

**STANDING COMMITTEE ON  
ENVIRONMENT AND PUBLIC AFFAIRS**

**GENE TECHNOLOGY BILL 2001  
GENE TECHNOLOGY AMENDMENT BILL 2001**

**TRANSCRIPT OF EVIDENCE  
TAKEN AT PERTH  
ON MONDAY, 12 MAY 2003**

**Members**

**Hon Christine Sharp (Chairman)  
Hon Kate Doust (Deputy Chairman)  
Hon Jim Scott  
Hon Louise Pratt  
Hon Frank Hough  
Hon Robyn McSweeney  
Hon Bruce Donaldson**

**Committee met at 10.36 am**

**O'NEILL, MS SUSIE**  
**General Manager, BioScience,**  
**Bayer CropScience Pty Ltd,**  
**examined:**

**WHITEHOUSE, MR PETER**  
**Breeding and Product Development Manager,**  
**Bayer CropScience Pty Ltd,**  
**examined:**

**The CHAIRMAN:** Welcome to today's hearing of the Standing Committee on Environment and Public Affairs. Thank you very much for coming in. We will first go through a brief formality. You have signed a document entitled "Information for Witnesses". Have you read and understood that document?

**The WITNESSES:** Yes.

**The CHAIRMAN:** You are also probably aware that these proceedings are being recorded by Hansard and a transcript of your evidence will be provided to you in due course. To assist the committee and Hansard, if you intend to quote from any document, will you ensure that you quote the full title of the document to ensure the right identification, and please be aware of the microphones so that we get a good recording.

I remind you that your transcript will become a matter of public record. If, for some reason, you wish to make a confidential statement during today's proceedings, you should request that your evidence be taken in closed session. If the committee grants your request, any public and media in attendance will be excluded from the hearing. Please note that until the transcript of your public evidence is finalised, it should not be made public. I advise you that premature publication or disclosure of public evidence may constitute a contempt of Parliament and may mean that the material published or disclosed is not protected by parliamentary privilege.

Do you have a presentation or statement that you would like to make to the committee this morning?

**Ms O'Neill:** We have a presentation, which I think you have in front of you. We will go through that and use that as a guide for the Bayer CropScience presentation. It might be easier to go through that and then take questions at the conclusion, if that suits the committee.

**The CHAIRMAN:** That sounds like a good idea.

**Ms O'Neill:** In today's presentation to the committee, Mr Whitehouse and I will cover a little about Bayer CropScience, our status on genetically modified canola, our commercialisation plans, some features and benefits of our product InVigor hybrid canola and the variety we first plan to launch, InVigor 70, and information on Liberty herbicide. We will then follow up with some information on stewardship, our crop management plan, the Gene Technology Grains Committee, the handling of GM grain, markets, market access, commercial trials and the path forward.

Bayer CropScience has 270 employees in Australia. We invest more than \$8 million a year in research and development and the BioScience division employs 20 people. That division obviously has our GM canola program and it administers a major global collaborative research project in an alliance with the Commonwealth Scientific and Industrial Research Organisation. We also have a conventional seed company in Toowoomba, Queensland. We have invested more than \$10 million

in our GM canola project since it first started in 1997. Our continued investment in biotechnology in Australia is about \$3 million a year. We have a strong partnership with the department of agriculture in Victoria, where we have a germplasm arrangement. We have also strong industrial involvement in Australia with three production facilities for our crop protection products in Kwinana, Western Australia; Wyong, New South Wales; and Pinkenba, Queensland. These three plants produce 90 per cent of the products sold in Australia. We get the active ingredient from our overseas parent company and we formulate locally. We are one of the largest crop protection companies in Australia, although our biotech division is currently quite small.

I will talk about GM canola. Our InVigor breeding program commenced in 1997. InVigor hybrid canola, using the same genetic modification was launched commercially in Canada in 1996. It currently has about 25 per cent market share of the canola area grown in Canada. Our submission to the Office of the Gene Technology Regulator was made in June last year. The OGTR considers only environmental and human health and safety factors and has 170 days plus stop-the-clock time to consider our application. At the end of October last year the OGTR announced a stop-the-clock on both the Bayer and Monsanto submissions, seeking further information on our crop management plan and stewardship and supply chain issues. The clock has obviously started again on the Bayer submission. On 1 April this year the OGTR released a draft risk assessment and risk management plan - RARMP - on the InVigor submission. The OGTR's conclusion was that InVigor hybrid canola poses no higher risk to the environment or to human health and safety than conventional canola. Because of that, the OGTR has decided that no conditions will be imposed on our licence. A public consultation phase is under way, which closes on 26 May this year. Provided that no further evidence on human health and safety and the environment is brought to the OGTR's attention, we expect that no conditions will be imposed on our licence by the OGTR.

[10.40 am]

Incidentally, the oil that is produced from InVigor hybrid canola is approved today by Food Standards Australia New Zealand. It has been approved in Australia and many countries around the world. We also are continuing today to operate under our trial permit, which is called DIR10. We operated under that permit last year and we are also able to operate under it in 2003 and 2004 for the purposes of our breeding and development trials. These trials tend to be very small plots of between one and three hectares. We have approval to conduct those trials in every canola-growing State in Australia, and we plan one trial in Western Australia this year. The Office of the Gene Technology Regulator has embarked on an extended final public consultation phase, which goes for eight weeks and concludes on 26 May. We expect it to give us general release on or about 19 June this year, which coincides with the end of its statutory 170-day period. The OGTR does not consider markets or market access; it considers only the environment and human health and safety. State government support is required for commercial release in each State due to these outstanding issues of markets, market access and trade.

I am not sure whether this committee has published an interim report, but the South Australian select committee has published an interim report. Its final report is due in June or July this year, but in its interim report it stated clearly that it has confidence in the OGTR for human health and safety and environmental considerations and it has confidence in the OGTR to consider the impact of those particular matters in South Australia. However, it will seek further advice on markets and market access because, over the period of its inquiry, it has received conflicting reports on markets and market access.

