temperature situation, and it can exacerbate *Fusarium* head blight in a region that previously did not have much of the disease.

The Chair: Okay. I appreciate that.

To sort of sum up the comments, then, in coming back to your triangle of the pathogen and the conditions, Dr. Tekauz, from a scientific perspective the northern regions of Alberta and Saskatchewan, in your opinion, would be less susceptible to *Fusarium* than the southern regions. Is that fair to say?

Dr. Tekauz: I think that's fair to say, in my opinion, yes.

Dr. Turkington: I would probably disagree to a certain extent. When you're looking at the southern regions, it depends on whether it's under irrigation or dryland production. If you look at some of the simulations that we've done here in Lacombe as far as potential distribution and severity, the Peace region might even be slightly more at risk compared to a dryland field in southern Alberta, not because of the temperature but the moisture. Within that, as Andy has already alluded to, if you have years with above average precipitation in June and July, that will be the overriding factor influencing the potential for development of *Fusarium* head blight caused by *Fusarium graminearum*.

10:55

The Chair: Thank you, Dr. Turkington.

Dr. Bailey, do you care to comment?

Dr. Bailey: Well, you're getting, I think, a snapshot of how variable it can be. It's so dependent on all of these conditions that take place, so it's really hard to say a specific region, but there is a microenvironment, I guess, to certain locales that you've talked about here in the north. It takes all of these properties and that long, latent period of time for it to develop; you know, five to 10

years to develop if the conditions are right. There's a lot at stake here.

The Chair: Thank you.

We'll come back, I think, to Mr. Goudreau, who has some additional lines of questions. Unless that stimulates any more questions, that may be it.

Mr. Goudreau: Well, thank you very much, Chair. Just going back, Dr. Tekauz, to your title page or the first page, you've got a couple or three photos there. The middle one identifies and shows a field infected with *Fusarium*. What kind of yield reduction would we potentially – and I know it's a wild guess in some ways – anticipate from that particular photo in relationship to one healthy field? As well, what kind of grade reductions would we anticipate from that?

Dr. Tekauz: Well, as you said, I'm taking a wild stab at this. Yield reductions: you know, Kelly mentioned something about 40 and 50 per cent in some instances. I suspect that in that particular field the eye tends to see a little bit more of what's different than what's not different, so even though that field might look like it has 70 per cent *Fusarium* head blight, in actual fact it may be closer to 30 per cent. You don't lose yield on all of those affected heads because not all the heads are totally infected. So, yes, the yield loss can be quite significant, and obviously the grade loss here, if the sample was not cleaned prior to being graded or taken to the elevator, would be significant as well.

I don't want to downplay the potential, but I do want to reiterate that *Fusarium* seldom gets to this level as you're seeing here. This is a bit of a dramatic illustration that I have used in presentations in the past. It just shows what can happen, and that's what did happen in 1993 and 1994 in the Red River valley of Manitoba as well as the contiguous U.S. states. It can be quite high, but I just want to say that Manitoba and Saskatchewan producers have been living with this disease for 20 or 25 years, have learned how to manage it, are still in business, are still selling grain, are still exporting grain.

We are still getting barley and oats sourced from Manitoba for value-added uses. I guess I want to say, from my perspective, that for Manitoba it's not the end of the world, and it can be managed. I think the best management practices, that are present in the management plan that has been developed over the years in Alberta, are excellent and, I think, would be quite adequate to address your situation, particularly if seed treatment is stipulated and some of the more resistant varieties get grown down the line.

Mr. Goudreau: Would it be appropriate to anticipate, like in Manitoba, a 10 per cent yield reduction in overall production in the province because of *Fusarium*? Has that ever been identified?

Dr. Tekauz: Probably in 1993 or '94 there might have been a single situation where in the Red River valley that probably was the case, but year in and year out, if you look at the survey data that is published annually and we make some estimates on yield loss, 4 years out of 5 we would say that yield loss would be trace or even zero or minimal, and maybe 1 year out of 5 we might say that there might be a yield loss of anywhere from 1 to 5 per cent.

Mr. Goudreau: Thank you. And quality?

Dr. Tekauz: Quality I don't have any information on specifically. I don't know if Kelly or someone else there does.

Mr. Goudreau: Thank you.

The others are basically comments. We've talked about and I'm concerned about the regional approach for my colleagues. I know the regional approach is – you know, we tried to keep cleavers out for many, many years, and because of what I would call unscrupulous seed sellers, cleavers got introduced in the Peace, and the regional approach sort of was defeated there. Our producers paid dearly to fight cleavers and work through that particular situation over a number of years. But as we see increased rail transportation and machinery and equipment movement going through, a lot of increased oil and gas activity, and maybe, again, producers being not quite as careful as they should be, the effectiveness of using a regional approach is minimized. We see things going back and forth.

The other comment that I want to indicate. I think I heard from one of the presenters this morning that the infection often occurs during more moisture, particularly in the month of June. Inasmuch as we like to think that the Peace is normally a little cooler – it tends to be maybe a little moister, and it's very flat and heavy grey-wooded soil; as Dr. Tekauz said, we do see water puddling from time to time, so that environment is there – in the last week, I dare say, and even again yesterday the temperature was much warmer in the Peace Country than the rest of the province of Alberta. If it's the appropriate time – and that happens on a fairly regular basis, where we do see that even though we would expect it to be cooler, the opposite has in fact happened, and that happens from time to time. It's not a normal situation, but it does happen in a year like this year, where our temperatures are in fact warmer and maybe even a little wetter than the rest of the province or even the western provinces. So those are comments that I wanted to put on the table.

When it comes to yield losses, even though it's 1 or 2 per cent or minimal amounts that I'm hearing, it can go as high as 40 to 50 per cent. No doubt our producers buy crop insurance. Their coverage is based on their productive ability, and if they lose one year, the impact on their coverage levels is felt for a number of years. That's another concern that I want to put forward before this particular committee.

Thank you, Mr. Chair.

The Chair: Thank you for those comments, Mr. Goudreau.

Dr. Turkington: Mr. Chair, just to clarify, the 40 or 50 per cent that I mentioned wasn't in relation to yield loss. It was in relation to the percentage of seed infected from that field and the percentage of lower stem nodes that were collected from that field. So it wasn't to do with yield loss. In fact, in that field, depending on when the infection occurs – and Andy, I suspect, would concur. If the infection occurs close to anthesis, the level of infection, the severity of infection is quite severe, and your yield loss will be correspondingly higher. If the infection occurs later, as the crop is moving towards late milk/early dough stage, the kernels themselves can actually appear healthy. So there's minimal yield loss there, but you may have issues with mycotoxin contamination of the grain. You won't necessarily have a grade reduction, you won't necessarily have any yield loss, but if the end-users take that grain and do sort of secondary quality testing – i.e., mycotoxin testing – then they may find that it has an elevated level of deoxynivalenol, and that might mean that it's not suitable for either hog feed or human consumption.

The Chair: Dr. Turkington, thank you very much for that answer.

Unfortunately, the clock is ticking, and we've run out of time for this segment of our panel. I would like to thank you, Dr. Turkington and Dr. Bailey and Dr. Tekauz, for your expertise and

your passion on this subject. You've certainly made impactful presentations, and we thank you again for your knowledge and your expertise and very much for your time and energy that you've committed to our committee. Thank you very much.

Dr. Turkington: You're welcome.

The Chair: At this point, folks, what we'll do is we'll take a quick five-minute break. We're running a little bit behind our schedule.

Members on the phone, we're going to disconnect, video conferencing being over, so you're welcome to take a five-minute break, dial back, and we'll join up in five minutes. Thank you all very much.

[The committee adjourned from 11:05 a.m. to 11:14 a.m.]

The Chair: Welcome back, everyone. We're now set to hear from panel 2. Joining us today from the Alberta Grains Council is the vice-chair, D'Arcy Hilgartner, and the chair, Greg Porozni. Also with us from the Canadian Seed Trade Association is its president, Peter Entz.

Gentlemen, who is presenting?

Mr. Porozni: I'll lead off.

The Chair: You'll lead off. Terrific. We'll let you gentlemen take it away.

Alberta Grains Council, Canadian Seed Trade Association

Mr. Porozni: All right. Good morning. Thank you so much for allowing the Alberta Grains Council to present to this panel today. My name is Greg Porozni. I'm a farmer from northeastern Alberta, about an hour northeast of here, straight north of Vegreville, and I'm chairman of the Alberta Grains Council.

Hector Goudreau, of course, would be well aware of the Alberta Grains Council. He was a sitting member years back along with, in the past, Doug Horner and Doug Griffiths. I'm sure most of you know those gentlemen.

The Alberta Grains Council is made up of eight farmers throughout the province of Alberta, and we are advisers to the minister of agriculture. We provide advice on pertinent issues reflecting grains and oil seeds in the province of Alberta. Also, we work very closely with the department of agriculture in Alberta and do the same. Our goal is to provide sound advice to make the industry more profitable and sustainable.

Mr. Hilgartner: My name is D'Arcy Hilgartner. I farm near Camrose. I'm currently the vice-chair of the Alberta Grains Council. Over the course of today and previous days you've heard from many experts and researchers and scientists. As farmers I guess we get the experience and the practical side of any Fusarium graminearum policy, and we're here to recommend what we see as the best course of action for the province, that currently already has a Fusarium graminearum infection, and how we go forward with that.

Mr. Porozni: It's nice, I think, as a panel to follow up with – like D'Arcy said, we're going to provide the practical side of it. It's nice to follow behind the scientists that were up before us, the pathologists. In our opinion, they're very well renowned and experts on the theory side, and we will try and provide a practical side for what we think is best for producers in Alberta regarding Fusarium graminearum.

Of course, you're well aware that it's a serious disease in Alberta. It's much more predominant in southern Alberta and is slowly working its way up. As you heard prior to our discussion, it's very weather dependent, especially in Alberta, and it's variable as well. It depends a lot on moisture and heat and humidity. But it is here.

Mr. Hilgartner: Yes. Whether we like it or not, it is here, and it is a difficult disease to control. There are no resistant varieties, although there are some tolerant ones, and the chemicals that are available do not control but suppress. Farmers are managing that risk. As you've heard, weather is a huge determinant in *Fusarium graminearum* growth and spread, and we don't want it to spread any further or increase the incidence. That involves us using the best management practices that are available.

Mr. Porozni: Basically, what we are recommending is that one size does not fit all – we want to stress that – because it's variable in its level of infection. We know that it's already in southern Alberta. Hence, we are recommending a 5 per cent tolerance level. For the south and in the north we are recommending best management practices. Therefore, as the infection moves north – and it might. We don't know that because it's so weather dependent. But if it does, I think as a government and as a recommendation we would have to allow for tolerance levels to adjust accordingly.

Right now, frankly, the way it's set up, for the seed growers in southern Alberta especially it's actually an artificial trade barrier because seed growers cannot replicate and sell infected seed. Therefore, it gives an opportunity for Saskatchewan growers or seed producers to move seed into Alberta, and we have a problem with that. It's not fair for the growers in Alberta because we cannot obtain good quality seed from the south. Even if it has minute amounts, trace amounts, of *Fusarium*, it's not allowed to move. We know what farmers are doing is that they're bringing in seed from Saskatchewan. I mean, you cannot stop that seed from coming in from other jurisdictions even if it's infected. It's very difficult to do.

11:20

Therefore, we feel that we should have a 5 per cent level in the infected areas and use best management practices throughout the province to mitigate the risk. That's the key. I think we have to stress that even though it's at very low levels or at zero, especially in the Peace, the critical thing is to have best management practices and work together with all of industry such as the ag fieldmen, the municipalities, the seed plants that need to test, and also with government officials to lower the risk.

