

MEETING STATUS: PUBLIC

LEGISLATIVE ASSEMBLY

PRINCE EDWARD ISLAND

SESSION: 2/62

Motion No: 30

Year: 2005

**VERBATIM TRANSCRIPT OF
HOUSE COMMITTEE PROCEEDINGS**

**COMMITTEE: STANDING COMMITTEE ON AGRICULTURE, FORESTRY &
ENVIRONMENT**

Wednesday, February 2, 2005

SUBJECT(S) BEFORE THE COMMITTEE:

Further consideration of Motion No. 30 concerning GMOs (genetically modified organisms)

NOTE:

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COMMITTEE

Wilbur MacDonald, Chair

MEMBERS PRESENT:

Wayne Collins replacing Hon. Mitch Murphy
Wilfred Arsenault
Andy Mooney
Eva Rodgerson
Fred McCardle
Richard Brown
Ron MacKinley

GUESTS:

Part I - Bob MacGregor
Part II - Chris Prouse
Part III - Dr. Bert Christie

STAFF:

Marian Johnston, Clerk of Committees
Louise Polland, Research Assistant

Committee on Agriculture, Forestry & Environment
Wednesday, February 2, 2005
1:30 p.m.

Wilbur MacDonald (PC) Chair : We call our meeting to order. First thing on our . . . we'd like approval of the committee to go on the audio website which would be on the audio worldwide website. So do we have that approval.

Richard Brown (L): I move we be broadcast on the worldwide web.

Wilbur MacDonald (PC) Chair : Any questions. All those in favour signify by saying aye.

Committee Members: Aye.

Wilbur MacDonald (PC) Chair : Contrary nay. So that means now, from now on all the committee's meetings will be on the web site. Okay, let's move to the dates for next meetings. We're going to have to line up some dates.

Marian Johnston (Committee Clerk): Mr. Chairman, I have some presenters ready to come on the 9th of February.

Wilbur MacDonald (PC) Chair : February 9th we have presenters. What time?

Marian Johnston (Committee Clerk): Starting at 1:30, same as today.

Wilbur MacDonald (PC) Chair : 1:30 to 4:00 o'clock or something like that. Agreed? How many presenters have you?

Marian Johnston (Committee Clerk): I have two so far but I can book any number. I have plenty to choose from.

Wilbur MacDonald (PC) Chair : Probably go with four or five. Depends. A half an hour . . .

Marian Johnston (Committee Clerk): And if I could have a couple of dates I'll get started on booking more people.

Wilbur MacDonald (PC) Chair : You want two more dates. We have a meeting scheduled for

February 9th, 1:30 to 4:00 p.m. with four presenters. Can we come up with some other dates for meetings? Today is Wednesday. Could we go every Wednesday afternoon?

Marian Johnston (Committee Clerk): Every Wednesday.

Wilbur MacDonald (PC) Chair : Yes, I think the other committees are Tuesday. Every Wednesday afternoon, can we? From 1:30 to 4:00. And we'll try and have about a half hour for each presenter. Is that okay? That would give us five each day.

Fred McCardle (PC): Might ask them how long they would need.

Wilbur MacDonald (PC) Chair : Well, probably that's the other point. But the maximum would be five.

Fred McCardle (PC): Would the half hour include the allocation for questions?

Wilbur MacDonald (PC) Chair : Yes. Twenty minutes for presentation and 10 minutes for questions from the committee. Is that agreed upon?

Fred McCardle (PC): The maximum.

Wilbur MacDonald (PC) Chair : The maximum. But we'll ask the Clerk to check with the people who are going to make a presentation how long they'd need. There may be some that will take longer and some won't be as long. Okay. We do have a large number of people who want to come before the committee so we'll have to move proceedings along.

Ron MacKinley (L)Chair: Well, let's get her going.

Wilbur MacDonald (PC) Chair : Okay. You want to hit the land, do you Ron?

Ron MacKinley (L)Chair: Let's get it going.

Part I - Bob MacGregor - Policy Analyst, Strategic Planning and Measurement, Department of Agriculture, Fisheries and Aquaculture

Wilbur MacDonald (PC) Chair : Okay. So we'll start today and we have Bob MacGregor, Policy Analyst, Strategic Planning and Measurement, Department of Agriculture, Fisheries and Aquaculture. Are you here? Yes he is. Now we have three presenters this afternoon so we have about approximately two hours. What time did we say we were going to? 1:30, two hours. So if you could figure, you know, we have two hours and divide it up into thirds would be what? Three-quarters of an hour or roughly half the three-quarters of an hour.

Bob MacGregor: Louise Pollard at last meeting mentioned my name as a resource person and our deputy minister volunteered me to help Louise with providing research assistance to the committee. And so in her discussion framework that she provided the committee the last time there was a lot of information on the history of GMOs, the controversy, some of the pros and cons that have been presented, and I don't want to repeat a whole lot of that right here today. Mostly I wanted to give a little background on myself and my own perspective so that the committee would understand where I'm coming from as I provide myself as a resource.

I have an academic background and a job history in biology and resource economics and I've been a resource economist, well, I guess I should say an economist for the Department of Agriculture in its various incarnations since 1989. Since the late 80s or mid 80s really I've been interested in the GMO question and have followed the developments in the field for all the intervening years and since the latter part of the 90s I've served as an in-house clearing house for information distributing news items and information about developments in GMOs around the world to interested staff in the Department of Agriculture.

Since I intend to serve primarily as a resource, along with Louise, for the committee I don't want to spend a whole lot of time right now on, I guess, details and opinions but I did feel it was appropriate to present my personal views in the beginning before I got into my other role. After pretty nearly ten years of observing arguments and counter-arguments about the GMO issue I do have

some observations about it. It's hard not to formulate opinions after listening to all the arguments and counter-arguments.

First, there's no questions at all that it's a very powerful technology, gene-splicing, a tool that has a lot of potential beneficial uses well beyond the ones that we've seen introduced so far as crops and mostly things like herbicide resistance and pest resistance. There's an awful lot of uses already in place, kind of behind the scenes in industry and medical microbiology. Most people aren't even aware that that occurs but there's an awful lot of that in place and has been for longer than crops have been genetically modified. At the same time there's no question that the technology could produce harmful products or environmental affects either intentionally or unintentionally. As I say it's a very powerful technology and it could conceivably either be misused or go awry.

Even though regulatory oversight and pre-market testing of commercial GM crops is substantially more intensive than it is for conventionally bred varieties there's still a lot of people who question the adequacy of this testing and the safety of the crops. But my understanding of the issue - and this is my personal opinion, not a position of the department or the government - is that under the current levels of regulation and testing GM plants are likely to be at least as safe as their conventional counterparts. And by safe I mean in terms of environmental well being and human health. Now, this is a view that's shared by a lot of scientific and technical organizations around the world including the Food and Agricultural Organization; OECD; the National Academy of Sciences in the US; the Society of Toxicologists; the Royal Society in the UK and on and on. There's quite a long list around the world.

Accordingly, I don't see a valid scientific reason for banning the use of GMO's in Prince Edward Island but having said this, there may still be an argument for banning them based on economic advantage. Now, this argument hinges on the marketability of a GM free label. There certainly are fairly large markets, primarily in Europe, which demand verified GM free products. Now, so far this hasn't really resulted in an appreciable or much less a reliable price differential between conventional and GM commodities. But that doesn't mean that price differential won't exist in the future. It could develop. This is still a fairly young and still rapidly

evolving arena. In addition the GM free concept might conceivably be integrated advantageously into the Food Trust initiative.