In terms of the political environment and what is happening State by State for genetically modified canola, I have listed the States on this slide and have tried to reference the relative importance of the crop by looking at the crop area grown in 2001-02 and the average yield. You can see from that slide that Western Australia plants the most canola. Its yields are slightly lower. I think there are some marginal conditions in which it is grown, but it is an important canola market. New South

Wales has announced its intention to have a moratorium on the future commercialisation of GM food crops for a period of three years as an election promise. New South Wales farmers are supportive of coexistence and commercial-type trials to answer the outstanding market and market access issues. Last week the Victorian Government announced an industry-agreed moratorium on commercial plantings in 2003. The Victorian Farmers Federation and the canola industry are supportive of limited commercial release. In fact, Bayer CropScience does not see the need for a moratorium in Victoria in 2003, but we are committed to working through this issue with the Victorian Government. In South Australia the select committee inquiry may or may not recommend a moratorium. The findings are due in June-July this year. South Australia is quite important to our business in the future. We have a site in Mt Gambier, which will be the future focus for our seed production and is a closed-loop, highly specialised business. As well as having commercial interest to us for growing canola, our seed production in South Australia is obviously quite an important business for us in the future. Western Australia has announced that legislation will be introduced for GM-free zones. We met privately with Minister Kim Chance some weeks ago and discussed with him the concept of commercial-type trials on a small scale, and I will go into detail a bit later about what we consider a commercial trial. It is looking at staged, limited and controlled release of areas bigger than our small plot trials, which are allowed today and which are big enough to generate robust data to answer the outstanding issues on markets, market access and coexistence. No commercial canola is grown in Tasmania or Queensland.

The next slide is a little more detail on canola production and shows the tonnes produced, which is included in the previous graph so I will skip over that quickly. Bayer CropScience has always supported limited and controlled commercial release to ensure that the market is ready to start growing InVigor hybrid canola. We feel that limited commercial release is necessary to demonstrate the benefits to canola growers. The trial permit from the OGTR that we currently operate under is very restrictive in what we can and cannot do. For the past two years we have received approval to plant our canola extremely late outside the normal planting window, so it has been difficult for us to show, with a very limited number of trials, the benefits to growers. We want to ensure that the technology is correctly managed and we will do this by working with a small number of growers. We want to raise the confidence of farmers, the grain supply chain and the canola industry in the technology and the ability of the grain supply chain to manage it. We need to ensure that growers and the wider industry gain experience in the management of InVigor hybrid canola.

[10.50 am]

Victoria was to be our key State in 2003 for several reasons, one of which was the timing of general release. Towards the end of June is reasonably late in the canola planting window. Also, variety suitability is an issue. InVigor 70 is our first variety for mid to late season, and is particularly suitable for Victoria. Our plan, as clearly stated, was that 1 000 hectares and 20 growers be the scope of our first commercial release. Originally, both technology providers planned between 1 000 and 5 000 hectares and maybe 80 growers; however, as the timing of general release became apparent, we scaled back our plans to something we thought was manageable and responsible.

We require state government support, and have been working with State Governments for a long time now. They sit in as observers in the east and west Gene Technology Grains Committee. The Governments have been involved in the entire process of developing supply chains to manage GM canola. We will be, and are, developing varieties suitable for all the key canola growing areas of Australia. Our small plot breeding sites have involved a lot of conventional breeding required to test and adapt varieties to ensure suitability for Australia. This country has a bad black lead problem; therefore, we need to ensure varieties are adapted for Australia. Commercial-scale plantings are necessary to demonstrate the technology, and commercial trials are necessary to ensure a staged and careful release and to answer outstanding market and market access issues.

I now move on to InVigor hybrid canola's technology and benefits. InVigor hybrid canola involves a unique hybridisation system, to which our company has proprietary rights, to enable us to produce a hybrid. The system uses a genetic modification to allow us to bring in germplasm from any program we like. Other hybrid systems commonly in use today use a narrow base of germplasm. Our particular system allows us to use wide genetic backgrounds, which, in turn, has led to the superior yields of InVigor hybrid canola. The hybrids are robust under adverse conditions; the hybridity is very stable. It also confers herbicide tolerance to Liberty herbicide, for which the active ingredient is glufosinate ammonium. Liberty is a new herbicide for broadacre agriculture. It is used quite widely today in horticulture in Australia and around the world under the brand name of Basta. It is used in vines, orchards and plantations, but not in broadacre agriculture.

As I said earlier, conventional breeding with our small plot trials is required to develop varieties adapted to Australian conditions. The first varieties from the Australian program show yield improvements of 10 to 15 per cent. Importantly, the Canadian program is more mature than the Australian program. The independent provincial trials in Canada indicate that our variety achieves 30 per cent more than the standards used there. The breeding program is more mature in Canada, yet our second-generation hybrids are providing even more yield improvements than those in the Canadian program.

InVigor hybrid canola is a new option for canola growers that they need to stack up against every other canola variety on the market they may consider growing. If they feel, as the Canadian growers believe, that our variety offers benefits, they will choose to grow it. The benefits from InVigor hybrid canola are economic, agronomic and environmental. It produces higher yields in the order of 10 to 15 per cent. Typical of many hybrid crops, we see improved vigour, faster establishment, stress tolerance, and improved uniformity.

The environmental benefits are as follows: first, Liberty herbicide is quite an innocuous herbicide. It was originally isolated from the soil bacteria - which is produced synthetically now, of course - and has an improved safety profile compared to some of the other canola herbicides used today; I refer in particular to the triazine products used on the triazine tolerant canola. Liberty herbicide results in higher yields and improved land productivity, which is also an environmental benefit.

Liberty herbicide comes from a new herbicide group - group N. It will control weeds that are today resistant to many of the other herbicides used; namely, groups A, B, M, et cetera. The benefits of using post-emergent products and being able to plant earlier are well documented. Liberty herbicide is a new and additional option for canola growers. They can choose to use Liberty or their conventional herbicide program. The use or sale of Liberty is not linked to the seed. If the weed profile fits the use of Liberty, growers can choose to use it. For growers to become familiar with InVigor hybrid canola and Liberty herbicide, we feel that commercial-scale planting is necessary for us to demonstrate the technology.