Mr. Hilgartner: Like Greg said, currently the central and northern regions of the province would be considered that not commonly found area, and therefore that's where we need to really impress upon the best management practices. *Fusarium graminearum* infection in those areas is not zero. We know it's there. That's a practical point, to point out that it is present. Zero is not realistic. Therefore, we need to really push the best management practices: the use of good seed, seed treatment, testing. We've got a variety of enforcement across the province, and I think that's key to any changes to the legislation, that you need to really have a better way of enforcement and regulations so that you have consistency.

My feeling is that in the areas where *Fusarium* has been considered to be not commonly found, you've got complacency. Testing is not being consistently done. Therefore, there's that kind of blinders-on approach that we don't have *Fusarium* here so we don't have to use best management practices to prevent its spread.

Mr. Porozni: Again, I want to stress the importance – oh, are you taking questions now or later?

The Chair: Gentlemen, what we'll do is that we'll have both parties present, and then we'll save our questions till the end.

Mr. Porozni: Okay. All right.

The Chair: But if I can, since we did have a pause here, we do have a newcomer to our table, and I'd like him to make an introduction if he could.

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

The Chair: Okay. Thanks.
Please carry on.

Mr. Porozni: Okay. Again, like D'Arcy was saying, accountability and consistency are going to be the key factors. Right now we don't have that, frankly. We have some municipal seed cleaning plants testing for *Fusarium* and some that aren't. I mean, it's bizarre. If we want to try and mitigate the risk, we need everybody working together. Therefore, I would stress the importance of having all municipal seed cleaning plants test prior to cleaning and have a certificate. Period.

It's common sense, but it's not being done. Why? Because whenever you off-load policy to municipalities, things get diluted. Things change because what's the key to a municipal politician or any politician? You want to get re-elected. You don't want to ruffle too many – I'm being frank. I'm a farmer. I can do whatever. You want to get re-elected.

Some counties are very proactive and do their due diligence, and others don't. So we need the ability for the department of agriculture to try to enforce the best management practices throughout the province and have a consistent message. Do it always, consistently. That's, I think, the key message that we need to work on. We also have to stress the importance of best management practices throughout the industry, whether it's the Alberta Wheat Commission or Barley Commission, whether it's the ag fieldmen, whether it's the department of agriculture. Everybody must have the same message and follow through with proper due diligence.

Mr. Hilgartner: The approach we're recommending is – we've got two different situations in the province. We've got a commonly found area and a not commonly found area. To impose upon the southern region the same rules as the northern just isn't practical. It's an economic disadvantage. *Fusarium graminearum* is well established in those areas, and it's just not realistic to maintain a zero level of tolerance. Five per cent is what we're recommending. You heard from experts like Andy Tekauz this morning, telling you how that if five, even 10 – and we're not going there. But five is well manageable with best practices, you know, using the best seed you can get, using seed treatments. In the areas of irrigation they're very well aware of weather conditions and using the right fungicides to suppress *Fusarium* and controlling their irrigation to, again, use the best management practices available, and same in the not commonly found area. You need to use clean seed, treated seed, use best management practices and due diligence to limit the spread.

Mr. Porozni: We're done with our presentation, so we're looking forward to questions.

The Chair: Well, thank you both, gentlemen. We very much appreciate the presentation.

We're going to move to Mr. Entz and allow him to do his presentation. Then I've already got a growing list, so you'll have lots of questions fired your way.

Mr. Entz, whenever you're ready.

Mr. Entz: Great. Good afternoon, everyone. My name is Peter Entz. I'm the president of the Canadian Seed Trade Association, and I manage the seed and trade business for Richardson International in Canada. The Canadian Seed Trade Association appreciates the opportunity to come to the committee to testify on Bill 201 and also compliments the MLA for introducing this act as a private member's bill.

CSTA represents 132 companies involved in all aspects of the seed industry, including plant breeding, research, production, marketing, distribution, packaging, and international trade of seed. CSTA members are engaged in all production systems: conventional, organic, those using modern biotechnology. We represent about 50 different seed crops that are grown in Canada, and members range from small family-owned companies to large multinational firms. Alberta is a good example of kind of the mosaic we have within the CSTA, where there will be small family forage seed producers in and around the province but it's also the head office for some of the larger companies like Dow, Bayer, and Syngenta that are very involved in the seed industry in Alberta and globally.

In 2002 the Alberta government launched by regulation an enforceable management plan in an effort to prevent the establishment of *Fusarium graminearum* in the cereal growing region of Alberta, and now, more than 10 years later, I guess, it's good to review and evaluate the issue and see if there's a different path forward from this point on. Increasingly, *Fusarium* is found in wheat durum and barley across the prairies and across the province of Alberta, and when the conditions are right, obviously, it manifests itself in the grain and impacts the grain crop as well.

The current *Fusarium* management plan requires that in order for farmers to have access to seed, the seed must be tested and found to be nondetected of *Fusarium graminearum*, and this creates, I guess, the problem that we see as the Canadian Seed Trade Association. It is difficult to source higher generation pedigree seed from which seed growers in Alberta can produce seed from. So they are restricted in the sense of getting kind of the building blocks of their seed business because there might be trace levels of *Fusarium* in that seed. There are practices that can be implemented to reduce or eliminate *Fusarium* such as heat treatment of seed, but that is very expensive and not always effective. Even when the higher pedigree seed is heat treated, given the prevalence of *Fusarium*, it is very difficult to assure that the resulting certified seed, when tested, will result in a nondetect.

In addition, seed produced in Alberta that presents itself even with very low levels of *Fusarium* needs to be moved out of the province. The result is a much smaller supply of seed for Alberta farmers, and the supply comes at a higher cost because of the measures that have to be taken to try to reach this nondetect level. A rough analysis by CSTA members – and this is really more just asking people; it's not a formal survey – indicates that retail prices for wheat seed in Alberta can range between 12 and 19 per cent higher than those in Saskatchewan and Manitoba because of these additional costs. There are cases where the inability to source higher generation seed of new varieties has meant that Alberta farmers do not have access to those new varieties and are at a competitive disadvantage, then, to farmers in Saskatchewan and Manitoba.

There continue to be cases where Alberta seed growers who have certified seed of a particular variety and want to buy a higher

generation seed of that same variety cannot do so because the foundation and registered seed that is available outside of the province may contain traces of *Fusarium graminearum*. Again, there are ways that they can handle this, perhaps, on their own seed farms by recertifying their seed, but it comes at additional costs to their operation.

11:30

Given that the Alberta grain and seed are increasingly presented with the *Fusarium* disease and that the disease is present in the soil, CSTA submits that rather than denying Alberta farmers access to seed at competitive prices, a multipronged management strategy that starts with high-quality seed but also includes best management practices like crop rotation, the use of fungicides and seed treatments, much like the best management practices that were just mentioned by the previous group, would be maybe the best path forward.

In November 2012 CSTA on behalf of our seed company members and farm customers submitted a formal request to the Hon. Verlyn Olson, Minister of Agriculture and Rural Development. We asked that a science-based review of Alberta's *Fusarium graminearum* management plan be launched with a view to facilitating trade and providing Alberta farmers with access to high-quality seed at competitive prices. I can't stress this enough. We really, sincerely appreciate that the minister took action and initiated the scientific review, that was carried out by plant pathologist Dr. Andy Tekauz, whom I've known for a long time. He gained quite a bit of prominence in Manitoba in 1993-94, when the first outbreak occurred in that province, and he was very well equipped to answer a lot of questions and initiate a lot of the research that farmers relied on.

I think that everyone, including the CSTA, understands that *Fusarium* management is a complex and potentially divisive issue, but it's clear that the current system is not working for all Alberta producers and the Alberta seed industry. *Fusarium* is not being completely contained, and in areas where *Fusarium* is already well established, Alberta farmers are being put at a competitive disadvantage to their prairie neighbours. Ironically, some of the new varieties, to which Alberta farmers may often not have access, also have improved *Fusarium* tolerance.

In his review Dr. Tekauz acknowledges that the plan likely did provide a short- to possibly medium-term advantage for Alberta producers and could possibly continue to slow the disease. However, he also stated that it's not likely to prevent the establishment of *Fusarium* across the province. Dr. Tekauz recognizes that the presence of *Fusarium* varies in Alberta and recommended that the best management practices in the plan should both recognize the requirements for those regions that are relatively free of *Fusarium* and those regions where it is present today. He stated that a tolerance level of .5 per cent up to 5 per cent could protect those areas that are relatively free of *Fusarium*. Other prominent researchers like Dr. Kelly Turkington and Dr. Ron Howard have concluded that seed with up to 10 per cent *Fusarium* would not affect infection levels in those areas where *Fusarium* is already established. Again, we're not here to slice and dice what percentage is appropriate, but I think that just leaning towards the science, those are the numbers that were used.

CSTA also appreciates the effort of the sponsor of Bill 201 to amend the act and recognize that this is important and an important issue to Alberta farmers no matter where they farm. We fully recognize that there is no agreement across the province on the best path forward. However, it is our association's opinion that a broad zero-tolerance policy will not be effective. It will continue to put Alberta farmers at a disadvantage, and it will at best slow the

introduction of new varieties in Alberta and, at worst, perhaps prevent Alberta farmers from accessing them in a timely fashion. Most Canadian breeding programs are outside of Alberta, not all of them but most, and are usually in areas where Fusarium is present.

CSTA views Bill 201 as an important step in the right direction simply because it formally recognizes the reality for many farmers in Alberta. However, Fusarium is established in parts of the province, and farmers are being placed at a competitive disadvantage. The measures proposed in the bill are likely too restrictive – that is, not flexible enough – to address the needs of Alberta producers who continue to live with and manage Fusarium.

We understand and support that there's no one solution for the entire province. In keeping with that, a zero tolerance policy is not likely the answer. The answer is in the implementation of best management practices that emphasize controls to slow the spread of Fusarium while allowing farmers to source the seeds they need at a price that will allow them to be competitive.

The Canadian Seed Trade Association sincerely appreciates the opportunity to meet with the committee as you study Bill 201. We encourage you to continue to focus on the scientific studies and assessments of the Fusarium situation in Alberta in order to find a flexible solution that will give Alberta farmers access to the seed they need to be competitive and to play their part in the efforts to provide feed, fuel, and clothes for Albertans and also a growing world population.

Thank you very much for your time.

The Chair: Gentlemen, thank you very much for those presentations. We very much appreciate your expertise and the time and energy that you put into the presentations.

We're going to turn to some questions now. Up first we have Mr. Goudreau.

Mr. Goudreau: Thank you very much, Chair. Thank you, Greg, D'Arcy, and Peter, for presenting to us this morning. Certainly, as you can appreciate, we will have a pretty tough decision to make as a committee.

A few questions – and I've got a number, Mr. Chair – if you don't mind. The first question is to Peter. Peter, out of your 132 companies involved in all aspects of the seed industry, how many are from the Peace Country, the northwestern part of Alberta?

Mr. Entz: It would likely be a smaller percentage, but as you know, the Peace Country has a lot of forage production and processing going on there. Typically, our members there are from the forage seed industry.

Mr. Goudreau: In your presentation you've used comments, and you've quoted Dr. Kelly Turkington and Dr. Ron Howard. We heard from Dr. Turkington earlier this morning. They've concluded that seed with up to 10 per cent Fusarium would not affect infection levels in those areas where Fusarium is already established. What about the areas where Fusarium is not established?

Mr. Entz: Our experience, maybe not generally from a CSTA perspective but my own work experience, is that the use of best management practices, particularly seed treatments, is very useful in taking that infected seed into those areas but treating it. That won't really add a tremendous amount of load into the system of Fusarium graminearum.