Now, certified organic products already incorporate GM free status. It's mandatory for certified organic products. So someone wanting to avoid GM, and given the fact that we don't separate them normally in commodity streams in North America, could buy certified organic to do so. It's not clear to what extent the GM free element of organic products has enhanced their price. There's no easy way to separate that out and tell.

Moreover research has so far been unable to document any particular adverse environmental or human health effects of GM crops. But this isn't true for conventional crops. Conventional, what organic growers simply call chemical agriculture, has been shown to have undesirable impacts in certain circumstances. So trying to gain a market advantage from some consumer perception of better health or better quality or better environmental safety from GM free labelling would still leave us exposed to the toxic playground campaign. So it could be that going GM free could get you some small market advantage but you would still have a much bigger issue in the background if you left conventional in place, not that I'm recommending going beyond this.

Now on the other side of the ledger for many potential market benefits, from a GM free label, there are several possible drawbacks. First you'd be forgoing or at least delaying the introduction of crops that could be managed with fewer pesticides or other inputs or perhaps with more benign chemicals than the ones that are currently being used. There might also be a slight reduction in comparative advantage for farmers who were unable to adopt new technologies as they came along. And finally it could have a, a ban could have an adverse impact on the attractiveness of Prince Edward Island for bio-science industry. Well, that's certainly something we've promoted over the years, is the development of a human capital in bio-sciences. And I think the first two of these concerns, that is the delay in introduction of new technologies and the loss of comparative advantage could be overcome fairly rapidly should in the future it become obvious that a ban wasn't working or wasn't really necessary. It might take a little more time to rebuild a reputation of openness to bio-science development though.

Anyway, lacking a crystal ball it's not really possible to say whether there would be a net economic advantage in the market place from a ban that would offset any potential adverse affects.

And finally I wanted to, I guess, make a suggestion to the committee. I wanted to suggest that the committee pursue all these public meetings with perspective and context in mind. And by perspective, where's the presenter coming from? You know, what ax do they have to grind? Or is there another agenda or implicit conflict of interest? I guess really the question, the classic question whether the class is half full or half empty is one of perspective and I think for the most part given the small and tight knit society that we have in PEI the committee members won't have any trouble keeping perspective on this.

Now, context is really wrapped up in the question - compared to what? It's quite easy to identify a benefit or some adverse part and make it sound really great or really scary. And certainly proponents of genetic modification paint a rosy picture of their potential or their actual performance and opponents make it sound like this is the invention of the devil. Now, these effects, positive and negative, don't stand alone in a vacuum. And so they always need to be looked at in the context of conventional or sometimes organic agriculture as an alternative. And that's also true, I think, of conventional breeding versus what I'll call molecular breeding or gene splicing.

Finally, I wanted to note that the agronomic elements of context are usually evaluated quite effectively by the crop developers, that is the companies that produce them, the regulatory agencies and ultimately by farmers. If these things don't work farmers won't buy them. And certainly in recent years researchers and governments have responded to the various hypothesis about adverse environmental effects and have increased the attention that they've paid in regulation to GM crops as they're applying for approval.

Now I mentioned earlier the context of market placement is still an open question. We don't know whether there would be an advantage ten years from now. And there hasn't been a lot of research on that. A couple of small studies have suggested that, well, no, there really isn't any consistent price advantage to GM free nor has there been a real problem in clearing markets of

conventional or GM product, either one. So all the soy beans produced and the canola in Western Canada that's still being sold despite their GM status. Anyway we don't know how consumer preferences may affect the marketability of mixed or undifferentiated product or GM or GM free in the future.

Now, over the past decade or so and especially in the last five years there's been a lot of controversy swirling around the GM foods issue. And I'm conversant with most of those and they're everything from court cases to scientific journal "stink fights" I guess you could call them. There's been some pretty serious controversy and it hasn't resolved itself in scientific consensus either. There certainly are a large number of bio-scientists - I would say perhaps a majority in the world - who are supportive of this technology with adequate controls and oversight. But there still are some fairly prestigious individuals in bio-science who are either sceptical or at least uneasy about the potential of this technology.

Anyway, I'm going to work with Louise and try and provide the additional detail and some background depth that she may not have yet and I think it's going to be a bigger job than she originally foresaw when she started working with the committee. So to start the process I've basically want to submit myself as a resource to help Louise and provide additional depth for any questions you might have.

Wilbur MacDonald (PC) Chair : Ron has some questions.

Ron MacKinley: You referred to presenters, If I get it right, as being glass half full. What do you mean by that?

Bob MacGregor: What I mean is often times people will come to a meeting and they will present a viewpoint which is diametrically opposed to someone else's even though it's based on exactly the same background information. So they'll come in and say here are the facts and I conclude that they mean (a) and someone else will say, no I can see that they mean (b). And they may be based on the same observations but reach a completely different conclusion.

Ron MacKinley (L): All right.

Wilbur MacDonald (PC) Chair : Wilfred? No.

Any other questions?

Wayne Collins (PC): Thank you Mr. MacGregor. You spoke about the European market and you mentioned at the present time there's no reliable price differential there. What can you tell us about the North American market which is our closest market for export of our agricultural products? What's happened there in terms of a developing GMO free market place? How would you characterize it?

Bob MacGregor: It hasn't really developed yet. There are niches in a sense. Certainly organic is an obvious one. But certain companies have said we won't accept a particular product. I believe Frito Lay won't take BT corn, for example. And they require tracking of this in their products. Back in '99 when we were in the first, what, the third year or maybe fourth year of growing BT potatoes here the potato processors, in response to requests from MacDonalds primarily, said well, we're not going to accept GM potatoes anymore. And this happened in Idaho as well, of course. So in essence, yes, there is although I still think they cook their potatoes in, you know, canola or soy or some oil which is generic oil with some 70 per cent GM content.

Wayne Collins (PC): So there isn't, like at the present time.

Bob MacGregor: It's not an established market, no.

Wayne Collins (PC): Not an established market. May I ask you another question here? GMOs and then you have GMO free, conventional farming, chemical farming, more use of chemicals, sort of a dilemma on both sides there. What about total organic agriculture? Looking at Prince Edward Island do you think that total organic agriculture would be a viable alternative from an economic point of view?

Bob MacGregor: Island wide?

Wayne Collins (PC): Yes.

Bob MacGregor: I don't think there's a way to answer that really. It would depend entirely on the accessibility to export markets and it wouldn't be potatoes. So that's a complete blue sky question really.

Ron MacKinley (L): That's one of those full glass questions.

Wilbur MacDonald (PC) Chair : Eva?

Eva Rodgerson (PC): In regards to the conventional methods of breeding, whether it's potatoes or animals or whatever, well there was many genes that were mixed and whatever. I'm trying to understand why people weren't concerned about many genes being mixed as opposed to maybe one. What's your . . .

Bob MacGregor: Because we're used to it, I think is the answer. That's what conventional means after all. One of the things that's intrigued me since I began looking into this breeding issue in more detail, say five or six years ago, was mutation breeding. Among the many types of breeding techniques that are used or fall into that umbrella conventional is mutation breeding, where they use radiation or mutagenetic chemicals to introduce mutation for a number of them and then you screen for desirable ones. And that always struck me as kind of violent. You know, akin in many ways to genetic engineering.