The next chart in my presentation shows varietal performance of InVigor 70, which is a mid to late season maturity canola. We have compared it to Dunkeld, which is a widely grown, conventional variety found in Victoria. It is a mid to late season variety. The yields in the far left hand column of the chart are for 2000; the column to the right is 2001, and to the right of that again is 2002. InVigor 70's yield is indicated as a percentage of Dunkeld's. One can see that the yield improvements from the trial in 2002 were substantial. We are being quite conservative in saying that yield improvement will be 10 to 15 per cent. We are confident that this result will be demonstrated over a wide variety of agronomic conditions and geographic areas.

Oil content is also worth noting for InVigor. Anything over 42 per cent receives an oil bonus. We expect the InVigor hybrid canola varieties will consistently achieve an oil bonus of up to a maximum of four per cent.

ATR Grace is a mid to late season TT variety grown widely in Victoria, and the yield and oil drag associated with the TT varieties is well known. The yield improvement of our first InVigor hybrid canola varieties was in excess of 20 per cent better than those of TT varieties.

Our products in the pipeline include the InVigor 40, which is a mid maturity variety likely to be more suitable widely in WA than InVigor 70. We will have limited availability of that product in 2004. InVigor 90 will have application in the far southern, high rainfall and long growing season areas of Western Australia. This variety contains quite an amount of winter oilseed rape genetic material, but still meets canola quality. The yield improvement of 30 per cent on standard production with the first variety we launched is outstanding. Again, limited seed will be available in 2004.

Liberty herbicide is a broad spectrum, post-emergent herbicide that controls broad leaf and grass weeds. We will recommend it in a two-spray sequential program, where the weed stage should be about two to four leaves for broad leaves, and up to the onset of tillering in grass weed, in seven to 14-day intervals. We have seen some good results with the sequential application relating to weeds that appear in canola. I refer in particular to rye grass at the two litre plus two litre sequential dose. That is used to control rye grass resistant to many herbicides used today. Again, use will be optional. Growers can choose to stick to their conventional program or use Liberty as part of the herbicide program. The group N mode of action is novel in broadacre herbicide use, and is a low risk for resistance. The main reason for this is its low frequency of use. It will be used a maximum of twice in the canola crop, and then once in the canola rotation - that is, probably once every three to four years. It has been used widely in horticulture for many years around the world. There is no documented case of a weed developing resistance to Liberty.

Liberty herbicide is currently being evaluated by the NRA, or the newly named Australian Pesticides and Veterinary Medicines Authority. The evaluation is complete and, in fact, it signed off on the label last week.

[11.00 am]

However, it will not give it the rubber stamp and approve its registration until InVigor hybrid canola is approved by the Office of the Gene Technology Regulator. It has confirmed with both us and the OGTR that it will come concurrent with the OGTR's registration of InVigor hybrid canola.

The next graph shows a gross margin for InVigor hybrid canola versus Dunkeld, which was included in the trial result in a previous graph. We are looking here at the grower level. We have not included herbicide cost in this first graph, because when the growers are using an identical herbicide program, there will be no differences in cost; it will be the same price per hectare. The assumptions we have made are that Dunkeld seed normally sells for about \$4 a kilogram, and the planting rate is about five kilograms a hectare. InVigor hybrid canola seed will sell for about \$16 a kilo, which is very competitive with the other conventional hybrid canola on the market, Hyola. The recommended planting rate for it will be three kilograms per hectare. Therefore, the average cost for the InVigor hybrid canola seed is about \$50 a hectare.

The assumptions we have made are that the Dunkeld will yield two tonnes per hectare and the canola will be worth \$400 a tonne. We have said that InVigor hybrid canola will yield 15 per cent more than that at 2.3 tonnes per hectare, and again be worth \$400 a tonne. Therefore, the InVigor advantage works out to be \$92 a hectare for the InVigor growers when they are using an identical herbicide program. This graph does not include an oil bonus paid for the InVigor. It also does not include any costs associated with identity preservation and keeping the supply chain separate. However, I think it is a good indication of the potential benefits due to the yield increase for InVigor hybrid canola growers.

The next graph shows the optional use of Liberty herbicide and also includes Grace, the Traizine-tolerant variety you saw in the previous graph, which yields about 80 per cent of Dunkeld. We have used exactly the same assumptions in this graph, but we have included the seed cost per hectare. As

in the previous table, Dunkeld will again be about \$20 a hectare, as will Grace. InVigor will be nearly \$50 a hectare. In terms of herbicide costs, we have said that a conventional herbicide program will be about \$30 a hectare. The Traizine herbicide is a bit less than that at \$20 a hectare, but I think we have been quite conservative in our estimate. Quite a bit of the TT variety would have a post-emergent grass herbicide like Select across it, and we have not included the cost of that in this table. For InVigor 70, the seed cost is the same as in the previous table. The recommended retail price for four litres of Liberty herbicide will be \$74 a hectare. Looking at the gross returns per hectare, Dunkeld is the same as in the previous graph, Grace is slightly lower due to the lower yield, and InVigor is the same, using the same assumptions as in the previous table. You can see that the InVigor advantage is \$50 to \$120 a hectare. Again, no oil bonuses are included.

In terms of grower communication, we have been asked a lot of questions about how we have communicated this information to growers. We have been quite limited in physically showing the growers due to the nature of our OGTR trial licence, but particularly in Victoria where most of our operation is based, we have shown over 200 farmers a year through our sites at Horsham and Lake Bolac. We have conducted numerous speaking sessions at Southern Farming Systems Ltd's meetings, at Birchip Cropping Group, and at numerous industry and farm forums. We have attended the Wimmera field days. We have also attended the Victorian Farmers Federation grains conference for the past three years and made presentations and had information available. We have a benefits brochure that is widely available and distributed. We have attended rural retailer agronomy and commercial meetings and made presentations, and we have written numerous articles for farm publications.