Mr. Goudreau: I'm going to ask maybe a fairly loaded question now. By changing the levels, who gains in this whole thing, and who loses?

Mr. Entz: Well, I think, really, who gains is the farmer, at the end of the day, whom the seed industry does need to support. Those are the guys that pay the bills. It's giving them access to the right and appropriate varieties at a competitive cost position.

Who has to lose? Well, I guess, if there's a winner, there's a loser somewhere, but in this instance I'm not sure if there's any individual or group that's going to lose.

Mr. Goudreau: Well, let me help you, then.

Mr. Entz: Oh, okay.

11:40

Mr. Goudreau: I guess, Peter, you know, I can appreciate that your discussion tends to support the Canadian Seed Trade Association, but I'm very, very concerned about the potential health impact it has on individuals when we do deal with a lot more Fusarium in the community; the impact it has on livestock and livestock feed, on hogs and hog feed; the ag producers' loss in terms of potential yield, potential quality; the impact that it might have on exports around the world with higher infection levels of grains being produced, wheat, barley, oats, and corn; and the added cost, then, in terms of management. We talk about the fungicides that we're advocating and the changes in production methods. You know, we're talking about added cultivation – for instance, to bury the stubble – where we've advocated for increased minimum tillage and zero cultivation.

On one side, we're saying, "Okay; our seed producers are going to gain by this, and our producers are going to gain by having more varieties," but on the flip side I've got a whole list of people who might have to pay the price for all of this. I guess I'm concerned that you would not bring that up as part of your discussions.

Mr. Entz: Well, I mean, we might have just a bit of a different viewpoint on that, I think. One of the aspects of it: I'm from an area that was very severely affected in '93-94, and I think what we learned there was that there are ways to manage it.

Now, speaking not from CSTA's but from Richardson's perspective, we had a zero graminearum policy on all the certified seed we sold until about six years ago, and it just became impossible to do business. By that I mean that it was just impossible to move certain varieties into a market to support the needs of the growers. You know, that access to varieties, I think, is a significant issue for farmers.

I agree that there would be additional costs in terms of the use of a seed treatment, but I think the use of seed treatments now – about 60 per cent of growers treat their seed anyway. Maybe they're incurring those costs already. I mean, they're only going to do it if they find value in doing those applications. I guess the overriding thing, from my experience, is that even with best management practices and all the things around that, this disease is very aggressive, and it does spread. We've noticed it, through my career, just moving rapidly from a Red River valley issue, that's now expanded quite significantly. I think the important thing is to teach farmers how to manage a disease so that, like you say, we have good commercial grain to sell and to market and to export for farmers to get the revenue that they need to run their businesses.

Mr. Goudreau: Thank you, Peter.

My next question is probably more directed to Greg and D'Arcy. Same first question: do we have any producers from the Peace on the council now?

Mr. Porozni: Yes. Henry Vos.

Mr. Goudreau: Henry is on the council? Okay. Good. D'Arcy, in Camrose how prevalent is Fusarium?

Mr. Hilgartner: Fusarium in the Camrose area would be no different than most of central-northern Alberta in that it's at trace levels. I haven't looked at last year's map, but I've seen the year before from both BioVision and 20/20, and there's not a corner of the province where they have not found Fusarium at some point. Granted, it's at very low levels, and we want to use best management practices and that to keep it there.

I know that on my own farm I use seed treatments. I use fungicides, not necessarily for Fusarium but just as part of my best management practices. We all know that agriculture is a big business, and you've got to be on top of things. That means using good seed, good fertility, good fungicides and seed treatments as needed to get a good-quality product that I can sell.

Mr. Goudreau: I'm not sure if it's a typo. I think the bill identifies .5 per cent as a potential, but you're using 5 per cent in your presentation.

Mr. Porozni: We're using both. Well, not both. We're using 5 per cent where it's commonly found. So wherever in the province it's commonly found, we recommend a 5 per cent tolerance level. Where it's not commonly found, the department is suggesting zero, but we as a grains council, as farmers, are suggesting .5. Zero, in our opinion, is a target, and frankly whenever you're at zero, you'll find it. If you test enough with anything, whether it's Fusarium, whether it's GM products, whatever it is, you will find it. So to me zero just doesn't cut it.

Mr. Goudreau: The economic impact losses in Canada, on your third slide, I believe, you stated from \$50 million to \$300 million annually since the early 1990s. Is that a loss to seed producers, or what type of losses are we talking about here?

Mr. Porozni: Well, I think that's industry as a whole.

Mr. Hilgartner: That would be as an industry as a whole.

Mr. Porozni: Yeah. Not just seed producers.

Mr. Goudreau: So it includes growers? It includes things like grade and yield losses that might be impacted?

Mr. Porozni: Yeah.

Mr. Goudreau: Does it also include the increased cost of fungicides such as seed treatment or full-year applications or the added cost of changes in locations, for instance, or in feeding patterns?

Mr. Hilgartner: No. That would not be in there. But, I mean, I look in my area and my own farm, like I alluded to before – you said there'd be increased costs to a farm with utilization of seed treatments and fungicides or change in rotations and that. In my mind and in my personal opinion that is best management practices, and we have producers that are not following that now. That's where the key point of this bill or any changes to this bill is enforcement. You can set that value at whatever you want, but if you're not going to enforce it and encourage the best management practices, it will fail. That's not what we want.

My concern is that with the current zero tolerance we're giving the illusion that we don't have Fusarium in certain areas of the province, and that's not encouraging best management practices.

Mr. Goudreau: Thank you.

The others are just comments, Mr. Chair.

A couple of things that you said. You used Fusarium-infected seed and good quality seed in the same sentence. Anytime anything is diseased, there's not good quality; I don't care what you say. I can appreciate the fact that, you know, there's an impact, those kinds of things, and you advocate using infected seeds. But I can't buy the fact that infected seed is good quality seed. That's my comment.

The other one is, you know, that you used a couple of words: complacency and blinders and the fact that testing might be questionable and those kinds of things. When we had blackleg in this province, some municipalities did a tremendous job, and some municipalities in the Peace Country actually ended up plowing down farmers' fields that had blackleg. You know, in the northwest there are probably as good of farmers as anywhere else. I sense that those comments are directed up there. When you used the words "complacency" and using "blinders," it's very, very offensive to some of our top-notch farmers, no matter where they might be in the province or the industry. Our industry's moving ahead, and we cannot afford to fool around. We cannot afford to have blinders or cannot afford to be complacent with any of these kinds of things.

Mr. Hilgartner: My comment wasn't directed at any one region. We have problems no matter where you look in the province.

Mr. Goudreau: We're very, very proud of our agricultural industry, and we want to see it grow. We want, you know, certainly, our products to be accepted world-wide, and we can't afford to go the other way. Thank you.

Thanks, Mr. Chair.

Mr. Porozni: Just a comment about the fungicide application. We're all businesspeople here as well as farmers. We are using more and more fungicide because we are seeing a return on investment, a solid return on investment. It's not only that we're trying to prevent the spread of Fusarium, but we're making money doing it. We're getting better crops, better yield, better quality. To me it's not an expense; it's an investment. I think that's what we have to stress to the industry, that best management practices are not a detriment; they're going to enhance the viability and profitability of farmers. It's not that we're trying to enforce rules to mitigate the risk – yeah, you are doing that – but you're also enhancing your return on investment as well.

11:50

The Chair: Thank you for those comments.

We've got to move on to our next line of questions, from Mr. Donovan.

Mr. Donovan: Thank you. I'm an active farmer just south of Strathmore. Little Bow riding is my area. Between my own and what I custom farm is about 3,000 acres that I seed and combine. Definitely, for the seed growers in my area it is a huge issue. We have an economic challenge there because they can't sell certified seed, so we get into the decision of what the percentage should be. I agree with you that up to at least 5 per cent because it is a challenge.

It goes back to letting people have the choice of what they want to do. Best management practices are what are being done in our area anyway: seed treating, fungicides. I spend most of my time hanging out on my high-clearance sprayer now more than my seeder, for instance, because you go over two to three or four times depending if you're preharvesting anything or not. But I

think that we're stewards of the land, and as farmers, as you said, Greg, you're going to do economically what's best for your own farm.

I will touch on just one thing. I was one of those municipal councillors that was on before. In Vulcan county, for instance, I was reeve for a couple of years, but I was 16 years on the Blackie and District Seed Cleaning Association. We left it up to local decision-making of the seed board. Now, there's only one elected person – actually two elected people, I guess, as the MD of Foothills also had one on it – but our board said that it didn't matter if you were screening it, sizing it for malt, or whatever you were doing, you had to have a Fusarium test before it was allowed to enter the pit at the seed plant. Unfortunately, not all the seed plants were doing that.

I totally agree with you that you make that province-wide, so there's no doubt about it. I have seed growers in the Enchant area and other areas that have a seed cleaning plant beside them. They make sure that everything is Fusarium tested because they're a certified seed grower and they have to sell it. But sometimes some of the local seed plants don't have that they have to, and I think that that would be a good step going forward.

Definitely, in my riding it's a huge detriment to the seed growers, so I think that this is something that we need to look at and figure out. I guess that my colleague Mr. Goudreau and I would probably disagree a little bit on how this should be handled. I think that's the good part of bringing it to a committee, to have the input from everybody. I can totally understand his defence of the north because it's not a huge issue there, but in my riding under the irrigation it is an issue, so we need to deal with it and be able to use the best management practices. Those are the things that I think we need to do going forward.

Let the farmers decide themselves what risk they're going to do when they go to a seed grower, whether it be a trace amount. All of a sudden, for those who don't farm, if you're a seed grower, you go, say, from \$12 to \$15 a bushel on a variety of seed that you've grown on a 5,000 bushel bin to dropping that to \$4 because you can't sell it as certified seed and you can't legally ship it to Saskatchewan or other places.

With the slide that we had on there and between the economic challenges we have with that, we're not going to have more seed varieties come into this province because you're going to end up where it's too much risk for the large seed companies to try to grow a new variety. In southern Alberta, for instance, where it has a trace amount, we're talking that any amount of it quarantines that seed. Well, the risk to reward is way too high for a seed company to try to bring in a new variety to grow in southern Alberta. A lot of seed growers are down there because they have the irrigation and because they have the heat. I think that for that end of the province we definitely need to figure it out. We do have it there, so how do we manage it with best practices and go from there?

I appreciate all of your input on that because it's on there. But on the seed plant side – I just want to touch on this – it's a vote amongst all the people on that board. I had enough critical friends on our board, anyway, that were more than happy to tell me that my opinion was just one vote out of the eight people on that board.

Mr. Goudreau: You've got friends?

Mr. Donovan: Colleagues. Colleagues. The only friend I've got here is Steve. He'll go have a beer with me.

As an active farmer I think that we need to look at that and figure out the best management practices and to let people do that.

I think that we're doing that as stewards. I'm doing it, you know, my crop rotations and stuff like that, because I'm looking at the long term, what's best for the land, what's best for me, and you have to figure out that you're not just going to mine it. I think that mindset is gone. You know, we're long term. It's a business now. It used to be that you could pail-feed 50 head of cows if you had a bad winter and get some steers and that would get you through. I mean, now marketing and planning, you know, those are the things that we need to do. I do appreciate your input on that, and if you have anything to add to that, feel free.

The Chair: Thank for those comments. Was there a question?

Mr. Donovan: Oh, actually one more thing, a question there. Does anybody have anything on the Fusarium Action Committee that the province had struck some years ago, what the best recommendations were on that, or if anybody on this board had any thoughts on that?

