



COMMONWEALTH OF AUSTRALIA

Official Committee Hansard

**HOUSE OF  
REPRESENTATIVES**

STANDING COMMITTEE ON PRIMARY INDUSTRIES  
AND REGIONAL SERVICES

**Reference: Primary producer access to gene technology**

TUESDAY, 27 JULY 1999

PERTH

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**HOUSE OF REPRESENTATIVES**  
**STANDING COMMITTEE ON PRIMARY INDUSTRIES AND REGIONAL SERVICES**

**Tuesday, 27 July 1999**

**Members:** Fran Bailey (*Chair*), Mr Adams, Mr Andren, Mr Horne, Mr Katter, Mrs De-Anne Kelly, Mr Ian Macfarlane, Mr Leo McLeay, Mr Nairn, Mr Secker, Mr Sidebottom and Mr Cameron Thompson

**Supplementary members:** Mr Griffin, Dr Washer

**Members in attendance:** Mr Adams, Mr Andren, Fran Bailey, Mr Ian Macfarlane, Mr Leo McLeay, Mr Nairn, Mr Secker, Mr Sidebottom

**Terms of reference for the inquiry:**

To inquire into and report on the following areas, with particular emphasis on the capacity of small and medium sized enterprises to access the benefits of gene technology:

- . the future value and importance of genetically modified varieties;
- . the ability for producers to compete using traditionally available varieties;
- . the commercialisation and marketing of agricultural and livestock production varieties;
- . the cost to producers of new varieties;
- . other impediments to the utilisation of new varieties by small producers;
- . assistance to small producers to develop new varieties and the protection of the rights of independent breeders, in relation to genetically modified organisms;
- . the appropriateness of current variety protection rights, administrative arrangements and legislation, in relation to genetically modified organisms; and
- . opportunities to educate the community of the benefits of gene technology.

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**Committee met at 8.32 a.m.**

**CHAIR**—I declare open this public hearing of the inquiry of the House of Representatives Standing Committee on Primary Industries and Regional Services into primary producer access to gene technology. The inquiry was referred to this committee at the end of March by the then Minister for Agriculture, Fisheries and Forestry, Mr Mark Vaile. Written submissions were called for, and 66 have been received to date. The committee is now starting on a program of public hearings and informal discussions around the country. This hearing is the first of several that are planned over the next few months.

This inquiry concerns the use of gene technology by Australian farmers which has the potential to improve the productivity of farms and the quality of food and fibre produced. Genetically modified crops and livestock also offer the promise of lessening the impact of agriculture on the environment. The inquiry will examine the processes by which genetically modified varieties are made available to primary producers and what steps need to be taken by government to facilitate these processes.

The committee is aware of the existence of some consumer disquiet over genetically modified food, particularly in Europe, and the possible impact this may have on Australia's agricultural export trade. The committee recognises that it will need to consider carefully how this disquiet can be addressed: for example, through appropriate regulation of gene technology and through education.

The committee's proceedings are recognised as proceedings of the parliament and warrant the same respect that proceedings in the House of Representatives demand. Witnesses are protected by parliamentary privilege in respect of the evidence they give before the committee. Witnesses will not be asked to take an oath or make an affirmation. However, they are reminded that false evidence given to a parliamentary committee may be regarded as a contempt of the parliament. The committee prefers that all evidence be given in public, but should any of the witnesses at any stage wish to give evidence in private they may ask to do so and the committee will give consideration to their request. I now call the representatives of the Western Australian government.

[8.34 a.m.]

**CORNWELL, Ms Celia Jane, Manager, Policy and Legislation, Agriculture Western Australia**

**DELANE, Mr Robert John, Executive Director, Agriculture Protection, Agriculture Western Australia**

**DRACUP, Dr Miles Neville Hayward, Senior Research Officer, Agriculture Western Australia**

**CHAIR**—We have received a submission from the Western Australian government and we have authorised its publication. Before we begin our questions I would invite perhaps one of you as spokesperson to make a short statement to the committee.

**Mr Delane**—Could I just confirm whether or not there is media present today?

**CHAIR**—Yes. This is a public hearing and, to my knowledge, the ABC is present. That is the only media here of which I am aware.

**Mr Delane**—Thank you. Firstly, apologies from our CEO, Dr Robertson, who is unavailable today but who has taken a personal interest in gene technology; Ian Longson, executive director in our industry market development, who is in North America at the moment examining, among other issues, gene technology; and our crop improvement team, who have the closest association with this technology, who are in a major review of national breeding programs this week with the Grains Research and Development Corporation.

We in our discussion would like to focus on industry and community policy issues principally. There are a number of presentations that will follow that will focus very much on the technology itself. We are involved through the State Agricultural Biotechnology Centre, through the Cooperative Research Centre, known as CLIMA for legumes, CRCs for pest animal control associated with the CRC for molecular biology and for wheat quality and also likely to have a centre for Australian plants. So there are a large number of linkages, some very formal, some less formal, to biotechnology and particularly gene technology which are more or less developed, and the committee might want to explore some of those.