I will hand over to Peter Whitehouse now to talk about managing coexistence.

**Mr Whitehouse:** I think you are probably all aware of the Gene Technology Grains Committee that has been operating in both the eastern and western areas. The western group, of course, has been operating here for three years or more. It is a whole-of-industry approach to this coexistence area and comprises a range of scientists and representative grower groups such as the Western Australian Farmers Federation and the Pastoralists and Graziers Association. In the east, there are Victorian, New South Wales and South Australian farmers. There are bulk handling representatives. Food processors are on the committee, and marketers such as Cargill Australia and MarketLink are represented. There are also technology developers, of course, and the industry associations. There have been, and still are, observers from the commonwealth and all the States. The whole process is a chain process. The objective is to enable the coexistence of different production systems in the supply chain to deliver the grain. A strategic framework has been adopted, which covers the scope, objectives and principles of this coexistence.

The implementation strategy and future role of GTGC is being reviewed at the moment, and suggestions are being made for the Australian Oilseeds Federation to manage the ongoing role of this under a small canola working group. The plan for the canola industry and genetically modified canola commercialisation is falling from these overarching coexistence principles, and covers both the pre-farm - that is, the seed production - areas, the on-farm grain production and the grain handling post-farm guidelines. Guidelines are in place, or almost in place, for those areas.

The next two slides that we have laid out show, in graphic form, the commercial introduction of the grain and how we envisage it going through the supply chain. At the beginning the farmers would express interest in growing our canola. They would undertake stewardship training with the technology provider. Crop management plans would be reviewed. The contract that we would have with the farmer would be discussed, and there would be resistance management plans when necessary. The farmer would need to be accredited before continuing. He would sign a contract, which would cover a number of issues, such as the crop management plan and the various conditions of the licence that he would enter into with us. He would also need to enter into a contract with a grain marketer. When the farmer came to grow the crop, he would need to obtain

his seed from a retailer, who again would be accredited with the company. The farmer would show that he had obtained his accreditation. The seed would be supplied to him, and there would be a documentation process from us through to the retailer through to the farmer. Therefore, there would be a traceability of the seed lot numbers through that chain.

The crop management plan outlines and asks for a number of things, such as neighbour notification, the need to follow various inputs of the crop management plan, and record keeping, which is an important part of the process. As the farmer goes through the process, a number of principles would need to be followed, such as farm hygiene, machinery hygiene, grain storage issues and transport quality assurance protocols - areas like that.

When the crop is mature and harvested, it will be transported to a nominated receival site, where the farmer must declare that the grain is genetically modified. Certainly in the first instance it would be transported to a segregated site. He would nominate that it is a GM canola. Therefore, in some instances there would be a technology user agreement and a contract issue, not necessarily with the Bayer material but with others.

[11.10 am

As is currently the case, a sampling of that grain would be taken. A retention sample would be kept. Quality analysis and hygiene controls are placed on the transport provider, and storage and handling documentation is taken at the receivable point. The crop management plan covers a number of issues from the following year, including managing volunteers, seed storage - when necessary - and weed management etc. Accreditation and record keeping ensures that the process can be followed throughout.

I refer to some of the technicalities of cross-pollination between fields. This area has been discussed quite a bit and there seems to be some confusion about it. Dr Mary Rieger found that there is a low incidence of cross-pollination between canola fields in Australia. Sixty-three field studies showed that cross-pollination occurred at a maximum rate of 0.07 per cent, which is significantly less than the allowable one per cent. Those studies indicate that the average rate of cross-pollination was 0.003 per cent. We envisage a minimum separation distance of five metres between GM and non-GM canola for commercial production and a 400-metre separation distance between GM crops and where foundation, certified, pre-basic or even farmer-safe seed is grown. Again, farmers would decide those matters after holding discussions with their neighbours, even if the farmers were just saving seeds on their farms.

Liberty herbicide is not used for weed control on other broadacre crops. That is important from a resistance-management point of view. Generally, InVigor canola can be grown on a farm in one out of every three or four years of the crop rotation cycle. Volunteer canola is controlled in the next crop using existing chemicals, which is what is now used.

**Ms O'Neill:** I will refer to some of the facts about the import and export market of GM crops. There is a lot of misinformation or confusion about what the facts are today. Two charts in our submission are from the Western Australian Department of Agriculture's market impact study, of which I am sure every member of this committee is well aware. China and Japan are the two major canola importers and Germany is also a large canola importer. France, which is a net exporter of canola, supplies most of Germany's needs. In fact, Europe in general is a net exporter of canola; it imports canola on an ad hoc basis. Western Australia's main canola export markets are Japan and China, which, as I said, are the world's major canola importers. Western Australia exports to some other minor markets, including Bangladesh. In summary, China and Japan are the world's largest importers of canola. China and Japan are Western Australia's and Australia's key canola export destinations. Importantly, the coexistence protocols that are being put in place will still allow non-GM canola to be produced to supply our major non-GM markets. However, most of the markets to which Australia exports accept GM grain today.

The next slide in our submission shows Australia's market access. Again, these two charts come from the WA Department of Agriculture market study. I have read a lot of press coverage that Canada has lost its market share since it has grown GM canola. These graphs show the percentage of GM canola that Canada has imported into China and Japan since 1997-98, bearing in mind that Canada started growing GM canola in 1995. Between 75 and 80 per cent of Japan's canola requirement is sourced from Canada, which is the major GM canola supplier to China and Japan. The WA market report said that Japan, China, Pakistan and Malaysia account for 99.3 per cent of the canola exports from Western Australia. The conclusion of that report was that GM canola introduction in Western Australia would have little impact on export markets.

A lot of questions have been asked about the price premium for non-GM canola. Our submission contains a graph, which was developed by Max Foster, the chief economist at Australian Bureau of Agricultural and Research Economics. The graph, which was published in March this year, tracks the prices of Australian and Canadian canola in US dollars per tonne from 1990 to 2002. I have also marked the point on the chart when GM crops were first grown in Canada. The report concludes that there is no clear evidence of a price premium for non-GM canola in the market.