Mr. Hilgartner: I believe that the Alberta Grains Council sits on the Fusarium Action Committee. I'm not the current member. We have another member that sits on that from our council. They are well aware of the difference of opinion across the province, in different sectors and different parts that sit on that committee. I believe they're in the process of coming up with the recommendations themselves, but you would have to ask them.

Mr. Donovan: Okay.

The Chair: Thank you, gentlemen.

Thank you, Mr. Donovan.

Our next line of questioning comes from David Xiao.

Mr. Xiao: Thank you, Mr. Chair. First of all, I have to say that I'm not a farmer, you know, so I try to learn as much as I can. I totally agree with the comments that were made by Mr. Porozni. Yes, a politician can be a problem, right? We are a part of this Fusarium disease, and every time there is a problem, we try to compromise, and I think that's wrong. Personally, I believe that we've got to try to find ways to solve the problem, not try to give way. I think it's very important.

I'm very surprised to hear that, you know, the seed growers cannot sell the affected seeds, but the farmers can buy from other jurisdictions that are possibly affected. How can that happen? If we have legislation in place that wouldn't allow the seed growers to sell affected seeds now in Alberta, then we shouldn't allow any farmers to import any affected seeds into this province.

So as far as our concern is, I can understand that this is a law-enforcement issue. It's not a disease issue in some ways. That's the argument, you see. Okay, they are already buying from other jurisdictions. Why don't we let, you know, the Alberta seed growers sell the same kind of affected seeds, right? I have a problem with that. We heard a lot today from other experts in this field. They are talking about how to utilize the land. Instead of just having a rotation between wheat and corn, we might have to find some other ways, even to rotate with other crops, to give more time to kill the bacteria in the soil.

This is an area that I find very difficult to really make some specific judgment, but I just have to apply some common sense here in order to, you know, if I have to, make that kind of call. I really believe that if there's a problem, we should work with the industry and . . .

The Chair: Mr. Xiao, thank you for those comments. Is there a question in there?

Mr. Xiao: My question is: why can't we stop farmers from buying affected seeds from other jurisdictions? That's my question.

The Chair: Thank you.

12:00

Mr. Porozni: Well, first of all, that would be extremely difficult to enforce, quite frankly. I think the point I was trying to make was that right now we have almost a double standard in Alberta. We have a policy that's at zero. Therefore, if farmers want to get new varieties and they cannot get them from the seed growers in the south, they're going to go to Saskatchewan. I just wanted to build on that point, that we need to have a one-size-does-not-fit-all policy here so that, therefore, we can have north-south movement instead of east-west movement.

If you maintain a very low-tolerance policy, that will continue, and it'll be extremely difficult to enforce. Let's be realistic here. First of all, we don't want to have overrestrictions, right? Nobody wants to have more and more rules. I think that we have to be an economically viable operation or province with few restrictions. I think that if we have a good, solid *Fusarium graminearum* policy in Alberta that can have the north-south movement with best management practices, that will stop the east-west movement.

Mr. Xiao: Mr. Chair, on this point, yeah, you know, I understand that, but this is not a policy issue. This is legislation. It's law, right? It's not a policy. So we should enforce the law. That's one point.

My question is: how do you draw the line? If you allow that farmer, for example the neighbouring farmer, to use affected seeds, next year how can you stop the farmer on this side of the line from adopting those seeds? Then it keeps going and going, and one day the whole province is going to be covered with the same kind of disease.

Mr. Porozni: You won't stop it per se, but that's why we have to, as an industry and government, stress the importance of best management practices to mitigate the risk. That's about all we can do.

Mr. Xiao: Yeah. We have been addressing that issue for many years, haven't we?

Mr. Porozni: But it's not working.

Mr. Xiao: So how can you guarantee that when we have a loosening of this legislation, it's going to work?

Mr. Porozni: Well, you're not going to completely stop the risk or the threat of *Fusarium* moving. All we can do is, with best management practices, mitigate the spread, reduce the risk of the spread. You're not going to stop it – full stop, you know – with whatever regulations you put in place. You will not stop the threat or the risk of the disease moving.

Mr. Xiao: I understand that there's no absolute guarantee, you know, that we can eliminate anything a hundred per cent. I understand that. That's common sense. But the thing is that once we allow a loosening of the legislation to allow more seed growers to sell a high content of affected seeds, you're actually proliferating the disease.

The Chair: Mr. Entz, I believe you had a comment on this point.

Mr. Entz: Yeah. Just maybe to respond to that question, it's a good question, but I think the science would show that regardless

of what individual growers are going to do, the disease will naturally spread. The disease does not respect any provincial boundaries or anything like that. I think the premise from the science is that it will spread regardless, and in reality we see that as well. I think that's why best management practices are the key. It ensures that there's a program that creates more awareness with growers so that they'll adopt these practices.

The importation of seed – and I'm speaking now from a Richardson perspective. We move a lot of seed around western Canada. We have about – I don't know – a 16 or 17 per cent market share of the seed business in western Canada. We move seed in from Saskatchewan to Alberta, but it's always for those growers looking for zero-graminearum seed. The problem that's arising from this is that it's harder to find seed anywhere in western Canada that is at zero. That's to your point. Zero is a tough number.

The other thing we see seed growers doing is testing their lots of seed multiple times at different labs, and then when they get a zero by chance, that's the one they use, which isn't right. They shouldn't do that. The guys that are bringing the seed in are looking for the zero, and it's adding cost to their operation because it's coming from a further distance away, and they might not get it all the time. It might arrest the spread of the disease, but fundamentally the disease is going to spread. The big driver here, as the scientists will note, is weather and the type of weather that's conducive to developing *Fusarium graminearum*.

I would argue that the seed coming into Alberta is not competing directly, like *Fusarium*-loaded seed that's coming in and competing with the guy from Alberta who's got *Fusarium*-loaded seed who can't sell it to that same individual.

The Chair: Thank you, Mr. Entz.

Next we've got Ms Kubinec, followed by Mr. Young.

Ms Kubinec: Thank you. Mine are more comments, and that is that the idea for the bill came from a constituent who sits on a seed board, a seed cleaning plant board. He urged me to do this. When I told my farmer sons – we have 26- and 36-year-old farmers taking over our farm – they said, "Yes, we really, really support that you do this," and I got a lot of support from my constituents.

Now, we live in the centre of the province. Technically, we're very, very low, but we deal with it, and we mitigate for it. I think there's a real need to deal with the science rather than the emotion. We have it here. It's here. Let's deal with it through mitigation and best practices.

As you can see, we have very intelligent, astute farmers in our province, and we need to give them the tools that they need to continue to provide food. As one of the six countries in the world that will be providing food to the world, extra food, we need to give them the tools to do that.

I want to really thank you for coming in today and speaking with us.

The Chair: Thank you for those comments, Ms Kubinec.

I'm going to permit Dr. Brown to go ahead of Mr. Young because apparently I missed him on the list, and I'm trying to make up for it. Dr. Brown, please.

Dr. Brown: Thank you very much, Mr. Chair. My question is for Mr. Porozni. You're asking us to reduce the zero-tolerance level, ostensibly on the premise that we implement best management practices. You seem to equate the best management practices, if I understand correctly, with the fact that you require seed treatment and testing, mandatory testing, which you don't want off-loaded to

the municipalities, which would imply that the province would be responsible for that. My question is: what makes you believe that the best management practices can be implemented or enforced given your earlier comments that you can't stop the seed coming in from Saskatchewan anyway? Mr. Entz has quite frankly admitted that the producers are only going to do it if they find value in such things as seed treatment.

Mr. Porozni: Well, absolutely. Enforcement on best management practices: I'm sorry if I conveyed that. That's wrong. All you can do is recommend best management practices; you cannot enforce best management practices on, let's say, 15,000 growers in Alberta. It's impossible. All you can do as an industry and a government is to recommend – and have the facts to back it up – why you should be treating your seed, why you should be only cleaning Fusarium-free seed, or, if you're in a Fusarium zone, let's say at 5 per cent, to follow these practices. It's all recommendations. That's about the best we can do as an industry.

Dr. Brown: Well, we can't even enforce, you know, the movement across the border. What I'm saying is: how are we going to get everybody to voluntarily implement best practices? It just doesn't seem like it's a realistic objective to me.

12:10

Mr. Porozni: Well, yeah, you're probably right, but I think you have to have the facts as an industry and as government to back up what we're going to say. It comes down to economics, right? You can say and do whatever you want to mitigate the risk, but if you have actual numbers saying that if you treat your seed, you will gain X per cent, that if you spray your crop with a fungicide, you will gain another X per cent, you know, whatever it is, and have a consistent message throughout the industry and government, that's about the best you can do.

Dr. Brown: So if I'm a little short of cash this spring, I decide I'm not going to get treated seed. I'm going to put the seed in the ground, take my chances that it's going to be a dry year, right?

Mr. Porozni: Right.

Mr. Entz: Can I just add a comment if I could?

The Chair: Absolutely. Please.

Mr. Entz: You know, our family farms in southern Manitoba. In '93-94, which is engraved in everyone's mind, it was a horrible Fusarium year. The area was termed death valley. Farmers in that area are producing record yields and record quality out of that. You know, when you use the words "best management practices," it sometimes sounds like you're going to make farmers do something they don't want to do. What really drove the adoption by a large percentage of farmers in that marketplace was that these best management practices made very economical sense.

So they could go from a situation where their crop was at risk – when you have high-Fusarium grain, it's harder to market – to getting the yield benefits of these added best management practices and also the quality benefits. Those growers: what really happened there was that they became better farmers, I think, as a result of adopting best management practices to combat Fusarium graminearum, not because someone had a big stick over their heads but because it was just the right thing to do.

I don't want to put words in anyone's mouth, but education is really what we're talking about and getting growers to understand the science and the practice behind managing this disease.

The Chair: Thank you, Mr. Entz.

Mr. Young, you're up next.

Mr. Young: I think we've sort of talked about this a bit. When we talk about the regional approach, whenever you draw a line, you know, north versus south, there's always going to be somebody right at the margin or who's on one side of the line or the other. Can you talk about the challenges of that and how we manage that? We've sort of talked about it as it relates to the best management practices. But with the regulation there is a distinct number, and if there's a distinct line, if that line is right beside my property or even in the county or wherever it is – and I'm sure there are other examples of that. I mean, we already have one with a border with the U.S. and with Saskatchewan, and between Saskatchewan and Manitoba there are different regulatory frameworks. Is that just a challenge that we're going to have to deal with, deal with on a case-by-case basis, or how does that work?

Mr. Hilgartner: It will be a challenge, right? I mean, it currently is. You talked about the issue: well, we've got a zero-tolerance policy currently, and it's not helping in southern Alberta. But I think what you find is that you've got regions. Southern Alberta has got Fusarium – it's there to stay – yet the provincial policy is zero. It gets to a point where it's not practical, it makes no sense, so it just gets ignored.

You're right. For anyone on those edges, there are going to be some issues there. I mean, no matter what your policy is, you're going to have some difficult choices and decisions to make, but we need something that's going to kind of be more practical and something we can work with so that we don't create zones of economic disadvantage just because of the fact that you have Fusarium there. You know, make it so that it works within those zones.

Fusarium is here. It's not going away. There is breeding. We are making research attempts to improve it. Fusarium – I'm sure your experts have already told you – is very complex. It's not something that's easy to develop a resistant variety to. So we need to use our best management practices, like my colleague said, and to encourage their use because there's an economic advantage. We need to educate people that aren't sure whether it works for them or not. Everything I do on my farm is weighed out to where the economic advantage is. If I make a decision not to use seed treatment in the spring, I know I will pay for that in the fall. That's a decision I make. Not any decision we make in any business is always the best one. Hindsight is always 20/20, but we make those decisions, and we've just got to have the best information ahead of us when we make those.