In addition there are interspecies crosses. They are called wide crosses where they hybridize to try and introduce desirable characteristics. Blight resistance is one that they've been trying for years to get into commercial potato varieties from wild varieties in South America. Unfortunately when they do that they introduce 15,000 genes from a wild variety, many of which include toxins and other undesirable characteristics that aren't suitable for commercial varieties and it takes . . . well, so far they haven't been very successful I guess, is the way to put it. But you're right.

Eva Rodgerson (PC): That's the one that's puzzling me. In everything I've read on this I'm trying to understand is how come people are quite comfortable today with still doing the breeding as such when you have all these genes and then when you have one where you may have one that's at least controlled better than all of these . . . in the whole debate that's kind of what's puzzling me and that's kind of what I'm . . .

Bob MacGregor: Well, I think the answer I gave at first is right. Is people are used to it. It's the way nature does it and they're comfortable with that.

Wilbur MacDonald (PC) Chair : Any more questions? Well, I have one, Sir. I'd like you to just explain a little more. You said there's a lot of scientists who believe in GMO with adequate controls. Who is making these adequate controls? Or are there any controls on GMO's?

Bob MacGregor: It differs from country to country on how exactly it's structured. First of all it starts with the companies that produce these. Indeed they don't want to be sued. They produce crops that they hope farmers will buy because they're agronomically sound and that consumers will buy because they're just like any other crop and they're starting now to produce crops they hope are superior and will actually have a market advantage because of improved nutritional content.

But beyond that the approval of the crops for commercial use is monitored. I'll give you the example of the US. There are three agencies in the US that do it. The USDA . . . the reason I do this by the way is the US has produced more of these than anyone else. That's why I'm using the US example to start. USDA, for example, looks at BT corn as if it were a pesticide because the pesticidal protein has been introduced into the corn. So they regulate it just as they do any other pesticide. The FDA, Food and Drug Administration, looks at the health and safety of the food products that come from these crops and evaluates based primarily on data supplied from the companies that, I guess you say, invented the seed, evaluates whether it's acceptable or substantially equivalent to the conventional counterpart and EPA looks at the environmental implications of the introduction of these crops. In Canada we do a similar thing with Health Canada and Ag. Canada. CFIA, I think, does all the permitting for introduction of these in Canada.

Wilbur MacDonald (PC) Chair : So CFIA approves all GMO's.

Bob MacGregor: Approves their release for commercial use, yes.

Wilbur MacDonald (PC) Chair : Anymore questions. First of all we want to thank you for coming to help us out as we move along and we may be looking forward to some explanations and whatever we may need. So I thank you very much and now we'll have Chris Prowse. He's manager

of Legislative and Regulatory section of the Department of Agriculture, Fisheries and Forestry. You can go right ahead, Sir. You have a presentation.

Part II - Chris Prouse - Legislative Co-ordinator, Department of Agriculture, Fisheries and Aquaculture

Chris Prouse: I'm here in the capacity as a Legislative Co-ordinator with the Department of Agriculture, Fisheries and Aquaculture and I had also conducted a review of worldwide legislation regarding GMO's.

Now my review is not intended as a list of 'this is all the legislation that is out there'. What I did was basically looked for certain themes that different jurisdictions had done. Just to get an idea as to where the directions are, what are the legislative options. I have heard - I listened to this committee - that people seem to think that the legislation of GMO's means basically ban or don't ban and it will be up to you people as legislators to make those kinds of decisions. But I just want to point out that there are another, a whole series of different options that are used in different jurisdictions around the world.

I also want to point out that my presentation is only going to take about ten minutes because I intend to kind of cut right to the chase on that and not to go into any kind of detail of what the legislation is in Serbia or wherever.

Most of the legislation that actually involves GMO's worldwide actually is not related to restricting them or banning them. For example, there's a large body of legislation on labelling GMO's in foods for the consumers. There's also legislation that supports biotechnology. In this regard, there is legislation that actually in some areas that says if you're going to use them, then there has to be studies on them. There's legislation on liability and if you don't think that's an issue, ask Monsanto if that's not an issue.

There's even legislation that protects GM crops from vandalism. For example, in California, there are fines if you vandalize a commercial crop. The fines are doubled if that crop is a GM crop. And actually there may be some reasons for that because actually the act of vandalism may cause you to lose control of that crop which could put it

as a threat to the environment. But I'm not intending to actually address those types of legislations. I'm going to go into the ones that prohibit or restrict the cultivation of GMO's. In other words, we're talking about at the farm level.

Basically, we look at—if you look at the legislation, they fall into five categories. There's legislation that bans GMO's. There's legislation that bans specific varieties of GMO's.

There's legislation that places a temporary ban on planting GM crops, this is the moratorium. There's legislation that places conditions on the handling of GM crops and there's also legislation that requires a grower to register or get a permit to plant a GM crop.

So using as a guideline to kind of go through them and give you a bit of an example - legislation that bans GM crops, as I said, this is the outright ban with no exceptions or very few exceptions. The most obvious example I could find of that was with Uganda that had passed legislation that effectively ban GM crops, all of them. Their legislation states that GM foods can be imported but strictly for consumption and not for cultivation. And since it's unlikely that Uganda has a large research system for developing GM crops, to me that means an effective ban.

There has been across North America, a fair bit of legislation that is being tabled but not passed that has tried to ban GM crops. For example, in Ohio, there was legislation tabled that would prohibit the release of genetically modified plants into unconfined areas, and this legislation wasn't passed. If that legislation had been passed, it would have effectively banned it since the only places that you could have planted a GM crop would be under control condition such as would be found in say, a greenhouse associated with a research lab.

Legislation that bans specific named GM varieties - as you're probably aware in Canada, mostly worldwide, if you have a GM crop that's developed, it gets a name, it gets a registration number, it gets identified. This type of legislation bans specific types and there are a number of different reasons that these jurisdictions may have done this. For example, they may be protecting an existing commercial crop. There may also be concerns about a specific threat to the environment from a specific GM crop. Some of the

examples that are in place now is that Austria has banned three EU approved GM varieties of corn. Mexico has placed a ban on commercialization of genetically engineered maize and Spain has banned one specific named variety of corn. Strangely enough, all the examples I came across were corn.

Legislation that places a temporary ban or a restriction on planting GMO crops - this is the moratorium. This type of legislation is usually just for a specific period of time and the purpose for this type of legislation is, is that it provides researchers and legislators with a deliberative space because maybe all of the information is in it. They don't have enough information at this point to make a decision. And examples of this is Albania where there was a five-year moratorium that started in 2003 and the Australian Capital Region which is one of the provinces of Australia which has a moratorium ending in 2006 on the cultivation of certain genetically modified food plants.

The fourth category is legislation of places, conditions on handling GM crops. Quite frankly, I had of expected to see more of that kind of legislation but I actually found very little. The only type of legislation I found that was directly related to that was legislation in Maine that requires the manufacturer to provide written instructions to growers in how to avoid cross contaminating other crops. Actually when I went back and looked at that original legislation before it had of been passed, it was originally intended to be a ban but it got, I guess to put it bluntly, watered down.

Other types of activities that I didn't see but could be included in this kind of class legislation, for example, would be the requirement for a buffer zone around GM planted crops. This maybe a buffer zone between say, organic crops or non GM crops. It could also include a requirement to identify fields that are planted in GM crops. It could also include a requirement to register fields that are planted in GM crops.