I will refer to how our system of licences and agreements will work. Our system will involve the use of a grower licence. A grower licence is not considered necessary for controlling the technology. Although grower licences are not used in Canada, the Australian system will involve the use of grower licences. That will ensure that there is traceability throughout the supply chain and that the grower is committed to following the crop management plan for stewardship purposes once he has been trained and buys our seed. It is a simple system. One hundred per cent of the technology value is sold in the cost of the seed. There is no technology-use agreement or end-point royalty. A one-up purchase of the seed entitles farmers to grow the technology. The herbicide is not linked to the sale of the seed. Farmers can decide whether or not they will use the herbicide. The licence will prevent farmers from saving the seed and planting it again. That is a good management system with regard to hybrid seeds whereby the fitness of the second generation or F2 generation decreases and the seed segregates somewhat and becomes susceptible to the Liberty herbicide. For those reasons, it is accepted practice that fresh hybrid seed is sold every year. The licence will cost \$10 each, rather than per hectare. The fee will be used to pay our distributors and for administrative fees. The only additional cost will be the \$10 for the annual licence.

We will again have an agreement with our distributors, because we expect them to follow some protocols with regard to seed storage and handling. To allow traceability through the system, the distributors will have to record the lot number of the seed on the invoice so that it can be tracked from go to whoa. We will also expect them to manage our grower licences and commercial issues. InVigor specialists will be distributor agronomists, who will be trained by Bayer CropScience. They will be experts in not only canola growing but also InVigor, hybrid canola and Liberty herbicide technology. Ultimately, they will carry out the training and accreditation of the farmers for us.

State Government support is required for limited commercial release due to market access issues. Some monitoring will be required to generate the data to provide answers to outstanding issues and questions. We urge that the data be market-orientated, not environmentally orientated, as are the current restrictions under which we operate under the Office of the Gene Technology Regulator. As we said, DIR10, our small plot breeding trials, will go ahead in each State this year. Commercial scale trials will be conducted on properties between 100 and 1 500 hectares in each canola growing State. This will enable us to demonstrate the technology to growers, build confidence and test the supply chain protocols to manage coexistence. When market access issues are resolved, we urge that we have freedom to operate commercially as market forces dictate. At the end of the day, we are launching a canola variety that farmers will weigh against every other canola variety they grow. If it offers benefits, they will choose it. If it does not, they will not buy it. We will do this in a

responsible way so that the supply chain and coexistence issues can be answered and so that we can ensure that they work.

The final slide in our submission shows a list of recent publications. I will go through them quickly. They are independently published and support GM canola from an economic, agronomic and environmental point of view. The first publication is titled "Genetically Modified Canola in Australia". It was written by Dr Phil Salisbury and was published by the Australian Oilseeds Federation. It contains analysis not only of the Dr Mary Rieger study, which was conducted in Australia, but also in coexistence and identity preservation trials done around the world.

[11.20 am]

That publication concluded that pollen flow, outcrossing and weediness present a low risk to the environment. The next publication by Dr Rob Norton from the University of Melbourne, assisted by AVCARE and published in March 2003 is "Conservation farming systems and canola". It concluded that GM canola was worth \$135 million annually to Australian farmers. The next publication by the Bureau of Rural Sciences and AFFA, published in March 2003, is entitled "Agricultural Biotechnology: Herbicide-Tolerant Crops in Australia." It concluded that herbicide-tolerant canola can offer improved weed control, increased management options and environmental benefits; there are some risks for weeds resistance; and it can improve contributions to ecologically sustainable agriculture.

The next publication by Max Foster, a chief economist with ABARE, published in March 2003, is entitled "Australian Grains Industry 2003, GM canola - what are its economics under Australian conditions". It concluded that additional costs to comply with GM market access restrictions are insufficient to offset the agronomic benefits to Australian production. The next publication by the Department of Agriculture, Western Australia, is entitled "Assessment of the International Market for Genetically Modified Canola". It concluded that 99.3 per cent of Western Australian export markets are at low risk if GM canola is introduced, and that the introduction of GM canola would have minimal impact on the WA canola industry.

The final publication, in April 2003, is by OGTR and is entitled "Risk Assessment and Risk Management Plan - InVigor hybrid canola". It concluded that InVigor hybrid canola poses no greater risk to the environment or to human health and safety than conventional canola.

I produce a folder of reference material containing copies of those publications, some key coverage in the Press, highlights and information about Bayer CropScience, a product bulletin and a number of publications. I could not bring nine copies of this folder with me on the plane. It contains a list where most of these publications are available on the web. We could provide additional hard copies of this folder if required. I leave this folder for the committee.

**Hon BRUCE DONALDSON:** You referred to a small plot trial and a commercial trial to provide a more robust example of the benefits. What size is a commercial crop trial?

**Ms O'Neill:** In Victoria this year we were looking at about 50 hectares on a grower's farm. We would have about 20 growers, each growing about 50 hectares, and compare it to a standard variety. It is sufficient area in total where some data can be generated from those sites spread over a wide area and sufficient grain is produced to comprise a parcel of grain that can be handled through the system and tested. That is why we have said between 1 000 and 5 000 hectares in each State. Our small plot trials are between one and three hectares, consisting of hundreds of 2 x 3 metre small plots from which we make agronomic assessment for the different varieties. It is essentially conventional breeding.

**Hon BRUCE DONALDSON:** You referred to a five-metre and a 400-metre buffer for seed. If you are confident that five metres is sufficient between traditional canola, Liberty canola or InVigor 40 or 70, why would you suddenly jump from five metres to 400 metres?

**Mr Whitehouse:** Under Australian seed production protocols, 400 metres is the traditional separation distance when growing seed canola. That is why we have stuck to that distance. It comes back to threshold numbers and what number we are aiming at. We cannot stop some gene flow. We are talking about the levels.