Mr. Young: Thank you.

The Chair: Okay. Well, I'm going to follow up Mr. Young's sort of line of questioning with something similar. It's becoming very clear from our presentation in the morning and from you gentlemen's presentation that there's a line of recommendation that sort of falls into two classes, one being, you know, a recommendation to take a regional approach for Alberta, and also to some degree an acknowledgement that we're already living within a regional approach because Fusarium doesn't recognize the borders of Manitoba or Saskatchewan, and we share agricultural boundaries over those provincial lines. There's that regional approach, and we thank you very much for presenting an option for a regional approach. There's also a very consistent line that we should take a look at modernizing or updating our existing best practices when it comes to our Fusarium management plan.

I'm going to come to the slides that you presented, where you'd broken up the regions into southern Alberta and central and northern Alberta. You know, where we're talking about southern Alberta, the recommendations are very much an acknowledgement that Fusarium is there, and it's more of a management strategy. In central and northern Alberta it's interesting, Mr. Hilgartner, that you cited having some data that Fusarium exists in the north and central even in trace elements. It would be very useful for our committee if you had that data, if somehow you could share that with us. That would be very welcome by our committee. Again, as we can see, this is an emotional issue, and I think it serves our committee best to really focus objectively on data.

I do have a question, and that question would be – and I'll direct it to everybody there. Particularly, it might be more applicable to Mr. Hilgartner, seeing as you are in central and northern Alberta. Given the recommendations for southern Alberta and central and northern Alberta, your recommendations of a regional strategy, how does that regional strategy that you recommend protect farmers like yourself and farmers like the constituents of Mr. Goudreau in northern Alberta from infestation from Fusarium in a real, practical, specific sense?

Mr. Hilgartner: Well, with the information as far as prevalence of Fusarium in seed that I saw, you would have to contact the seed-testing labs in the province, so 20/20 and BioVision are the two that are used most commonly, and that's where I saw that, so you would have to get that information from them.

How does this protect me? We know we will never stop the spread of Fusarium, so our goal is to slow it as much as we can. What does it do to change the practices that I do on my farm right now? Little. I already test my seed. I use the best seed I can get. I use seed treatments. I use fungicides as economically required, and for the most part, as Mr. Donovan indicated, I spend a good chunk of my time in a sprayer as well, more than I ever did or my father did before me, and that's because I see the economic benefit of doing so. I will continue to do that. I don't know if that answers your question.

The Chair: I guess more specifically, then – and I appreciate your personal perspective. This is to the group. How would this regional strategy, you know, permit Mr. Goudreau to be able to go to his constituents and say, "This is the best solution for you because this is going to protect you from Fusarium"? How would you articulate and rationalize the regional strategy?

12:20

Mr. Hilgartner: Fair enough. I guess because of the fact that we're representing – you know, we're talking, like, .5. With our modern testing techniques, zero is a challenge. I mean, we can measure parts per million, parts per billion, parts per trillion. Zero becomes an unattainable number. It doesn't necessarily guarantee safety. As Peter had suggested, you might get situations where a seed grower will just keep submitting a sample until he finally gets a zero. But .5 is basically trace. It's next to nothing. It's not encouraging establishment. It's allowing his constituency, his municipalities to still encourage best management practices, continue what they are doing as far as encouraging the farmers to do their best.

I agree with Mr. Goudreau that the producers in this province are always trying to do their best, to give us the best product and, you know, get the best economics. I mean, it's a big business, and there's no room for sloppiness. We don't do that.

Mr. Porozni: Just further to that, the risk, frankly, if you're at zero or if you're at .5 will be the same to the Peace Country.

You're splitting hairs when you're moving off zero. To me what you're doing is that you're stressing to industry and to growers that this could become a threat, that Fusarium is moving, and we have to deal with this. That's, I think, the message that we have to build on.

The Chair: I appreciate that.

We're a little bit into overtime. I believe Mr. Goudreau has some brief – Mr. Donovan, as well?

Mr. Donovan: I didn't know how long we were going.

The Chair: We'll find out just how hungry the committee is.

Mr. Goudreau: I'm getting hungry, so my comments will be limited.

The Chair: We'll let Mr. Goudreau proceed, and if Mr. Donovan cares to follow up, we'll certainly accommodate that as well.

Mr. Goudreau: This is maybe a question to all three or a couple of questions that I've got. The first one: would you agree with me that by increasing the concentration of Fusarium on seed, you increase the potential for added contamination or infection in areas where there's no contamination?

Mr. Porozni: Well, it depends on the level. If you're going from zero to .5, I don't really think you're going to increase the risk. You know, the bottom line is, like I said before, that I think we have to stress the importance of best management practices because inevitably – and you're well aware of this, Hector – it's going to move. It's moving all ready. If you look at maps, it's gravitating through the black soil zone, moving up from south to north, slowly, but it is moving. Yes, the Peace is unique, but like the pathologist said before – and I totally agree with him – it is conducive to weather. If we get, you know, good growing conditions with high humidity, good temperatures at night, the risk of the disease coming into the Peace will be there. Therefore, we have to be proactive, frankly, as an industry and as a government, instead of reactive, and try to lessen the risk of the spread.

Mr. Goudreau: The word "zero per cent," you indicated that it was unattainable, and that's a fair comment. My concern is: what happens when we hit .5 across Alberta? What's industry going to ask then? Then, you know, we increase it to 1 per cent. Then what? Then 2 per cent. Then what? Where's this going to stop if we allow it to grow?

You know, it's the same thing. We've got rats in certain parts of the province. We still have a zero policy, and we're going to spend millions of dollars to keep them out. We've got a pine beetle policy, where we're spending millions of dollars to keep them out and prevent the spread. I guess in my mind I'm just trying to assert to myself as to: where do you start? Where do you stop? When is industry going to be happy? When do we say, "Okay; let's let all hell break loose here and allow it to happen"? Then we talk about all the other costs that I've identified as facing us. Who's going to absorb those costs? Who's going to be responsible for those added costs?

Mr. Hilgartner: I mean, to say: where's it going to stop? I don't know. I don't think anyone does, right? Our industry is dynamic. The environment is dynamic. The agronomy is constantly changing. As with any policy, it needs to be reviewed on a regular basis to make it relevant. If you don't do that, it becomes irrelevant, and then it just becomes ignored. So I applaud Ms

Kubinec for bringing this in, to review this and ask the committee to look at this because it needed to be done, right? At its current state nobody was happy, so I think we need to look at it. I mean, yes, there are some difficult decisions to be made. Where will it end in five years or 10 years? Who knows? Maybe in 10 years we'll have Fusarium-resistant varieties, and the policy will be irrelevant. I think as an industry we just constantly need to be reviewing, focusing on the scientific data, and making recommendations based on that.

Mr. Entz: I guess I would like to add one thing from my experience, from my career. The company we work for – and I manage a seed business – did have an internal policy of zero per cent graminearum. That was the only seed we wanted to sell, and we adhered to that. So I know kind of where you're coming from. But what became really evident is that this thing is spreading regardless of what any policy is. I think that if the science could tell us that if you use zero per cent graminearum infected seed, you will stop this from happening, then I would say that we should continue down that path. But it's been my experience that that wasn't the case. So the best way to manage it is through education and best management practices and let the farmers grow the varieties that you can get them that better do that.

We sell a variety at Richardson that has a moderately resistant reaction to Fusarium, and farmers are buying it just for that fact, right? They are adapting, they're using seed treatments, and, as I said before, they're getting higher yields, higher returns with that practice. It's just a very complex issue, and I think the zero just doesn't help as much as we would maybe think it does or hope it does.

The Chair: Thank you for those comments.

We're running a bit long, but with that said, I can . . . Mr. Donovan.

Mr. Donovan: I don't want to get Mr. Goudreau worked up . . .

The Chair: It's too late for that.

Mr. Donovan: . . . so I'll just thank everybody for coming today.

I totally agree with D'Arcy on his last comments. We need to always be evolving on these things because all of a sudden you get standards that make no sense and are unattainable. I think that that's what this bill had brought forward when it was first brought forward, Bill 201, to figure out that some stuff isn't attainable, so let's get into the mindset of: how do we become proactive instead of reactive? I couldn't agree with you more.

Thank you.

The Chair: Thank you for those comments, Mr. Donovan.

Gentlemen, I sincerely want to thank you for coming in today and sharing your presentations. They were excellent. I also want to thank you for your obvious passion on this issue. As you can see, there are members of this committee that feel equally passionate about this issue. Trust me that your work today will certainly help us frame this issue as our committee continues to do its work.

With that, folks, we're going to be breaking for lunch. Our guests are welcome to join us. We don't have long for lunch because the committee is going to be back at 1 p.m. sharp so that we can continue on with our stakeholder panels.

Thank you very much.

[The committee adjourned from 12:28 p.m. to 1:01 p.m.]

The Chair: Welcome back, everyone. This afternoon we have with us part of our food producers panel, Mr. Rich Smith, executive director of the Alberta Beef Producers, which is quite apropos because that wonderful lunch I was talking about featured some beautiful Alberta beef.

We also have with us Mr. Darcy Fitzgerald, the executive director of Alberta Pork. Perhaps tomorrow for lunch we'll be fortunate enough to have some fantastic Alberta pork.

Mr. Fitzgerald: Mr. Chairman, June is Pork Month.

The Chair: Please make note, Mr. Tyrell.

Okay. Thank you for being here today as we review Bill 201, Agricultural Pests (Fusarium Head Blight) Amendment Act, 2014.

Mr. Smith, if you're ready, the floor is yours. Thank you very much, sir.

Alberta Beef Producers, Alberta Pork

Mr. Smith: Sure. Thank you. Thanks for giving me and our organization the opportunity to make a presentation here. I read the transcript of your meeting in March discussing this topic, and I can assure you that I will not be giving you the level of scientific detail that you received at that meeting. I'm an agricultural engineer by training. Hector Goudreau and I were colleagues at Alberta Agriculture, and he will know that Fusarium graminearum is not an area in which I have a huge amount of expertise. As an organization, certainly for cattle producers, it's not a topic that's a high priority for us, but producers are aware of the issue. They're certainly aware of the potential impacts of this fungus on the livestock sector and on the overall agriculture industry.

Alberta Beef Producers has had a member on the Fusarium Action Committee for a number of years, so we've been participating in that committee and certainly supporting the work that's being done to try and manage and reduce the prevalence of this fungus in Alberta, taking control measures in that respect. I think it's widely recognized that it's not a good thing for our sector or for the industry as a whole, and it'd be better to not have it all, but if we do have it, it would be good to keep it at as low a level as possible. Having said that, as an organization we're very sensitive to a regulatory burden and the impacts of regulations on agricultural producers and the competitiveness of agricultural producers. We're not supportive of overly restrictive, perhaps unrealistic regulations that are inconsistently enforced.

We recognize that if we had no Fusarium graminearum in Alberta, creating a position of zero tolerance would probably be logical, but given that this fungus is in the province, we're not sure that that level is appropriate at this stage. Certainly, globally we strongly support the use of scientific residue limits. For instance, on the topic of beta agonists we don't support countries that say that zero is the number. We think that there should be a scientifically sound limit on it. I think that would be the approach that we would take.