The last classification is legislation that requires a grower to obtain a permit, to plant a GM crop. With this type of legislation, a grower would apply to a department or a government or a regulating body to get a permit. Generally, permits have conditions on them. But one of the basic things that permits do is that they provide the regulating body with who, where and what. This allows the

regulating body to also monitor and I understand that actually, it might be an issue in this province is that I'm not sure if everybody knows exactly what goes in the ground and where. An example of that is the Idaho Plant Pest Act which requires an applicant to obtain a permit from the Idaho Department of Agriculture before a genetically engineered plant could be released within the state. Now I'm presuming that if you plant a crop, you are releasing it.

In summary, I just want to say that what I had in the briefing binder there - it's certainly not a complete list of legislation but it is kind of a spot of what is happening in North America, Europe and the rest of the world in terms of this type of activity. Questions?

Andy Mooney (PC): You mentioned that are some countries that are banning one specific brand of corn.

Chris Prouse: Yes.

Andy Mooney (PC): So they allow GMO corn but not that specific strain?

Chris Prouse: That's correct. As I understand it, Spain in fact has, is actually one of the few European countries that does plant GM crops but they banned one specific variety of corn.

Andy Mooney (PC): Did they give reasons?

Chris Prouse: Yes, they did actually. They had a concern that this variety of corn, I'm trying to think of the right words here, but it has a bad effect on antibiotics, on resistance to antibiotics and I don't understand the science enough to explain the connection.

Andy Mooney (PC): Okay.

Wilbur MacDonald (PC) (Chair): Anybody else got questions?

Richard Brown (L): Just one quick question.

Wilbur MacDonald (PC) (Chair): Richard.

Richard Brown (L): These genetically modified plants and that, like when Monsanto does a plant genetically modified, they own the seed?

Chris Prouse: I think so.

Richard Brown (L): How long do they own the seed for?

Chris Prouse: How long do they own the patent?

Richard Brown (L): Yeah.

Chris Prouse: I can't answer that question. I don't know.

Andy Mooney (PC): As far as on potatoes, basically what they do, potatoes start - Elite E1, 2, 3, 4 and Monsanto, I think, they would only allow you to go to Elite 3 and after that, they weren't allowed to be planted. So that every year, your seed drops one level and after Elite 3, they wouldn't allow them to plant it because they couldn't control it. They spread out too far.

Richard Brown (L): So how much would it cost you to buy this stuff?

Andy Mooney (PC): I think it was a couple of cents a pound more than the conventional seed, I think but they got the royalty off and if you sold seed to someone else, they took a royalty off what you sold.

Richard Brown (L): And how long does it last?

Andy Mooney (PC): Well basically, you wouldn't plant them after their Elite 3.

Ron MacKinley (L): They would last for the year you planted them.

Richard Brown (L): But at some point in time, does Monsanto not get money for it?

Andy Mooney (PC): No, because they won't allow them - after they hit E3, they weren't allowing them to plant it.

Ron MacKinley (L): Start over again.

Andy Mooney (PC): So they would start with high class seed again and work its way down. So it just turned to tablestock, after that you just let them go.

Chris Prouse: I think you're asking, how long is the patent valid for.

Richard Brown (L): Yeah.

Ron MacKinley (L) (Chair): Forever, just get somebody to buy it.

Richard Brown (L): So what do we say to the people - our food supply then becomes a product of Monsanto. We depend on Monsanto for our food supply, what do we say to that?

Chris Prouse: I don't know.

Richard Brown (L): You know, like no longer do we own our own food supply. They're a big company.

Ron MacKinley (L) (Chair): You can go the traditional way.

Wilbur MacDonald (PC) (Chair): Wayne.

Wayne Collins (PC): You mentioned, Mr. Prouse, a number of countries that have taken various types of legislative options when it comes to GMO's - Uganda, Australia, Austria, Mexico, Maine, Idaho, just for the record, here in Canada, what steps have been taken or are being contemplated to be taken outside of this provincial jurisdiction?

Chris Prouse: I didn't discover any.

Wayne Collins (PC): None?

Chris Prouse: Now mind you, the federal government is involved with regulating GMO's, but in terms of provincially, I didn't discover any.

Wilbur MacDonald (PC) (Chair): Did you discover any hearings taking place on GMO's?

Chris Prouse: I didn't look.

Wilbur MacDonald (PC) (Chair): Oh, you didn't look, okay. It might be something you might want to -

Richard Brown (L): If you brought it up to the chairman.

Wilbur MacDonald (PC): - if you get time sometime, perhaps you could look that up, could you? Any other questions? If not, thank you, Sir. We'll be seeing you again.

Chris Prouse: Thank you.

Part III - Dr. Bert Christie - Retired Research Scientist

Wilbur MacDonald (PC) (Chair): Dr. Bert Christie, retired Research Scientist - perhaps you could give us some background too, Sir, before you start, if you don't mind.

Dr. Bert Christie: Certainly - as you indicated, Mr. Chairman, I am a retired Research Scientist.

Wilbur MacDonald (PC) (Chair): Is that right?

Dr. Bert Christie: Yes.

Ron MacKinley (L): Well it says that here. (Indistinct)

Dr. Bert Christie: What does it say? Well, I suppose that's true. I was at the University of Guelph for many years, 30, if you want to know, doing teaching and research and my research was on plant breeding and plant genetics and in 1989, I came to Charlottetown and worked for the Ag Canada Research Station and I retired in 1998, and since that time, I've spent a lot of effort trying to keep up with this area of genetically modified crops and foods. So I appreciate the opportunity of coming to you today and speaking to you about this.

As previous speakers have indicated, it's an area that's very controversial. It's controversial among scientists, among governments, (indistinct), church groups and of course, the general public. And as I'll indicate to you later, I think it's a controversy that should of been resolved long ago if there had of been a political will to do so.

Now I'm going to confine my remarks to crops, genetically modified crops for reasons I have given that it's an area that I think I have some expertise and it's probably an area that is of interest to this group and to PEI. I think it's rather interesting that research on genetically modified crops started about 30 years ago. We've had about 30 years of research on this and there have been millions and

millions of dollars spent on it and despite this, there really has only been two traits that have been commercially utilized.

One is resistance to a herbicide such as Roundup and the others related to it. And the other is insect resistance which has been transferred from a soil bacterial to a crop. So those two traits have been incorporated in only four commercial crops - corn, cotton, soybeans and canola. And up to the year 2003, 90 per cent of genetically modified crops were grown in three countries - the United States, Canada and Argentina. So it really isn't such a worldwide phenomenon as you might be led to believe.

Now as Dr. MacGregor indicated, there are lots of different opinions on GMO's and you'll be hearing lots of different opinions, I am sure. But if you put all the proponents and opponents of it together in one room and could keep them from slaughtering each other, I think you'd find that there are two things they would agree on. Number one - this technology has great potential and one side will stress the potential good and the other side, the potential harm. And the second thing I think they would agree on is for the consumer up to this point in time, there is no advantage. There is no advantage to GM food or foods containing ingredients from GM crops and nobody is claiming that they do.

Now I'm often asked, are you in favour of GMO or are you against it? And I always say, I am not against GMO's nor the technology nor the research or science behind it. But I do have some serious concerns and so I'd like to share with you this afternoon, my concerns about this area.

The question was raised a minute ago about the difference between GMO and conventional plant breeding and as far as I am concerned, there is quite a specific difference. In genetically modifying a crop or genetically engineering it, as some people say, you take a gene from one organism, you isolate it, you transfer it and you put it into another organism and this maybe a transfer from a plant to a plant, the bacteria to a plant, the plant to an animal, et cetera. The problem is you can't be sure you have a single gene. You may have more than one gene. You have no control over where it ends up in the plant and that's going to affect its performance and the other thing is you don't know how many different traits it affects.