**Ms O'Neill:** When it comes to seed production, a higher level of purity is generally accepted for the seed to be grown as crops - it needs a higher level of purity than the commercial crop.

**Hon BRUCE DONALDSON:** Were you surprised that the Victorian Government moved to a moratorium for 12 months for the commercial release?

**Ms O'Neill:** I would not like to speculate on the internal workings of the Victorian Government, but it is not entirely based on science or logic. We have obviously worked with the Victorian Government on this issue, and we have come out in support of working with it in the future, because that is very important to us. Whilst we do not see the need for a moratorium, there is some concern by people who have not really been involved. The Department of Agriculture and the Ministry of Agriculture have been involved in this for a long time, but quite a number of backbenchers are not well informed on the issues, so when it came down to the party making a decision, it had to go this way.

**Hon JIM SCOTT:** You referred to the canola status and the oil that is produced for human consumption in Australia and New Zealand. Is this one of the varieties that is approved in Europe as well?

**Ms O'Neill:** Approval has been applied for in Europe, but InVigor oil is not yet approved in Europe, although it is in many countries around the world.

**Hon JIM SCOTT:** On page 7 under estimated returns you compare Dunkeld with InVigor hybrid. There is a figure under the dollar amount of the seed cost of five kilograms per hectare for the Dunkeld and three kilograms per hectare for InVigor. What is the reason for the variation?

**Ms O'Neill:** The Dunkeld is a standard, conventional open-pollinated variety, and that tends to be what the departmental recommendation is for seed planting costs.

**Hon JIM SCOTT:** For open-pollinated varieties?

**Ms O'Neill:** Yes. InVigor hybrid canola at three kilograms per hectare is the same as, for example, Hyola hybrid seed, a conventional hybrid, and we do not need as high a plant population. They are more vigorous and the stems are thicker. That is the generally accepted rate for a hybrid. Ours is not lower than standard at all.

**Hon JIM SCOTT:** In the bottom part of the chart on page 9 referring to managing coexistence, you list the process that a farmer must go through to get to grow and enter into a contract with the grain marketer. One of the questions we are often asked is who would be liable if there was a problem, once a farmer had signed a contract with the grain marketer and the technology provider.

**Ms O'Neill:** Until it is ultimately tested, we do not know. GM cotton farmers can get insurance; there are no issues there. There is testing all the way along the chain, and if non-GM canola were tested and there was a problem, something has gone wrong. The levels that will be achieved by following the rules and doing the right thing will ensure that grain is grown, even on the non-GM canola farm, to meet the market specification. So something has gone wrong somewhere along the line.

[11.40 am]

From a legal standpoint, if loss can be proved, it will be the same situation as when spray drift from one farm to another occurs, and it will be sorted out in the courts in the same way. If spray drift occurred across a boundary fence into a neighbour's property and caused him loss, then he would be taking you to court.

**Hon JIM SCOTT:** Looking now at managing coexistence, there is a framework for the GM grower, but was there any framework for the non-GM growers, in order for them to meet their market requirements? On page 9 there is a framework for managing coexistence from the point of view of the GM grower, but not from that of the non-GM grower. Was there a protocol or some sort of guideline for the non-GM grower?

**Ms O'Neill:** There are lots of protocols available today that talk about seed production, or whatever. If you are a seed producer it does not matter whether you are a GM or non-GM seed producer, you follow the protocols. Different parts of the industry have different protocols. The coexistence protocols that have been developed ensure that the growers of GM canola do not impact on the non-GM grower. There is no onus on the non-GM grower to spend money adopting the principles. They do not have to adopt a quality management system. Ultimately, all farming is moving towards that anyway, but the coexistence principles have been designed for the GM grower to ensure that they do not impact adversely on the non-GM grower.

**Hon JIM SCOTT:** One of the factors in the cross-pollination issue of which we have been made aware in Canada and the United States, is that it is not so much the pollination being a problem, but that even the suppliers of the pedigreed seed are finding very high levels of admixing of GM and non-GM varieties. They now find it very hard to supply what would be considered a pure sample. How is our system set up to prevent that from happening?

**Mr Whitehouse:** The seed industry in Australia is working to put together protocols for adventitious presence in planting seed. They are based on protocols and standards from around the world, so that there will be continuity in seed production, whether it be in Europe or Australia. That is in process now, and will be ratified at the next Seed Industry Association of Australia meeting, which is in August.

**Ms O'Neill:** They produce to a standard. Weed seeds must be under a certain level, or the sample is not certified as being plantable seed.

**Hon JIM SCOTT:** On the same page it says that the standard that has been set and agreed to by the Australian Oilseed Federation refers to a one per cent cross-pollination. I presume they are talking about one per cent in the final product.

**Mr Whitehouse:** That is the maximum allowable in the final product. It can be up to that level.

**Hon JIM SCOTT:** My understanding of the European market is that it is moving to much tougher standards than that. In fact, while it is moving to 0.5 per cent, the very large supermarket chains are talking about 0.01 per cent. I know that is not the case in Japan, which is a more significant market. However, it is clearly a market that Australia can already get into. Do you think this system will allow Australia to continue to access markets that are looking for 0.01 per cent, which is the lowest traceable amount?

**Mr Whitehouse:** I believe that is the case. In certain markets there are market segments that are producing to these levels, and there is no reason Australia cannot follow suit and achieve those levels. As the level gets lower, there will obviously be more costs associated with proving that lower level. Therefore, those people demanding that produce may well be required to pay more, but those markets can be met.

**Ms O'Neill:** I think the Europeans are talking about 0.9 per cent. They are not talking about 0.5 per cent.

**Mr Whitehouse:** A range is being discussed in Europe, from 0.5 to 0.9 per cent. That should be answered fairly quickly.