Certainly, I've read and am aware that there's a wide range of opinions among producers with respect to this subject. I was interested in seeing the resolutions that the Alberta Association of Municipal Districts and Counties was contemplating on this matter and defeating resolutions. I suspect that among the 20,000 cattle producers in this province there's that same range of opinions, varying between people who don't have it in their area and think zero is a good number and the people who do have it in their area and zero probably is no longer a realistic tolerance number. As an organization I think we would take the view that it's probably not realistic, given the prevalence of this disease in

Alberta, to look at having zero as a tolerance limit, so I think we would be supportive of a move away from that point.

I don't have the expertise to say what the right number is, and I would defer on that to the people who've done extensive investigation on that matter. From our perspective, I think that that's how we would approach it. We don't go out into the world and suggest that zero is the right number for any products where it's not realistic.

With that, I would close.

The Chair: Mr. Smith, thank you very much for your presentation.

What we'll do is have Mr. Fitzgerald proceed, and then we'll come back and have the table ask questions.

Mr. Fitzgerald: Thank you, Mr. Chairman. Again, on behalf of Alberta Pork and our producers I appreciate the opportunity to speak to you. I'll try not to go over the same material that Mr. Smith just did, but I think it would be in our best interests to say basically the same thing. As we look at the issue itself, realizing that seeing a zero effect of Fusarium in our province is very unlikely since it's already here, those grains that are being used, I guess, are an issue that we have to contend with.

Similar to what Mr. Smith had to say, I think, on our part, you know, with the potential effects of Fusarium, mycotoxin being our main concern and pigs being a little more sensitive than cattle and other species, we do have a growing concern that, if possible, we not see those effects. But knowing that that's not reality, having to deal with it is something that we will certainly undertake. We know that there are opportunities for mitigation to look at, both from the cropping side as well as the feeding side. I think that if we could work together, we definitely can overcome some of these challenges.

Our province doesn't have a problem to the extent that Manitoba has or as we see now moving into Saskatchewan, so anything we can do to keep it at bay I think is a paramount issue for us as well. Again, when you look at whether it's zero tolerance or a .5 per cent of Fusarium, for us it's not so much that Fusarium is present as much as our ability to detect and measure the amount of mycotoxin present in the feed that we use for our pigs and make sure that that is looked after. Really, at the end of the day setting that rule on a percentage basis, you know, from our standpoint, from a noncropping side of the industry – and we have to remember that in our industry we have producers that wear both hats, so they may be caught on the grain side as well as being caught on the feed side and have to play that game.

I would also say that, you know, looking at regulations that might actually prohibit the use of grain that, when we look at it – again, as Mr. Smith noted, looking at your transcripts and the analogy that was given about just one seed out of 200 taking you over the limit in a sample. Really, from our perspective, being able to use the grain if it's available for other commodities, I think it would be important as well for ourselves if we can still use it without it having too much mycotoxin in it. Having said that, it's probably a little unrealistic to assume, you know, that at certain times of the year that grain that might have some Fusarium in it might be used if possible, wherever possible. Really, it would be in the best interests of the industry to destroy it.

I'm certainly prepared to talk later, if you want, about the effects or even what we think would be limits for ourselves. Again, in our situation, from a feeding perspective, we're looking at the toxins and not so much at the plant disease.

With that, maybe I'll just stop and, if there are any questions, go from there.

1:10

The Chair: Thank you very much, Mr. Fitzgerald. Thank you, Mr. Smith.

I think that first on our roster for questions is our deputy chair, Mr. Hale.

Mr. Hale: Thank you. I thank both gentlemen for coming and sharing their comments. I am a cattle producer myself down in the south. This morning we heard quite a bit about best management practices with farming. I know that in the cattle industry and in the hog industry that is something that has evolved over the years. We've taken that upon ourselves for herd management or herd health programs. In particular, myself, I vaccinate my calves in the spring at branding time. I've never had disease in my herd, but I vaccinate them so that I don't get it. I think that that is along the same lines. Fusarium may not be in some areas, but we have to do what's right to try to minimize that.

I know that there are different levels that cattle, hogs, and dairy animals can withstand. Is there any evidence that you guys have found in Alberta, any sort of numbers that show abortion rates with cows? They'll slip their calves a lot of times if they get too much. At least, that's what the theory is. Is there much evidence of that being an issue in Alberta in the hog and cattle industries?

Mr. Fitzgerald: I would say from our perspective that I haven't heard of any in talking to our colleagues. It's always an issue for us to look at.

The numbers that are given are recommendations. If we base it on feeding pigs one part per million, how that equates to a percentage of Fusarium versus one part per million of a mycotoxin is kind of like apples and oranges to measure because you can't always equate the two of them together. For us that one part per million, again, is used as a recommendation for an animal that we're feeding.

When we look at a sow that might be pregnant, that's another issue. We take it seriously on both ends, but that would be an area where we'd have some concern as well because you're never quite sure until you see the outcome of it. Would there be aborted piglets? Maybe not, but it may be hampering their development. It may be taking longer for the sow, health effects on the sow, those types of things. Would they be smaller piglets, maybe, that were born because the feed intake wasn't quite the same? Those types of things we definitely know can happen once you get to a certain level.

On the recommendation of one part per million in feed I can only let you know that for one of our bigger feeding nutritionist companies in Alberta that helps us a lot, the limit that they look at and try not to go over is .5 parts per million. They're looking at kind of keeping it down below that, recognizing that one part is where it's at, and if you keep going, you are going to see problems. When you hit two parts per million, we know for sure that we lose money because we've done research on that, and it starts to become dollars per pig lost that you can see in that.

Again, there's no really big evidence to show on the reproductive side, but it just is a concern all the time on that end.

Mr. Smith: For my part, I would say that one of the reasons why it hasn't been a high priority for our organization is that we're not hearing from producers that this is a significant problem. I think that producers are aware of it. I think that the management practices and the awareness steps that have been taken already in Alberta have tended to make people aware of the issue. We're not seeing big impacts from it, and we're not hearing about it. I think that in the cattle feeding sector they're certainly conscious of that

and are looking at it, but I think that we've also managed to control it to that extent. Even though I suspect that some of the grain that's being brought in from Saskatchewan and Manitoba at times might have some level of infection in it, there's also quite a bit of grain in Alberta that is relatively free and certainly at a level that's within the range that can be fed to cattle without causing significant adverse effects.

So that's one reason why we've watched it. We've participated in the Fusarium Action Committee, but we haven't heard from producers that this has been a major problem, and I think some credit goes to the actions that have been taken in this province to manage the disease.

Mr. Hale: Thank you.

The Chair: Thank you, Mr. Hale. Thank you for those answers, gentlemen.

Next up on our list is Mr. Goudreau.

Mr. Goudreau: Thanks, Mr. Chair. Rich and Darcy, thank you for being with us this afternoon. I know you fellows are busy, and to take the time to present to the committee is important and important to us and important to the producers of the province of Alberta.

I guess a couple of questions. Darcy, you identified the 1 part per million. Rich, there's no doubt that there are levels as well that are identified in terms of feeding.

Mr. Smith: The information that I've seen suggests 15.

Mr. Goudreau: Fifteen parts per million?

Mr. Smith: Fifteen parts per million, yeah – that's in adults – and 10, probably, in growing cattle.

Mr. Goudreau: Okay. Thank you, Rich.

Do you know if there are any producers that have changed their feeding habits – and I know that we imported a fair amount of corn in the past, especially in southern Alberta – and whether Fusarium has impacted the producers to change their feeding practices?

Mr. Smith: I haven't seen impacts. The feeders in southern Alberta are still importing significant quantities of dried distillers grains from the United States. I suspect that at times they do import corn, and I haven't seen that this has been an issue in terms of where they imported grain from. I think that part of it is because they import grain, but they also purchase a significant amount of grain from Alberta, and as I say, I think they're able to manage what does come in if there's an issue. I haven't seen, personally, evidence of changes in their practices.

Mr. Goudreau: Yeah. Okay. So there's really no blending that's occurring?

Mr. Smith: Well, there may be some blending. That's what I'm saying. They could be doing that, but because of their ability to do that if necessary, I think that they haven't changed where they purchase the grain from.

Mr. Goudreau: I guess what I'm trying to ascertain is that there might be some added cost to the livestock or pork producers, not only in terms of potential production loss but also, on the flip side, in terms of management costs.

Mr. Smith: Certainly, at the higher levels of prevalence of the disease I suspect that it could end up being a cost because it could

cause producers to have to go further to find grain that could be blended in order to create a ration that was within limits, but at this stage we haven't.

Mr. Goudreau: It's not a big issue.

Mr. Smith: I think that's where we are. Certainly, we support and producers support actions to try and manage it, and they recognize that we would certainly be very reluctant to try and get into a situation where the disease is as common here as it is, say, in Manitoba. The question that comes from the perspective of the legislation is: is the legislation going to be effective in that, or are there other practices and other ways of approaching this that would be just as effective or more effective in terms of managing the extent of the disease here?

Mr. Goudreau: Sure. How many producers would actually test for mycotoxins?

Mr. Smith: That's a good question. I wouldn't want to answer that.

Mr. Fitzgerald: It would be more the feed company. If you detected a problem or you were suspicious of the grains that you purchased, then I think that you'd move to that testing stage. If you suspected a problem, then I think that it would be your nutritionist or your vet that would give you the recommendation, you know, to have a look at it.

Mr. Goudreau: Okay. Thank you.

Thanks, Mr. Chair.

The Chair: Fantastic. Do we see any more questions from the floor?

Gentlemen, your presentations were fantastic, I think, to the extent that any questions or most of the questions that we may have had were answered during the forum of your presentation. On behalf of the committee I do want to extend our gratitude for your taking the time and being here today and sharing with us your thoughts on this very important issue. Thank you very much.

Mr. Smith: Thanks for the invitation. That's all I wanted to say.

The Chair: Thank you.

Folks, our next presenters are not scheduled till 2 o'clock, so we have a little bit of a gap in our schedule. I'm sure that gap will and can be quickly filled, and we will resume our next line of panel questioning at 2 p.m.

Thank you.

[The committee adjourned from 1:20 p.m. to 2:02 p.m.]

The Chair: Thank you, all, for coming back this afternoon. We had an unexpected but quite productive little break.

We've got our fourth panel of the day. We've been doing some very good work and have had some very, very thorough and productive presentations and some incisive questions when the chairman remembered to put certain members on the list, I'll add.

I want to say that joining us on today's health panel and our final presenter of the day is Dr. James Talbot, Alberta's chief medical officer of health. Dr. Talbot, thank you so very much for joining us today. We do very much appreciate you taking time out of your very busy schedule to join us. The floor is yours. Please begin when you're ready.

Chief Medical Officer of Health

Dr. Talbot: It's my pleasure, and thanks for inviting me. I must

admit that this is the first invitation of its kind that I've had since I became chief two years ago. Agriculture is very important to Alberta, not just as an industry but as a way of life for people. A lot of health is created by farms and farmers' markets, so you're important to us even if it weren't for Fusarium head blight, which is, as I understand, our topic today.

Just an outline of where we're hoping to go. It's a pretty short presentation because I know that you all are very busy. So just a quick overview of Bill 201 from our perspective; discussion of the human health effects of the fungus and its toxins; some discussion of some of the regulatory environment that already exists in North America; a little bit on Fusarium head blight in Alberta; then the most important part from my perspective, an estimate of the public health risk of the changes proposed and recommendations, which are pretty limited; and then any questions you might have.

Fusarium is known to contaminate cereal grains. It causes a condition called head blight and is regulated in Alberta as an agricultural pest. You're probably aware of most of those things. The amendment proposed will introduce a tolerance so that it will no longer be solely considered as a pest or nuisance with a zero tolerance. Instead, it would be allowed a concentration of not greater than .5 per cent. I should mention that that's a little different than some jurisdictions use, where they look at the actual concentration of the toxin that's produced by the fungus as a measure, but I will try to make clear which one I'm talking about as we go forward.