I think the best analogy to use is if you consider renovating a building, you may knock out a wall or two, the whole thing may not collapse but in a few years, you may find that there's some sagging and some bulging and that's the situation I think we have here. We can't be absolutely sure about what the outcome of this is. This assumption is also based on - sorry - this technology is also based on the assumption that one gene controls one trait in a plant and we know that that is not true. Most genes control more than one trait. So for all these reasons, we think that this technology may have some problems and deserves more consideration.

What kind of problems can it cause? Well I would like to concentrate on two areas - human health and the environment. Are GM foods safe to eat? I don't know. I really don't know and I don't know what the risks are. And there's very little data available in the public domain that would help you identify these risks.

If a developer has, say, a genetically modified crop, he submits it to the Canadian Food Inspection Agency along with the tests he has done. Officials there look at it and officials in Health Canada look at it and maybe officials in the environment and they approve it. And I say, they look at it and they approve it because so far as I know, they have never rejected an application for a genetically modified crop. They have all been approved, both here and in the US.

The criteria that they use to access a genetically modified crop or an applicant is something called "substantial equivalence". What this means is that if you have a genetically modified corn, for example, and you want it approved, if it looks like corn, if it has most of the characteristics of corn, then they approve it. There's no scientific basis for this and we're the only country in the world that uses it, and it has been criticized on a number of different occasions.

The other problem is if you apply under the *Freedom of Information Act* for an applicant that has been approved, an application that has been approved, and I have been involved in this on a couple of times, you get back a great stack of papers but a great many of them will be completely blank with something on them, like information withheld at the request of the applicant. Now why data supporting the safety of a genetically modified

crop or a food or a feed should be held from the public, I don't know. I think that should be public information.

Since 1997, Mr. Chairman, I have been involved with a group called Genetic Engineering Alert, and this is a group of scientists across Canada, approximately 40 of us, and we have been urging the federal government to conduct tests on genetically modified organisms, all organisms but especially crops and we never got very much reaction. But you might be interested that in 1999, three federal ministers, the Minister of Health, the Minister of Agriculture and the Minister of the Environment asked the Royal Society of Canada to set up a committee to look at this question. What they asked the committee to do was to provide the government with advice on "a series of questions related to the safety of new food products being developed through the use of new genetic engineering technology". Now I gave a copy of my talk to the clerk and you can find the website for that if you wish.

The Royal Society set up a panel of 14 scientists and they spent a year looking at this and made their report in January of 2001 and among the recommendations that they made was that there should be greater scrutiny of all these applications and they should be subjected to a scientific scrutiny. The second recommendation was that any tests that were done on these should meet the criteria for publication in the scientific journal. And the third thing was there should be some followup testing after the release of these. So those are three recommendations that they made from this body and so far, there has been no action on it. So even the Royal Society of Canada was concerned.

Now as I mentioned, applications for approval of a genetically modified crop are accompanied by tests that have been conducted by the company or the originator and we always had some concern that only certain tests were submitted, ones that would put their product in a good light. And recently this came to - recently there was a case came to light in the UK where exactly such a thing happened. A company applied to Europe for approval for a genetically modified rapeseed. Europe approved it and then a committee in the UK, a committee called ACRE, if you're familiar with it, an advisory committee as it relates to the environment discovered that there were some

tests done with this oilseed rape on rats which indicated some health problems and they withheld it because it didn't put their product in a good light.

Now despite the fact of all the concerns about scientists, about the health of genetically modified foods, two scientists from Europe - one from Norway and one from Denmark published an article in the Journal of Health and Nutrition in 2003, and they surveyed the literature and could find only ten papers that dealt with health aspects of genetically modified foods - only ten. There's been a lot more tests than that done on feeding trials but only ten looked at any health affects. And of those ten, five of them indicated that there was no difference between GM food or GM feeds - these were feeds, GM feed and non GM feed and four indicated that there were serious problems, four out of ten. One actually found that the GM feed was better.

Now if I came to you and asked you if I could market a food product on PEI that was the same as what was on the supermarket shelves and you found out that 40 per cent of the tests that were done on it had indicated there were serious health problems, would you approve it?

Richard Brown (L): No.

Dr. Bert Christie: No, I don't think so. I don't think this committee would, and that's the situation that we have here.

The authors of that report concluded that the regulations now for the control of GM foods were seriously flawed and called for some stricter guidelines on the release of these. Also the British medical journal, *Lancet*, in the fall of 2003, looked at this question and after surveying all the literature, here's what they concluded about genetically modified foods. They said that "consumers are right to be skeptical".

So Mr. Chairman, despite calls for independent testing and for the release of all data on which decisions are made, our government still hasn't taken any action. And one factor they usually cite is cost. But at the same time, they have spent millions of dollars, governments and industry, on advertising to convince us that these things are safe so I'm not sure cost is a valid reason. And as I say, if these tests had of been started ten years ago when they were first proposed, I think by now

we would have a good idea of what the risks are and this controversy would be over.

The other area that I wanted to touch on is the environment. One of the reasons that GM crops have been promoted is the fact that they have resistance to the Roundup type of herbicides and this should reduce the amount of herbicide applied to the crop and this has been one of their selling points for a long time. However, in the fall of 2003 and again revised last fall, Dr. Charles Benbrook, a private consultant from Idaho looked at the question of pesticide use on genetically modified crops and non genetically modified crops and this research, by the way, was supported by a number of different organizations including the Consumers Union in the United States and Iowa State University. So it was relatively independent.

Very briefly, what Charles Benbrook found out was that for the first three years after these genetically modified crops were introduced, pesticide use did decline. But after that, it started to go up so that in 2003, for example, if you look at his results for genetically modified corn, there was more pesticide applied to genetically modified corn than there was to non genetically modified corn. And he concluded that the introduction of genetically modified crops in the US had actually increased pesticide use by about 122 million pounds.

Now on the opposite side of this, we know that since the early 1980s, pesticide use in agriculture has been going down. Farmers have been using less pesticides each year, and there's been no dramatic drop since the introduction of these genetically modified crops, so the question of pesticide use, I think, is one that has not proven out.

The other problem with GM crops, of course, as one of the speakers mentioned, is contamination of non-GM crops. This has been a concern. Genes are carried in pollen and pollen blows around or is carried by insects. It can land on other crops, it can land on compatible weeds, etc.

And right now in Canada, there's no legislation, really, to protect a farmer from this, what we call, genetic pollution, and a number of people have called for legislation to control this, to give the farmer who is growing non-GMO crops, to give him some protection.

And lastly, Mr. Chairman, I want to refer again to the Report of the Royal Society - and this has been mentioned before - the Royal Society pointed out two areas where they had concern. One is conflict of interest.

The federal government, for example, in the Department of Agriculture are developing genetically modified crops through the CFIA. They're regulating them and the Royal Society pointed out that this is a conflict of interest and should be resolved.

The other factor is conflicts of interest in the scientific community. Industries are putting more money into research in universities and governments, and universities often boast about the number of dollars they're getting from industry, but at the same time, industry, when they fund research, usually demand that they have control over how, when and what results are released, and we think this is leading to some problems within the university community and the Royal Society highlighted this.

And as Dr. MacGregor indicated, you're going to have many speakers talking to you over the next few weeks and I second his suggestion that you ask them who's paying for them and who's paying for their research, and you may come up with some interesting answers.