**Ms O'Neill:** That is only slightly below the level stated for Australia.

**Hon JIM SCOTT:** You mentioned a \$10 distributor fee. Is this \$10 flat, or \$10 per unit of weight?

**Ms O'Neill:** It is \$10 per licence, and we will pay that to the distributor to administer the licence.

**Hon JIM SCOTT:** So there are no technology fees?

**Ms O'Neill:** No. The cost of the technology is included in the price of the seed.

**Hon LOUISE PRATT:** In relation to cross-pollination, you mentioned statistics specific to Australian fields. Are the Australian fields characterised in any way differently from canola fields elsewhere in the world in terms of the issues of pollen flow? I have heard various statistics on pollen flow in various conditions, which are not necessarily consistent with these claims. Therefore, I am interested to know whether there are specific conditions associated with Australia.

**Mr Whitehouse:** The document produced independently by Dr Phil Salisbury, who reviews the data from around the world, shows that the Australian data falls into the same graph as that produced in other parts of the world. Cross-pollination drops off very quickly in the first metre between the two crops.

**Ms O'Neill:** We would have to look at it in greater detail, to see if there is any trend. Dr Salisbury's conclusion was that the pollen flow risk is low, looking at data from all around the world, including Australia. I guess work that has been done in Australia is more relevant to what will happen in Australia.

**Hon LOUISE PRATT:** On your estimated returns, you mention that that does not include identity preservation. I am trying to work out what you mean by identity preservation. Do you mean the supply chain?

**Ms O'Neill:** It does not include that, and there are various estimates of what it may or may not cost. Max Foster, in his report, modelled it on about 10 per cent. We have some figures for what it was likely to cost us in Victoria this year to have one site, and the associated clean-down, and that was five per cent. Depending on who you talk to, it might end up being around five or 10 per cent. Even at those levels, the point to make is that those costs are borne by the GM grower, not the non-GM grower. At those levels, taking into account the marginal information we have put before you, InVigor would still offer a benefit over non-GM canola. We can get quotes, which is what we have done for this year, but until small-scale commercial trial actually happen, and it moves through the system, we do not know what the actual costs will be. As more growers grow it, the costs will go down relative to the price per tonne, but we are taking a bit of a guess at the moment.

[11.40 am]

**Hon FRANK HOUGH:** You said that in Canada there was no perceived premium for non-GM canola. The group in Canada to which the committee spoke said clearly there was a premium and it was struggling to keep up with demand.

**Ms O'Neill:** I was quoting Max Foster's report, which analysed the markets over the past 12 years, and that was his conclusion. I cannot comment specifically on what you may have been told by non-GM canola growers in Canada.

**Hon FRANK HOUGH:** I apologise for coming in late. I think you repeated twice that you continually hear misinformation and untruths. From the other side of the fence, the non-GM growers use the terms misinformation and untruths when they talk about GM proponents. It makes me worry about who is telling the truth.

**Ms O'Neill:** Obviously our friends in the network of concerned farmers and people like that tend to use more emotional language. There are probably 100 publications to be read about this subject. In all our presentations we have tried to quote independent, scientific sources and publications. Without speculating on what may or may not happen I cannot answer your question on the Canadian comments. We try to stick to science and independently verifiable data.

**The CHAIRMAN:** Is there a cost to growers to do the stewardship training?

**Ms O'Neill:** We will absorb that cost.

**The CHAIRMAN:** With regard to the commercial trials you are seeking permission to undertake in WA next year, when you use the word “commercial”, does that imply that the crop produced will be sold?

**Ms O’Neill:** Yes. There will be a pool. Cargil Australia was establishing a GM pool in Victoria this year. It had a market for it, and it would be treated the same as any other marketing pool.

**Mr Whitehouse:** All costs from GM costs would go into that pool.

**The CHAIRMAN:** Would the crop from any commercial trial in WA go to Victoria first?

**Ms O’Neill:** No. Due to the tyranny of distance it might not. I am not sure where that parcel of grain would be shipped from here. From when it was harvested until it was shipped to port it would be separated and it would be pumped onto a boat going to Japan, China, Pakistan or Bangladesh, with all the non-GM grain on top. It does not have to be separated to go to these markets if they accept GM grain. It would be kept separate until it was loaded onto the ship, when the non-GM grain would be pumped on top and taken to the destination market.

**Mr Whitehouse:** This would need to be worked through with the Grain Pool and its process, which we have not started working through yet.

**Ms O’Neill:** That is what was organised in Victoria.

**The CHAIRMAN:** I do not know anything about glufosinate ammonium. How long has that been used commercially anywhere in the world and why has it not been used before in broadacre agriculture?

**Ms O’Neill:** It has been off patent now for, I think, about 15 years. We have sold it in Australia for 15 or more years. It has not been widely used for broadacre agriculture because it is expensive to manufacture. The price of \$74 a hectare for four litres compared with the cost of glyphosate, SU, trifluralin etc - it has a niche fit on tolerant canola - means that it is not economical to use it widely in broadacre agriculture.

**The CHAIRMAN:** Is there anything, biologically speaking, that substantiates your claim that there would be less problem with herbicide resistance or is it just a question of the relatively lower exposure of this herbicide?

**Ms O’Neill:** It has been used widely around the world in horticulture for a long period. There is not a single documented case of weed resistance developing. Many weeds in nurseries, orchards and plantations also occur in the broadacre system. There is no resistance today despite widespread and long-term use in horticulture. Combined with the low frequency of use we will see in canola crops, we think it involves a very low risk to develop.

**The CHAIRMAN:** Does some of the supplementary information you have refer to the characteristics of Liberty herbicide and its agronomic history?

**Ms O’Neill:** No; we can send you additional information on Liberty herbicide. The South Australian select committee requested some from us. We cannot send you the Liberty label yet because it has not been registered by the regulator. As soon as it is registered, we can send it. However, we can send some information on how it will be used, what weeds it will control and some trial results on rye grass in WA.

**The CHAIRMAN:** Could that include some of its agronomic use elsewhere in the world or Australia as glufosinate ammonium rather than your patented brand?

**Ms O’Neill:** The only brand available is our brand.

**The CHAIRMAN:** Has it always been only a Bayer product?

**Ms O'Neill:** No; it was an Agrevo product. When that company formed a joint venture with Rhone Poulenc it became an Aventis product. When Bayer bought our company last year, it became a Bayer product.