In terms of health effects the largest exposure, for those of you who are history buffs, was at the end of the Second World War when, particularly in the Russian sphere, a lot of wheat had been left on the ground unharvested because of the war for more than one season, and once the winter went away, that allowed conditions for the fungus to grow to really large amounts and produce huge amounts of toxin. That was thought to be responsible for tens of thousands of deaths in that area immediately afterwards. Those are very special conditions, but it gives you an idea of what can happen if there is just a total breakdown in what's required to prevent it.

There are two types of toxins that are important in Alberta. One is called DON, and the other is called ZON. I'm not going to try to pronounce them properly. The DON one is responsible for gastrointestinal symptoms like nausea and diarrhea. The ZON one, which can be active at lower levels, causes premature sexual development in children. But, as you know, these are very, very rare events in terms of the contamination that produces enough to cause those kinds of human health effects.

The next slide is on regulations. The U.S. FDA recommends levels of DON be less than one part per million. That comes out to approximately 1 per cent in terms of the contamination levels that you're talking about, so .5 per cent is actually half of that. That assumes that the normal amount of toxin is produced, and one of the few recommendations that we have is to follow that to make sure that that stays to be the case.

The proposed level, as I said, is equivalent to .5 parts per million, and processing would further reduce that concentration. So it would be rare that you'd be making a loaf from a single batch, at least for commercial purposes. Recent European studies in 22 countries suggested that unprocessed grain contains the highest levels of DON, but the average concentration is actually .2 parts per million. The bottom line on this is that the proposed Alberta value is actually quite cautious.

I should mention that if you're not already aware, this is a situation that's been afflicting eastern Canada and the United States for a while. Alberta is unusual in that it's taken so long to get a foothold here, which is actually good news because it means other jurisdictions have experience that's worth while for us to

examine. The concentrations of the toxin in Alberta are lower than elsewhere in Canada. The Canadian Grain Commission grain grading protocols evaluate for the presence of FHB and toxins all across Canada. So Alberta will not be entering a new playing field here. It'll be entering an already existing playing field. As mentioned, it's been prevalent in Ontario for a number of years.

In terms of the public health risk we evaluate the risk associated with the proposed amendment as low. That's because the proposed value is lower than other jurisdictions. The prevalence is low in Alberta compared to other provinces, and given the way that sales, transportation, and processing of grain is made into consumer products, it's likely that a significant amount of grain products consumed in Alberta were grown in other jurisdictions. That's speaking to the fact that those are already at higher levels, so we're not actually increasing the risk at all.

2:10

One recommendation that we have is that the one problem in tapping into a .5 per cent instead of a parts per million is that if new strains of the fungus were able to produce more of the toxin, then the conversion factor wouldn't apply anymore. So we would recommend that periodically the results be reviewed to make sure that the toxin levels are staying equivalent to what they are right now.

Ms L. Johnson: Can you say that again, please?

Dr. Talbot: Yeah. Basically, the .5 per cent says that if you look at 200 grains of wheat and one of them has been damaged by fungus, then that's .5 per cent. If the fungus was to suddenly become a much better producer of the toxin – that measure doesn't actually measure the toxin. It assumes the link between the fungus and the toxin. Those numbers right now are conservative, and we have no evidence that the fungus is going to suddenly increase the amount of toxin that it produces, but because we're in public health, we're cautious about our assumptions. What we're saying is that this is something that would be worth checking in on periodically to make sure that that conversion factor between fungus and toxin is staying the same.

Ms L. Johnson: Okay. Thank you.

Dr. Talbot: My pleasure.

Then continue to evaluate the evidence about the toxin and how common it is in Alberta over time.

That's a brief run-through. I'm happy to field any questions or comments about any of that.

The Chair: Dr. Talbot, thank you so very much for that presentation. I think we have a few folks who would like to seek some clarification or ask some questions. As is our habit in this committee today, we will start with Mr. Goudreau.

Mr. Goudreau: Thank you, Chair. Again, welcome, Dr. Talbot, to the committee.

Dr. Talbot: Thank you. Should I mention that my wife is from Grimshaw?

Mr. Goudreau: Oh, that helps. I'll be kinder to you, then. Some of the family may vote for me.

Well, thank you for your presentation. A couple of things. One is that – I think I understand that processing tends to reduce concentration because they may be using grains with lower infected amounts as part of the processing. I suppose the opposite could also happen. By processing, you introduce, maybe, a poorer batch and increase your levels.

Nonetheless, my concern is with farms and farm families making their own bread. I've got a number of farmers that do that. They'll use their wheat to do that, and hopefully they'll have checked it out. I'm also concerned with our larger farms, specifically the Hutterite colonies, where they may have no choice if they've got – and we've got a pile of them in southern Alberta. If they've got infected wheat, for instance, and they do make their own bread and they feed it to their own children, I'm very concerned about that. I'm just wondering if there are any comments.

Have we had as well, Dr. Talbot, any indication of, you know, increased diarrhea, for instance, because they consumed DON from that?

Dr. Talbot: Right. Let's do those in reverse order if that's okay. We don't have any evidence, and we wouldn't expect any because of its relatively recent introduction to the province. We do have a pretty good monitoring system for diarrhea, and once we've eliminated the known infectious causes, if we were to find – and we have done this occasionally with restaurants, for instance, that will mistake lemon oil, which is used in cleaning, for oil for cooking, and you'll suddenly get a cluster of people infected who have diarrhea. There's not an infectious cause, but the environmental health inspectors have tracked down what the source was. We have some confidence that if we were to start to see this, we have a system in place that would be able to pick it up.

In terms of farm families using it for their own purposes, you know, I think if they have wheat that has been tested and rejected, they should not be using that lot. They shouldn't be using it for their own consumption either. If it's been tested, and it's below that level, then we're saying that it's safe.

The first point that you brought up. Our understanding is that once it's tested, anything that's above .5, basically, is kept out of the system. So that represents a maximum, and when you mix with wheat that doesn't have any, your concentration is going to automatically be lower. What we're saying is that .5 then becomes the ceiling, but the actual level that would be measured when you start to put these groups together is going to be significantly below that. We believe that that represents a safety margin at .5 and a bigger safety margin with the dilution effect.

Mr. Goudreau: If I may, Mr. Chair.

The Chair: Please.

Mr. Goudreau: The other question that I have. You identified the fact that certainly it's not very prevalent in Alberta if I understood you properly. I like to think that that's probably because we've had a zero tolerance to it, and we've done a lot of mitigation in certain parts of the province to try and minimize it or do that. My concern, then, and my question to you is: if we increase from zero to .5, would you anticipate that we would enter into maybe more health issues or health concerns, then, if it spread that much more, probably minimizing our ability to dilute, for instance, or to blend grains if there's a widespread infection?

Dr. Talbot: Yeah. Well, that's really what our second recommendation is about, to monitor the situation to make sure that there isn't that kind of creep going on. We believe that with the safety margin that's being proposed now, the chances of human illness resulting are extremely small but that it is worth watching to see that that situation doesn't, as you said, continue to ramp up.

Mr. Goudreau: Every once in a while we do have crops that are left over as well, that are not able to be harvested in the fall

because of weather conditions or an early snowfall or those kinds of things. Certainly, there are concerns that we might experience what was experienced in Europe a number of years ago. It seems to me that the more we allow concentrations to grow, the more likelihood that we potentially could have issues.

Dr. Talbot: Well, as I said, I think it's worth monitoring. That's why we recommended it. But the conditions that were described were pretty extreme. It was my understanding that it was for more than one season that it was allowed to overlay like that, and then the conditions were different than what we experience, and they were really widespread. I mean, there were huge parts of the country impacted. We'd have to be in pretty bad shape in Alberta to duplicate those conditions.

Mr. Goudreau: Thank you, Mr. Chair.

The Chair: Thank you, Mr. Goudreau, and thank you, Dr. Talbot, for those answers.

Next we have Dr. Brown.

Dr. Brown: Well, thank you, Mr. Chairman. I want to ask you a question, Dr. Talbot, about wildlife and consumption of wildlife because ungulates like elk and deer quite often browse on the trash that's left in stubble and so on. That's where, I understand, most of the *Fusarium* fungus is located. Do you have any data whatsoever regarding, you know, toxic levels? I know that we do testing in the eastern part of the province on chronic wasting disease, but are there any protocols to test for the presence of mycotoxins as well?

Dr. Talbot: I don't believe there are. It's not my field of expertise, but because it's a new situation, I don't believe that they exist for wildlife. I did consult with our agriculture colleagues – my chief vet colleague is especially helpful in these situations – and they indicated that given the experience in eastern Canada and the U.S. they didn't have concerns about domestic livestock consuming at levels below the level that we had talked about. I can pass on what his people gave me around domestic livestock. I don't really have an answer for wildlife. I'm sorry.

Dr. Brown: Okay. Do you have any information regarding the ancillary thing I mentioned, chronic wasting disease and its public health concerns?

Dr. Talbot: Well, yes, as long as we recognize that this is separate from the discussion that we've been having.

Dr. Brown: Yes.

Dr. Talbot: We do follow the chronic wasting disease situation in the eastern part of the province. There is concern that because the agent is a prion, there could be adverse events associated with that. So we are following it, and we are monitoring the situation. It is believed that the chances of cross-species transmission from the elk to humans is an exceedingly rare event and potentially impossible.

However, if it were to happen, the odds are that the manifestation would look something like BSE did when it moved. With the federal government, with neurologists and psychiatrists and neuropathologists, we have a sentinel system in place to be able to detect it in humans if it were to occur. We are monitoring the situation. We have some concerns, but we also have a system in place to try to respond as quickly as possible.

2:20

Dr. Brown: In the meantime we just keep eating and hoping for the best, then?

Dr. Talbot: You'd have to take that up with my wildlife colleagues. I would welcome the opportunity to do a presentation on CWD to this group, if you wanted, at some point in the future.

The Chair: Thank you for that generous offer. I'm not certain that's under the purview of this committee, but I'm sure, Dr. Talbot, we could find you some colleagues, and Dr. Brown would be more than happy to arrange that.

At any rate, coming back to resource stewardship, Mr. Donovan, I will hand the ball back to you.

Mr. Donovan: Thank you, Mr. Chairman. Thank you for your input on this. I think that with some of the ideas here, we need to get back into, you know, the bill itself. One of the regulations under section 21: "Fusarium head blight shall not be deemed to be a pest or nuisance [under a concentration of] 0.5 per cent in any plant, seed, crop, vegetation or other matter." You know, I think that sometimes we definitely could look outside of the scope, but I think one thing we can be very proud of in this province and in this country is our food safety. My colleague Mr. Goudreau talked about people milling their own grain and stuff, but I think that for most people it goes back to whether they're checking their own dairy when they milk their own cow at home, stuff like that. There are standards there for your own human consumption if it's your own product that you've grown.

I guess I tend to think that we probably wouldn't have that problem in this province because we have the testing facilities to be able to do that. We have the numbers here to show, you know, that at .5 per cent people would test it and decide from there. I mean, I farm in southern Alberta, and right now there are numbers that are higher than that when you haul it to the elevator, and they test that before they ship it out, whether it goes out to Vancouver, to the coast, or whatnot.

I'd hate for people to leave this meeting thinking that if we passed this bill or if we went forward with it, there's going to be a huge health concern to people. I personally think there's testing that's already out there that would show – there are already high numbers of Fusarium in grain that comes in now, and it's already being consumed. It's being diluted out that way through the grain companies as they're selling it. They have their standards. They have to sell it, too. Right now that's what takes it from a No. 1 wheat to a No. 3 wheat or to a feed, depending on if the Fusarium is high enough on it. There are multiple things they're doing to it now. In lots of the grain terminals now there are colour sorters. If you have ergot – ergot is another thing that people can actually use to hallucinate with if you eat enough of it. It can kill chickens.