This is already a problem in medicine where medical journals now, before they'll accept a paper of research, they want to know who's paying for this research, who funded the research, and in fact, some journals have gone so far as to demand that you register a research project before you even do it if you want it to be published because they found that only positive results were being published.

So in conclusion, Mr. Chairman, I think this committee should seriously consider banning all GMO crops - all GMOs, crops and otherwise - until we have some answers to some questions such as:

What, if any, are the risks to human health if these are included in our foods?
What effects will these have on the environment?
And how can we prevent contamination?

You'll no doubt be advised that any decision you

make should be based on science and, I think, based on the science available, a ban is quite justified and can be defended, so thank you very much for your attention.

Wilbur MacDonald (PC) Chair: Ron MacKinley there has a question.

Ron MacKinley (L): I'm interested in BT corn, and I don't grow corn, so I don't know much about it, but they have BT corn kills insects. Is that correct?

Dr. Bert Christie: Correct.

Ron MacKinley (L): And did you say that after you grow that corn for three years, then you've got to start spraying it more?

Dr. Bert Christie: Yes.

Ron MacKinley (L): Does that mean the insects are getting resistant to it?

Dr. Bert Christie: Insects are getting resistant or other insects. It doesn't kill all insects. It just kills one class.

Ron MacKinley (L): Sure.

Dr. Bert Christie: So you get other insects coming along, yes.

Ron MacKinley (L): All right. I know I used - potatoes, I used a BT on them one time sprayed it on to do the test for the feds, the government, I guess, we used, sand or salt versus BT and you had to time it on at a certain time and it was supposed to be more environmentally friendly, so I assumed the Colorado potato bugs - beetles - that they introduced that BT into the gene of that potato.

Dr. Bert Christie: Yes, that's right. The beetles eat it and -

Ron MacKinley (L): Now soybean ready - and I don't grow soybeans, either. I grow potatoes and grain, but soybean ready, I assume that the reason to grow soybean ready means that you can spray with Roundup when they're up to about that high.

Dr. Bert Christie: Yes.

Ron MacKinley (L): Where if you're not soybean ready or genetically modified soybeans, you've got to spray before the soybeans are through the ground. Is that the case?

Dr. Bert Christie: That's correct. That's correct.

Ron MacKinley (L): So then basically there's no difference in the spray rate. If you spray before they're through the ground, it just means you've got to get out there quicker.

Dr. Bert Christie: Yeah.

Ron MacKinley (L): Where if you've got soybean ready, it means if it's wet or windy, they don't want you spraying, it gives you an extra window. It's a longer window to get the job done. Is that correct?

Dr. Bert Christie: That's correct.

Ron MacKinley (L): And you didn't mention much there about BT. What's going on genetically modified potatoes? I know the province was into a (Indistinct) back in the 1990s -

Dr. Bert Christie: As far as I know, there's not very much going on in potatoes. Monsanto says that they aren't doing anything.

Ron MacKinley (L): All right.

Dr. Bert Christie: But as far as I know, there's -

Ron MacKinley (L): They're not going on down in (Indistinct) or any of those places?

Dr. Bert Christie: Not that I know of.

Ron MacKinley (L): I believe the time the province here was - your government here, Fred, got into it big over -

Dr. Bert Christie: Yes.

Ron MacKinley (L): They were going to export potatoes to foreign countries. Ukraine lost 50 per cent of their potatoes were lost to potato wart, and if you could get a BT potato, it would take care of that, but that never went anywhere.

Dr. Bert Christie: No, as far as I know, it didn't.

Ron MacKinley (L): It just cost us millions of dollars here.

Dr. Bert Christie: The consumers balked.

Ron MacKinley (L): Right

Wilbur MacDonald (PC) Chair: Anybody else? Wayne?

Wayne Collins (PC): Yes. Thank you very much for your presentation, Dr. Christie. You spoke in your presentation that there was no advantage from GM crops and I wondered if you were thinking about -

Dr. Bert Christie: For the consumer.

Wayne Collins (PC): I beg your pardon?

Dr. Bert Christie: For the consumer.

Wayne Collins (PC): For the consumer, yes, which brings me to my question. Someone was telling me the other day about something called golden rice. Are you familiar with that?

Dr. Bert Christie: Yes.

Wayne Collins (PC): And golden rice is grown in southeast Asia, I'm told, is it?

Dr. Bert Christie: No, it has not been released yet.

Wayne Collins (PC): Has not been released?

Dr. Bert Christie: No.

Wayne Collins (PC): Can you - golden rice - again, I'm learning here - it's supposed to help people who suffer from night blindness, is that correct?

Dr. Bert Christie: Yes. It's high in carotene, which is a precursor of Vitamin A, which is supposed to cure or control blindness.

Wayne Collins (PC): But you're saying it's not been released? It isn't being consumed?

Dr. Bert Christie: No, it's not been released yet.

Wayne Collins (PC): Why is that? Do you know why it hasn't been released?

Dr. Bert Christie: Well -

Wayne Collins (PC): And this is on the other side of the globe, right?

Dr. Bert Christie: Yeah. The most interesting thing about this is the idea was that poor people in these underdeveloped countries who eat a lot of rice, you give them this golden rice and instances of blindness go down. Now one problem is they'd have to eat something like 8 kilograms of rice a day to get enough Vitamin A to fill the requirements.

The second requirement is Vitamin A, or carotene, is fat-soluble, so you have to have some fat or oil in the diet in order to absorb it, and of course, on the other hand, all you have to do is encourage these people to eat green vegetables - greens of any kind - and they'll get their Vitamin A.

Wayne Collins (PC): Thank you. I appreciate it, but again, this is why it's been touted as some kind of health benefit.

Dr. Bert Christie: Yes, it was.

Wayne Collins (PC): But from what you're saying, it's quite unsubstantiated.

Dr. Bert Christie: Yes.

Wayne Collins (PC): And this is the case of rice.

Dr. Bert Christie: Yes.

Wayne Collins (PC): You spoke earlier, as well, about the frustration of trying to get documents that show the testing that certain companies have done.

Dr. Bert Christie: Yes.

Wayne Collins (PC): And I presume these are documents requested through the CFIA?

Dr. Bert Christie: Correct.

Wayne Collins (PC): Have you personally experienced that yourself? Have you personally

made a request to the CFIA?

Dr. Bert Christie: Yes.

Wayne Collins (PC): Could you tell us your story in terms of what crops you were looking to understand better?

Dr. Bert Christie: Well, back about 1998 or so, we asked for any documents they had on genetically modified potatoes, and we had a strain name, which I've forgotten now, but we asked for any documentation, and Monsanto had submitted, I think, four applications for genetically modified potatoes, and we got four applications back, and we got a bit on how they developed it. We got some field tests, not all, and we got a lot of blank pages.

Wayne Collins (PC): As a scientist, there wasn't enough for you to make an adequate conclusion?

Dr. Bert Christie: No, it was useless.

Wayne Collins (PC): You mentioned as well a study by Binbrook, is that correct?

Dr. Bert Christie: Binbrook.

Wayne Collins (PC): Binbrook.

Dr. Bert Christie: Charles Binbrook.

Wayne Collins (PC): Okay. Can you tell me where that study was conducted over what period of time? Can you give me a little more detail on that?

Dr. Bert Christie: Okay, he studied pesticide use from 1996 to 2003 and then he's expanded that to 2004, and what he did was he had surveys. He also looked at the USDA - the US Department of Agriculture data - on pesticide use, amounts of pesticides used, et cetera, et cetera, so it was primarily a survey.