Our focus is on the plant industries where there is by far the most progress internationally and because those industries are by far the most important agriculturally here in Western Australia, our agriculture being valued at about \$4.5 billion and our agency with an objective to grow that to be worth about \$8 billion by 2008. About 70 per cent of that income comes from the plant industries, with the cereals sector and wheat in particular by far being the most important industry. I think that is important in the context of primary producer access to gene technology.

We see wheat as being by far Australia's biggest agricultural and particularly plant industry but still being a small industry internationally. If you move through the other industries focusing on plants, you drop down through barley, lupins, canola and a range of horticultural industries which become quite small certainly on a regional basis, and which are

still small on a national basis and, when compared with other countries, even with companies involved in the agricultural sectors internationally are very small. That presents, we believe, perhaps the greatest challenge in the adoption of gene technology.

Our focus here is very much on exports. You will appreciate the small population particularly here in the west, and our isolation means that we have a very strong focus on exports. As one of our objectives, we have the access and application of genetic technology and biotechnology. Having said that, we have made only very small steps towards the adoption of that technology. It is our assessment that very substantial benefits will accrue to Australian industries through the adoption of gene technology; that we must embrace the technology, although not in every corner of our industries. It is good technology, it is backed by good science and it will be good for agriculture. It will also be generally good for a confused and very cautious consumer sector, both here in Australia and internationally.

Our agricultural systems have already identified a very large range of opportunities for gene technology, whether in quality improvement in a range of crops, whether in adoption of different pest and disease resistance which involve some of the major impediments. A simple example: the proliferation of herbicide resistance in weeds in our agricultural systems through natural herbicide developments, not gene technology developments, means that the technology must continue to evolve very rapidly so that we are able to effectively manage those developments—and of course that is without the enormous range of, if you like, agrichemical and pharmaceutical developments which are possible in this area.

It is our view that it will become increasingly difficult internationally to compete without the adoption of gene technology; that when it is available our producers will adopt it very rapidly. The total fact of productivity growth in Western Australian agriculture has been outstanding, led by the grains sector. We believe that our producers, when they observe the benefits which flow from this technology, will adopt it as they adopt any other technology based on the benefits.

It is our view that hesitation in a serious business plan for the development of gene technology in Australia will not be to our benefit. Whilst there are statements such as that public concern for gene technology may be the greatest challenge to capturing the benefits of that technology, it is our assessment that the ability to compete in a global trading environment will be the biggest challenge, particularly as it relates to primary producer access to gene technology. As with aeroplanes, computers, mobile phones and an enormous range of other technology, the community is naturally very apprehensive, but that will be something which will evolve. But the rapidly changing face of global commerce will present the greatest challenge to Australia's primary producers in capturing the benefits of this technology.

Perhaps by way of introduction I will look at two quite distinct scenarios which illustrate some of the challenges that we see in gene technology. In one scenario I will use the wheat industry, our biggest industry, as an example. Nationally it is worth something like \$6 billion to \$7 billion, which seems like a large industry. Compared with national companies, that is not even particularly large. We have in Australia, I think at last count, about nine major breeding programs for wheat alone—and we in Western Australia have one of the largest—with a large national investment through the Grains Research and Development Corporation.

It is our assessment that, for our wheat industry to be internationally competitive, it must have access to gene technology; it must be able to compete aggressively with or exclude other competing interests. It must have the ability to gain a commercial return from that technology and be able to reinvest in similar or new technology. It must be able to have the potential to breed for international markets or to trade for international genetic resources—and I think you will appreciate already that Australia, particularly Western Australia, has been almost totally dependent on imported genetic resources for its development, whether subclover, lupins or cereals.

It is necessary to achieve internal efficiencies in everything that we do so that every effort in this country goes towards international competitiveness rather than internal competitiveness. If you follow that through, the logic implies that we may not be able to afford in time in this country more than one and perhaps up to three breeding programs for wheat. That of course brings with it a whole range of commercial aspects. If you talk to some of these people in biotechnology internationally, they will say that, if you are not investing \$500 million a year in this area, you will not be competitive. If you go anywhere near those figures, then you get to one investment entity in Australia rather than perhaps 10 or 15 within government and perhaps as many in the private sector.

At the other end of the spectrum perhaps is the emerging native plant industry where we are involved through the Centre for Australian Plants. But that industry currently has been largely focused on what you might call filler plants, those that go in around a very expensive tulip or orchid. That is unlikely to be the natural advantage for Australia because of our labour supplies, yet we have many thousands of great opportunities in our native plant species which will probably be capitalised on by the sort of work that Florigene and others have done to generate a new plant, a potted or high quality species. So, again, we see from our perspective that unless we are able to capture the benefits of that technology then our industries are likely to fall further behind and perhaps be consigned to that sort of filler market rather than the premium market.