Mr. Goudreau: Get me some.

Mr. Donovan: Yeah. Well, there are days I wonder.

I mean, pigs will abort and stuff like that on it. For ergot, you know, now the elevators have colour sorters. Literally, you can have thousands of bushels going through an hour on these colour-sorting tables, and it'll blow out the ones that don't fit. This is something that could also be for oddball-sized Fusarium, stuff like that, if you don't have a combine that you're setting tight enough that it's blowing it out of the back because of its seed size.

I definitely would want you to confirm that our food safety in this province is second to none. It's being tested, and there are processes there. I mean, if people do mill it at home, I think the

onus is on them to test for Fusarium to make sure that we don't have some of the numbers that have come up here on what could happen – you know, premature growth, everything else – due to having it in your diet. I wouldn't want people to walk out of this fearing for food safety because I think that's something that we can always be proud of in this province and this country. For sure, it's being tested. There are ways to test it. I wouldn't want to waddle down that trail, putting fear of that in people's minds.

Dr. Talbot: No, and neither would I. I mean, we're fortunate enough to have a bakery in the neighbourhood that locally sources its flour, and this is not going to be changing my bread-buying habits.

The Chair: Just along Mr. Donovan's line of questioning, Dr. Talbot, we know we have Fusarium in some of the regions, particularly in the southern part of the province. To your understanding or to your knowledge, are you aware of any incidents of people becoming sick from Fusarium in Alberta?

Dr. Talbot: None.

The Chair: Thank you for that.

Dr. Brown, I believe you've got some supplemental questions.

Dr. Brown: I have just a follow-up if I could, Mr. Chairman.

The Chair: Absolutely. Please.

Dr. Brown: Dr. Talbot, you mentioned here that you had no real concerns with the increase from zero tolerance to .5 parts per million, but some of our presenters earlier had spoken about 5 per cent, which is a 10-fold increase in that. I think 10 per cent was mentioned, in fact, if I remember correctly, which is a 20-fold increase. Do we know anything about the relationship between concentrations of the Fusarium residues and the mycotoxins which would enable us to say that a 10-fold increase was or was not potentially harmful?

Dr. Talbot: Right. Our recommendation 1 is to follow that periodically through time. As it currently stands, at .5 per cent of damaged kernels, that would result in mycotoxin concentrations that are about half the limit that's accepted by the Europeans and the Americans. The only way that you could get up to 10 per cent is if the fungus was producing far less toxin than currently people believe is possible. The only way to be sure is to measure both, and that's why our recommendation is that we periodically review that to make sure that those aren't changing.

Dr. Brown: In other words, 1 per cent, then, would put us right at the level allowed by the U.S. and the Europeans.

Dr. Talbot: That's my understanding, yeah. I have to say that until two weeks ago I was not considered an expert on Fusarium.

Ms Kubinec: Join the crowd.

Dr. Brown: We're all on that learning curve.

Dr. Talbot: Luckily, I have some very, very smart people with lots of letters after their name.

The Chair: Fantastic. Dr. Talbot, we do very much appreciate your expertise as well as your candour.

I'm not done. That's a segue. That would be a segue. We have some supplemental questions from Mr. Donovan, followed by Mr. Goudreau.

Mr. Donovan: Thank you, Mr. Chairman. Sometimes we get the information, and the numbers get jumped around a little bit. We were talking about what was allowed or possibly allowed in the seed. Now, what's seeded and what's actually harvested off that – just because you seed something that might have up to, say, 5 per cent Fusarium in the seed before you treat it with a fungicide and it's a dry year, when that plant grows, it could have zero per cent Fusarium in it that fall. I don't think we need to, I guess, make people fear, with that comment, that if it has 1 per cent, that's the toxic limit. I think we need to figure that out.

Some of the conversation earlier was around what level of Fusarium could be in seed before it was sold as certified seed. You can seed something with up to, say, 5 per cent Fusarium in it, and with the dry conditions and proper farm management practices that crop will come up with zero per cent Fusarium or has the ability to. So I definitely want to caution people not to get caught sometimes on the 5, 10 per cent because that's the seed number that was used.

They talked of finding 30 to 40 per cent Fusarium. That was also in the mass, whether that was in the actual plant itself, the straw, stuff like that not being consumed. I definitely don't want people walking away with a fear in them of what could happen when we're not really comparing apples to apples, so to speak.

Dr. Talbot: Well, my comments only apply to wheat that would be used for human consumption.

The Chair: Thank you.

Mr. Goudreau.

Mr. Goudreau: Thank you. I guess a few comments, one, I suppose, to my colleague Mr. Donovan. The alternative or the opposite could also happen, where you might sow something at 5 per cent and actually harvest something at 20 per cent, so the two work both ways.

2:30

A few families in my constituency actually left their homes because of what they considered oil pollution and smells and gases, yet all the testing that was done by Health, by Agriculture, by Environment, by Energy indicated that there was nothing wrong when they were there. I would suspect at times that people might have sore tummies or the runs for a few days and wonder why and never really know. It could do that, and I think that we've all experienced that.

There's also a saying that the solution to pollution is dilution, and in this case that is, in fact, what we're suggesting, that our solution to an issue that we've got in the province of Alberta is to dilute. But as we allow more and more concentrations to be planted and sown, a higher concentration, I would suspect that our choices to be able to use to dilute will be more and more limited if we allow that to spread. Those are some of my comments to put on the record.

The other one: are there different levels for DON or the other one that you were using, ZON? Are there different levels for different people? I'm thinking specifically of different levels for adults versus a pregnant mum versus a child, for instance a young baby, as to whether or not they can have a percentage of DON in their nutrition.

Dr. Talbot: For most cases the levels can be different, and the safety factors try to take that into account. I believe that that's happened here. The fact that ZON causes premature sexual development in children means that it will have been measured for children. For women who are pregnant, it's not really ethical to do

the experiment to find out what levels would be dangerous, so that tends to be done more by inference. But my understanding is that those went into the calculations for the safe level.

Mr. Goudreau: Thank you.

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

I believe that Mr. Donovan has one more supplemental.

Mr. Donovan: Yeah. This will be my last one. I just wanted to comment also following my colleague Mr. Goudreau. Right now elevators already test their grain. I just want to get this on the record, that if there was Fusarium that showed up at, say, even as high as 20 per cent, as my colleague brought up, that would not enter the food chain as 20 per cent.

I understand the diluting comment, and in tying it to oil and gas, again, I fear putting the wrong images in people's heads. Our food safety is second to none in this province and in this country. When you're diluting it like that, as you say, I think that there's a chance of putting fear into people's minds because they might not think that their food that's coming there is safe. It's being tested very regularly. Every load gets tested. As a grain producer, when it gets in there, it has the option of what it goes into. That's when the grading goes on, whether it's from a 1 to a 2 to a 3 to a feed. When it ends up as a feed, if it had somehow gotten Fusarium that high, which I'm not saying isn't possible, then they would be diluting that out when they put it out as a feed, so that wouldn't be hitting the human consumption side.

I just don't want that to come away from this committee, thinking that it could get that high into the food chain, when I don't think that's something that's possible. Again, I don't want people to think that because it hit 20 per cent in the field, that would come in. When you go through these facilities that put through millions of bushels a year, through these high-throughput facilities, if you had a quarter section that had that in it, say, 6,000 bushels out of multiple millions of bushels put through a facility, it would definitely be diluted, but it's being graded and checked as it comes in there. Again, food safety is something I'm very confident in as a producer and as somebody that follows how the process works in this province. We are second to none for food safety in our inspections and our tests. I don't think that people need to worry about that.

It's a good question. I think people need to identify how the system is done, that every load is being checked as it comes in, whether it be a 200-bushel load or a super B load of 1,600 bushels going into an elevator. Every load is being probed, checked, and tested so that we wouldn't have those food safety issues.

Thank you.

The Chair: Thank you.

We'll flip it back to Dr. Brown.

Dr. Brown: Yeah. I was just going to ask Dr. Talbot if he'd like to comment on Mr. Donovan's remark. What, in your view, would be the implications of increasing the level of infected grain to 5 per cent allowable or thereabouts, 10-fold? You've indicated that this is a cautious criterion, the .5 per cent, which is proposed in the bill, but I'd like your views on what the implications are for seed.

Dr. Talbot: I'm going to try – I have the feeling that I've stepped into something, a feeling that has occurred to me before when I've been involved with farms.

What I understand Mr. Donovan to be saying is that food safety in Alberta is second to none. I tend to agree with that. That .5 per

cent level doesn't change that. I also agree with that. I'm not fit to judge what the fungal treatment of seed would or wouldn't do. If it were about consumption of wheat by humans at 5 per cent, that is not acceptable according to the standards that exist in other parts of the world, and it's not consistent with the evidence that we have either.

I would say, though, that I do also believe that dilution is only one of the things that's used to protect Albertans. I believe that, and I'll give you the basis for this belief. I actually started as a medical microbiologist, so I do know something about fungi. I believe the agricultural practices about how early you harvest and how well you harvest and the conditions that you store the crop under are also important and are probably a significant part of the reason that this fungus is late rising to these levels in Alberta. As long as people continue to be rigorous in those practices, that represents an additional level of safety for the system.

Dr. Brown: Thank you.

The Chair: Well, Dr. Talbot, seeing that there are no more questions or nothing else left to be stepped in, I think that concludes our meeting for the day. I do want to thank you very much for your presentation and your testimony and your very thorough answers to our questions. Very much appreciated, and we do appreciate your time. Thank you, sir.

Dr. Talbot: Thank you.

The Chair: So, folks, that brings us to other business from folks on the committee here. Is there any other business to discuss at this time?

Mr. Goudreau: Just a comment, Mr. Chair. I know we've got representation of the Wildrose here and certainly the PCs, but I'm just wondering if there's any care by our members from the Liberal side. They certainly haven't shown up for any of this, and it bothers me a little bit, in some sense, as to why they would not be here.

The Chair: Well, that's a fair question, Mr. Goudreau, and unfortunately it's probably not a question that I'm the one fit to answer. All members of this committee are notified of the meeting in ample time. You know, I do know we all have busy schedules, and that's why I'm particularly grateful for the people who have been able to juggle their schedules. I do appreciate that it's also summertime. Very appreciative of everybody who took the time to be here, fully engaged and participating.

Duly noted, and we'll just ensure that, moving forward, all members of this committee have as much notice as possible as to when our meetings proceed.

Folks, any other business to bring up at this time? Deputy Chair?

Mr. Hale: No.

2:40

The Chair: Fantastic. We've got a good deputy chair, I'm telling you guys right now.

The date of our next meeting. Well, folks, our next meeting is scheduled for tomorrow. We will see you tomorrow, Thursday, June 26, right back here in committee room A at 9 a.m.

I'll also just put out there for your consideration that we're looking for a follow-up meeting to tomorrow's meeting. Having talked with Dr. Phil and Chris, we're looking at perhaps the third week of July, perhaps early in that third week of Monday, July 14, that week. So if you want to have a look at your schedules and if we can plan that now, perhaps we'll have more of a discussion on that tomorrow.

I am looking now for somebody to make a motion to adjourn.

Ms L. Johnson: I'll make that motion since I've spoken so much today.

The Chair: Linda Johnson, thank you for making that motion. All in favour? Any objections? Seeing none, our meeting is adjourned.

Thank you, all, very much.

[The committee adjourned at 2:41 p.m.]