Wayne Collins (PC): Right.

Dr. Bert Christie: And those are the results he found. You can look at his website and the clerk has my talk with the website in it.

Wayne Collins (PC): You spoke as well about the

conflict of interest issue.

Dr. Bert Christie: Yes.

Wayne Collins (PC): In both government and in the private sector, right?

Dr. Bert Christie: Yes. Well, primarily in government because they're producing it and regulating it.

Wayne Collins (PC): All right.

Ron MacKinley (L): You guys should know about that.

Wayne Collins (PC): Is there, do you think to your knowledge, any other jurisdiction that is involved in the study or growing of genetically modified organisms that is dealing more effectively with the issue of conflict of interest? Something we could model on?

Dr. Bert Christie: I'm not sure I can give you any model. The US has the same problem. The US Department of Agriculture is producing them and regulating them. I'm not too familiar with what the European Union is doing, but I suspect they're in a better position. The European Union has a committee looking at genetically modified organisms and their release, and they're not involved in producing them, so that's probably the closest there is to it.

Wayne Collins (PC): Thank you very much.

Dr. Bert Christie: I was just going to say the Canadian Food Inspection Agency was originally set up to be an independent body, but it still reports to the Minister of Agriculture.

Wilbur MacDonald (PC) Chair: Mrs. Rodgerson?

Eva Rodgerson (PC): I have a question. Earlier on, you mentioned after 30 years of work or consideration, there's only been four different traits.

Dr. Bert Christie: Two traits.

Eva Rodgerson (PC): Two traits after over 30 years, and then in some other information we've had, it says it takes seven to 10 years to develop,

test and assess a new product. This is by the Canada Food Inspection Agency. In your opinion, what would be an adequate length of time? It says in the information we've had here last week, it takes seven to 10 years to develop, test and assess a new product. Like over the years that you've worked in your area of expertise, is seven to 10 years even comparable to an adequate time frame on research on a particular product?

Dr. Bert Christie: I think seven to 10 years is an adequate time frame and I think, for example, if they develop a food crop in seven years, then I think they need - at least initially - they need probably three or four years of testing.

Now we've called upon the government to do more testing. I think initially, in the first few crops that they test, it's going to take three, four or five years until we get a good idea of what the risks are, if any, and then after that, there probably can be a shorter period of testing.

Eva Rodgerson (PC): What have you found? How long do they test? What did you find in your - did you say?

Dr. Bert Christie: Well, there's no independent testing. That's the problem. The companies do the testing and the results that I have seen - and I'm talking about the genetically modified ones now - the results that I have seen indicate one to two years of field testing and probably one year of lab testing, but again, it's difficult to assess because for the applications we get, a lot of the data has been removed, so it's hard to say what they're doing now.

Eva Rodgerson (PC): And under the conventional methods that we've talked about earlier, and you said there is quite a difference, could you explain a little bit more around that?

Dr. Bert Christie: The conventional method of testing is -

Eva Rodgerson (PC): I mean the breeding methods.

Dr. Bert Christie: Oh, the breeding methods. Oh, you mean the difference between conventional and GMO?

Eva Rodgerson (PC): And GMO.

Dr. Bert Christie: Okay. Conventional breeding is essentially shuffling genes within a species, trying to come up with new combinations of the genes that are already there. Now Dr. MacGregor indicated mutation breeding and mutation breeding using radiation was thought to be a great tool.

I was a grad student in the 1950s when mutation breeding, and particularly radiation, was the topic. It was the GMO of the day, but as far as radiation breeding is concerned, I don't think there was ever any field crop developed using radiation. There were a few ornamental crops and there was a peanut variety in the US, so radiation breeding never amounted to anything. Chemical mutations, yes, they were used some, but mainly for doubling chromosome numbers rather than straight mutations. I don't know if that answers your question.

Eva Rodgerson (PC): Well, I'll probably learn as I go along, but I'm still confused. When you say that the genes are just genes that were already involved?

Dr. Bert Christie: That's right. They were just shuffled.

Eva Rodgerson (PC): Let me say it's an animal.

Dr. Bert Christie: Yeah.

Eva Rodgerson (PC): Yeah. They don't use genes from another animal. If it's just genes from within that animal, would they shuffle around?

Dr. Bert Christie: Animals are the same species. When you cross two animals, essentially you shuffle the genes and you get an offspring which has a new combination of genes.

Eva Rodgerson (PC): Yeah, like say they wanted to produce more milk or wanted to do whatever.

Dr. Bert Christie: Right, right.

Eva Rodgerson (PC): So it's two different animals, but the same species.

Dr. Bert Christie: The same species, correct.

Eva Rodgerson (PC): That's all. Thank you.

Wilbur MacDonald (PC) (Chair): Andy, do you have a question?

Andy Mooney (PC): No, I just want to thank you for your presentation. You're very knowledgeable in this field. It's quite apparent and it's - I look at even crops that aren't field crops right now such as ground hemlock that's being harvested on the Island here, and we're one of the major producers right now of ground hemlock and there's a lot of research being done on how you can get ground hemlock to grow outside a forest cover because if it grows in direct sunlight, then the plant dies. It would have to be somewhat shaded.

I think major things can happen even when a crop such as this, it's paclitaxil taxol. it's the active ingredient they take out the ground hemlock that's used in cancer research. If this crop could ever be grown out in the open, like on the hilly ground or something that we can't or we shouldn't be farming on, that sort of thing, there's tremendous things can happen. It's - and I'm trying to keep as open-minded as I possibly can on this GMO thing, but there's tremendous benefits that could be had but as you've identified, there's tremendous risks as well, so it's -

Dr. Bert Christie: But in that case, I don't suppose anybody's ever looked at conventional breeding in it, have they?

Andy Mooney (PC): I believe there's some other provinces that are looking at it.

Dr. Bert Christie: Okay.

Andy Mooney (PC): Anyway, just once again, I want to thank you for your presentation.

Wilbur MacDonald (PC) Chair: Richard?

Richard Brown (L): Oh, thank you, Mr. Chairman. Thank you very much for your presentation. You said earlier there were 40 scientists across the country?

Dr. Bert Christie: Yeah, with Genetic Engineering Alert, yes.

Richard Brown (L): There's a group of you, and

you are all either were members of Ag Canada or research institutes across the country?

Dr. Bert Christie: Yes.

Richard Brown (L): And when did you send the letter to the feds?

Dr. Bert Christie: 1998, I think we approached the Minister of Agriculture with it. He was a former student of mine, but that didn't seem to carry much weight, and we also approached some Members of Parliament, and the argument we got every time was yes, testing would be a good idea, but it's too expensive.

Richard Brown (L): Can we get a copy of that letter that you sent because it just concerns me that a group of scientists in the Department of Agriculture and in the federal government warned us about BSE long before it happened, and we just - we either fired them or shuffled them out of the way, and I'm just scared maybe that since that BSE, the scientists have gone into hiding and said: What's the use trying to help out here or trying to alert the feds on anything like that because we'll just get fired? So if you could give us some sort of -

Dr. Bert Christie: I could try and find the letter. I didn't write it. It was someone else, but I'll see if I can find it.

Richard Brown (L): And besides your recommendation of a GMO-free province, if that doesn't come about, would you recommend that all scientific data on any GM testing be made available to the public?

Dr. Bert Christie: Yes.

Richard Brown (L): When I go get a patent on a product, I have to submit everything to that patent - that patent is available for other people to see that you're not infringing my patent.