**The CHAIRMAN:** I am asking for a history of the use of the product not limited only to your own use. It would be good if you have that available.

**Hon LOUISE PRATT:** When you speak about commercial trials for the purposes of the gene technology regulator is that the equivalent of uncontrolled release?

**Ms O'Neill:** No.

**Mr Whitehouse:** It would yes.

**Ms O'Neill:** But it would be still limited.

**Hon LOUISE PRATT:** What are the gene technology regulator requirements? Will it be uncontained release?

**Ms O'Neill:** Do you mean when the regulator issues us with a licence to deal?

**Hon LOUISE PRATT:** A licence, or -

**Ms O'Neill:** That is correct. We wrote to the Government of Western Australia in December last year with an undertaking that we would not commercialise in 2003.

**Hon BRUCE DONALDSON:** I refer to Liberty herbicide. As a farmer who has grown canola, I know what happens. You said that the use of Liberty herbicide would be optional. The Liberty herbicide is a post emergent. Would a person growing the InVigor hybrid, for argument's sake, continue if they wanted to with atrazine?

**Ms O'Neill:** No, conventional herbicides only.

**Hon BRUCE DONALDSON:** At the moment canola growers must control the weeds. One of the greatest problems with yield potential is when there is a weed burden up to the two to four-leaf stage. You are talking about a sequential spraying program. Do you minimum till without applying any herbicide up-front?

**Ms O'Neill:** Depending on how much rain and what the weed burden is.

**Hon BRUCE DONALDSON:** Given a dry seeding program, which many farmers in Western Australia adopt, what would you do?

**Mr Whitehouse:** Depending on the strategy used on a farm, a farmer could use a pre-emergent trifluralin. He could dry sow, wait for the emergence of the weeds and spray with Liberty in a two-stage approach. Again, depending on the weed spectrum the farmer could wait in that case, not use Liberty and use post-emergent grass herbicides or post-emergent broad-leaf herbicides that are available. A number of options are available. This adds to the options.

**Hon BRUCE DONALDSON:** Why do you need the second spray application within seven to 14 days?

**Mr Whitehouse:** From weed control work that the company has worked with over the past seven or eight years in this area, the two-application process is the best weed-control strategy.

[11.50 am]

**Hon BRUCE DONALDSON:** Are those two sequential spray programs included in the \$54 or \$74 a hectare?

**Ms O'Neill:** Yes. I have not included the cost of the application. I have included two sprays of two litres, and that is sequential. For some weeds and some lower weed burdens the program we recommend will either be one and a half plus one and a half and the higher rate will be two litres

plus two litres. In fact - Peter alluded to this - the timing, and having it definite within those 14 days, is important to deliver an acceptable efficacy result.

**Hon ROBYN McSWEENEY:** When you talked about distributor agreements and seed storage and handling, you said that fresh seed was sold every year. Why is that so?

**Ms O'Neill:** I glossed over that. InVigor hybrid canola is a hybrid seed. When growers buy the seed from the company and grow it, some of the harvested seed from the open pollinated varieties, which would normally go to the markets, is sometimes saved and some of that seed is used to sow in the ground the next year. If that is done with a hybrid seed, and planted, it will not breed true. Although it is fertile to a limited extent, some of the fitness and varietal characteristics segregate and become susceptible to Liberty herbicide. It does not breed true; like all other hybrid crops, you need to buy fresh seed every year.

**The CHAIRMAN:** What happens when you spray InVigor canola with Roundup Ready?

**Ms O'Neill:** Like any other non-Roundup Ready tolerant canola, it will bowl it.

**Hon BRUCE DONALDSON:** I note what the South Australian select committee has said. In Canada and the United States it is true that human health and safety and the environment are the focus of the gene technology regulator and that the marketability of a product is not. During our trip, a number of people suggested that before an application is given, the marketing of the product should be assessed. Should the two aspects be divorced from one another, or should the Gene Technology Regulator bring in another advisory committee on top of the three that already exist to look at a product's market accessibility?

**Ms O'Neill:** When the OGTR was established, a number of wide-ranging public inquiries were conducted to determine what should and should not be considered. It was strongly put that it should not consider markets or market access; therefore, the Gene Technology Act was written without any consideration of that. The national chemical regulator has to assess the impact of different things on trade, and the way that is done is clearly laid out. It is not clearly laid out how any of the States will treat market accessibility. The regulator clearly does not have to do it. I guess it is pretty difficult for us to answer that question, because it is not set up; only the environment and human health and safety concerns are assessed. That decision was made due to the public consultation at the time it was set up.

**Hon BRUCE DONALDSON:** Where does that sit best?

**Ms O'Neill:** For us the state-by-state approach is a fractured approach, because the States have different points in their thinking process. In terms of the commercial freedom to operate, it makes it quite difficult. We are working with what the rules are today and obviously encouraging a limited controlled release to answer the outstanding questions, because there is no clear way that they can be answered. No Government has said that if this happens it will be fine. It is difficult. Slowly and surely we are working at introducing the technology and answering the questions. However, if it was clearly laid out at the federal level, and the States did not mind something like that being decided federally, it would be easy for us. However, that has not happened.

**Hon JIM SCOTT:** The product has been approved in terms of health and environmental concerns. Who carries out the health tests, and how do they go about them? Are animals used in the testing?

**Ms O'Neill:** We need our regulatory affairs manager here.

**Mr Whitehouse:** Food Standards Australia New Zealand, formerly ANZFA, has strict requirements for what we need to provide. We have followed its requirements and protocols in providing that data. That is the only way I can answer that question.

**Ms O'Neill:** We could provide the committee with an overview of the types of assessment if that is required, but we are not able to answer that question here today.

**Hon JIM SCOTT:** That would be great.

**The CHAIRMAN:** Yes, thank you. That is it for this morning. We appreciate you coming all this way. Your information has been very interesting.

**Ms O'Neill:** Thank you. We appreciate the opportunity.

**Committee concluded at 11.56 am**