Dr. Bert Christie: Yes.

Richard Brown (L): And for this GMO stuff, it's not available.

Dr. Bert Christie: No, it's not.

Richard Brown (L): How can they hide that or suppress that if it's a patent?

Dr. Bert Christie: Well, they don't suppress the patent type.

Richard Brown (L): Oh, okay.

Dr. Bert Christie: They suppress the crop, the application for the crop.

Richard Brown (L): So - but all they - one of the requirements of the legislation should be all data should be made available to the public.

Dr. Bert Christie: Yes.

Richard Brown (L): Because once they have their patent, they're protected.

Dr. Bert Christie: Yes, that's right.

Richard Brown (L): Thank you.

Dr. Bert Christie: And the Royal Society said the same thing.

Richard Brown (L): Yeah, because it's protected, so what if somebody knows how you made it, if it's got a protection on it.

Dr. Bert Christie: Correct.

Richard Brown (L): Okay, thank you.

Wilbur MacDonald (PC) Chair: Ron?

Ron MacKinley (L): GMOs, you said that GMO-modified corn and soybeans, it's no advantage for the consumer?

Dr. Bert Christie: Correct.

Ron MacKinley (L): What is it for the farmers growing it?

Dr. Bert Christie: Well, the interesting thing is nobody has really looked at the advantage to the farmer and there have been very few economic studies done except in Canada. There's only one that I know of, and that was done by Ian Moral from the University of Manitoba.

It hasn't been published yet, but he gave me a summary of it and said I could use it, and the interesting thing was he contacted 2,000 farmers in Manitoba who were growing genetically modified canola and asked them why they were growing it, what were the advantages, and what were the disadvantages. They listed two advantages: One, better weed control, and secondly, less dockage when they went to sell it.

You might be interested - Well, I was interested in that, but I was also interested in the disadvantages. The disadvantages were volunteered canola popping up for years after, up to five years after, increased seed costs, and the third item they mentioned was fear of lawsuits. Those were the three things they mentioned.

Ron MacKinley (L): But the thing is - all right, better weed control means a better yield (Indistinct).

Dr. Bert Christie: They didn't mention yield.

Ron MacKinley (L): Well, less dockage -

Dr. Bert Christie: Less dockage, less return, yeah.

Ron MacKinley (L): No, but if you list dockage, it gives you more. Like, in theory, better weed control - weeds will cut back your yield.

Dr. Bert Christie: Correct.

Ron MacKinley (L): So we know that. So basically they wouldn't have to mention that. So they've got better weed control, which in theory would of been better quality (Indistinct).

Dr. Bert Christie: Correct.

Ron MacKinley (L): It is probably more money because less dockage (Indistinct) little more money as they would get to it.

Dr. Bert Christie: Yes, that's true.

Ron MacKinley (L): Then if you look at the disadvantage, lawsuits. I think when Monsanto got off to a bad start was when they started hiring former FBI agents to investigate the farmers.

Dr. Bert Christie: Yes.

Ron MacKinley (L): I think it was, like I mean, this was going on years ago. I can remember turning on the TV and they were bringing former FBI agents working for Monsanto to go out and do a check on a farmer.

Dr. Bert Christie: Yes.

Ron MacKinley (L): But now they had a problem with the volunteers. In other words, you grow canola and you rotate your crop and there would be a volunteer -

Dr. Bert Christie: Right, and they can't get rid of it because (Indistinct)

Ron MacKinley (L): They can't get rid of it because the Roundup won't kill it.

Dr. Bert Christie: That's right.

Ron MacKinley (L): Now has there - there would be some advantages, like for instance, I see soybeans if you got a bigger window to spray is going to be an advantage for the farmers.

Dr. Bert Christie: Yes.

Ron MacKinley (L): He can manage his ability, plus he can be more friendly to the environment when he does spray.

Dr. Bert Christie: Right.

Ron MacKinley (L): Because you pick your time.

Dr. Bert Christie: Correct.

Ron MacKinley (L): The French fry market might use it, but I would imagine that a lot of the canola - what percentage of canola oil in Canada is GMO?

Dr. Bert Christie: I don't know, but when I talk to my friends in Western Canada, they say there's hardly any canola out there that isn't GMO now because of contaminations.

Ron MacKinley (L): All right. Well, I assume a lot of that - they've gone to this new trans fat, is it not?

Dr. Bert Christie: Yes.

Ron MacKinley (L): So you read the label: Our fries are cooked in canola, so that must be (Indistinct).

Dr. Bert Christie: It's probably genetically modified.

Ron MacKinley (L): We don't know.

Dr. Bert Christie: We don't know.

Ron MacKinley (L): There's no label on this or -

Dr. Bert Christie: No.

Ron MacKinley (L): So you go in the supermarket and you can buy oil - say canola oil - you don't know if you're getting GMO modified canola oil or you'd be getting the regular?

Dr. Bert Christie: That's correct, unless you buy organic. That's the only way you can be sure you're not getting GMOs. The other interesting thing you might want to know is that in this survey, he asked these farmers if they wanted genetically modified wheat. Eighty-two percent of them said no. Why? Loss of market.

Ron MacKinley (L): But they weren't losing the market.

Dr. Bert Christie: Well -

Ron MacKinley (L): They weren't losing the market on the canola oil.

Dr. Bert Christie: Well, we have. In 1997-1998, our exports of canola hit a peak - I think it was about 800,000 tonnes or something like that. Fifty-two percent of that went to the US. In the year 2002-2003, the last year for which I've seen figures, our exports dropped and 90 per cent of them went to the US, so we've lost a lot of overseas markets.

Ron MacKinley (L): Is that because we're -of the genetically modified canola?

Dr. Bert Christie: I think so.

Wilbur MacDonald (PC) Chair: Wilfred?

Wilfred Arsenault (PC): Okay. Thank you, Mr.

Chair. Dr. Christie, I appreciate the knowledge that you bring to this table and I'm sure that with the years that you've spent in the field, we could certainly keep you here for days and weeks, but we won't go there.

I have a quick question here. If a lab would grab a hold of a bag of French fries from Cavendish Farms or McCains or anyone of those companies, could a lab determine if those fries were pre-cooked in canola oil that is a GMO product?

Dr. Bert Christie: I think so. If they can extract some of the oil from it, yes, they can tell.

Wilfred Arsenault (PC): Okay. Thanks.

Wilbur MacDonald (PC) Chair: Thank you very much, sir. I presume you're living on the Island, are you?

Dr. Bert Christie: Yes, I am.

Wilbur MacDonald (PC) Chair: I thought anybody that comes to the Island couldn't leave again.

Dr. Bert Christie: No, that's correct.

Wilbur MacDonald (PC) Chair: So you'd be probably following the course of the hearings, will you?

Dr. Bert Christie: Yes, I will, with interest.

Wilbur MacDonald (PC) Chair: We may need you to come back. You would be available if we (Indistinct)?

Dr. Bert Christie: Yes, if I can be of any assistance. I live in Stratford, so -

Wilbur MacDonald (PC) Chair: That's a good place, too.

Dr. Bert Christie: Yes.

Wilbur MacDonald (PC) Chair: So thank you very much.

Dr. Bert Christie: Thank you.

Wilbur MacDonald (PC) Chair: I'm going to call a five-minute recess. We want to go in camera for about five or ten minutes to look at the hearing -

people coming before for us, okay. So it's not necessary to have that on the website, okay? So if you don't mind, we'll say in about five minutes' time, we'd like the room to be empty.