There are a large range of issues, I think, impediments and benefits which will come out in the various discussions which we will not cover in the introduction. I think we have been a very strong supporter through the SCARM process of the development of a consistent framework for the management of gene technology and supporter of the establishment of the Office of the Gene Technology Regulator. We have progressed the need for a business plan for gene technology and development, and so developments through Biotechnology Australia, et cetera we strongly support.

We do have concerns which need to be managed in the environmental and the market area. It is our assessment that the risk of gene escape from the sort of biotechnology that we will adopt is not large but it will have to be managed and the perceptions surrounding that will have to be managed. The market risks and opportunities will also need to be managed. We are suffering conflict at the moment with two very strong signals coming to us. One is the rapid expansion of gene technology in North America and South America; on the other hand, we are receiving very strong signals of a market demand for, in its broader sense, organic products.



Our assessment is that we need to be able to adopt very rapidly gene technology, but where the market requires non-GMO products we need to be able to provide that assurance. Quality assurance programs perhaps backed by regulation may assist in that area. We have a quality assurance program developed here called SQF 2000, which we believe offers some opportunity to assist in that area.

I think I may leave it there, unless Celia Cornwell has any other comments, and simply say that we are positive about the benefits which will flow from gene technology. We recognise two very major challenges in the short term. One is the general community and market attitudes to the technology, but we believe that is overshadowed by the need for the Australian industries, both government and private sector, to work very closely together to become genuinely internationally competitive with the technology and to develop our own technology so that we are internationally competitive with very large companies. And then there are a whole range of other issues which will need to be managed as we adopt the technology.

**CHAIR**—Thank you. You have raised a number of important issues there. We do not have an awful lot of time, so let us get down to it. You have identified probably the biggest problem—the demand for genetically modified products but also there is a demand for the organic products. While identifying the problem, who do you believe has the responsibility for getting information out into the public arena?

**Mr Delane**—I think our experience on such matters—and Celia may comment as well from her involvement nationally—is that all parties share that responsibility but that government will—

**CHAIR**—Who are those parties?

**Mr Delane**—Government agencies in particular because of their access to, I guess, experience with that technology and their ability to portray the technology in a suitably balanced way. Of course, ‘government’ is a wide range of agencies from the ANZFAs to the Agriculture Western Australias. So we are able to put that information out in a balanced way. We see a major challenge for industry itself, and I do not think I am being unkind in saying that the agricultural sector and industry organisations have a long way to go in their understanding of the technology and the ability to lead their own industries in a balanced way.

**CHAIR**—What mechanisms are in place here in Western Australia to make sure that the latest information on the technology gets through to the industry bodies themselves?

**Ms Cornwell**—We are doing a few things in Agriculture Western Australia. We have just begun an information campaign from Agriculture Western Australia which includes articles in our publications such as ‘*Primary Focus*’, one of which has just come out talking about gene technology. We also are planning a series, and the first one is about to be printed, of farm notes. These are publications which we send out to many hundreds of farmers around Western Australia. The first one is about genetic engineering in agriculture which provides some information written by scientists and the agency talking about genetic engineering and how it can be applied in agriculture.

We are also planning a conference in November this year to which we will invite speakers from right across the spectrum to talk about gene technology, and that will be a public forum widely advertised. We are also participating at the national level through SCARM, the Standing Committee on Agriculture and Resource Management, in a national public campaign to talk about and inform about gene technology and genetic engineering in agriculture.

**Mr NAIRN**—What is primarily dictating the reasons why some products are going very much down the genetic engineered line and others are going very much down an absolute, total GE-free line? For instance, it seems that the thing that keeps canola at the top of the market is that it is a GE-free area whereas you are saying that other things are not going to compete unless they have that technology. Is there anything specific that is pushing one product one way or the other?

**Mr Delane**—I might ask Miles Dracup to comment perhaps more on the technical issues, but the ability to transform those crops has been a major early step and canola is relatively easy to transform by comparison, and so a wide range of genes have been incorporated in that species. The cereals have been much more difficult, and soya beans, and of course the size of those crops has also been an influence. I guess what are called major crops internationally has been a major driver. So soya beans, maize and canola, for example, major North American crops with an association with existing biotechnology companies, have seen more attention than some of the minor crops.

Lupins, and you will hear from others today about lupins, which is a major crop for us—there is well over a million tonnes of production here and critical to our farming systems—is not a crop in most parts of the world and certainly not in North America, yet it is a crop relatively easy to transform. But in fact we have been locked out of adoption of gene technology in that species because the companies have not seen the balance of commercial opportunity and risk to allow insertion of their genes into that particular crop. So I think there is a balance of technical capability, of size of the industry particularly for major markets, and that flows very much out of North America, and a natural association of former chemical companies, now biotechnology companies, with those crops.

**Mr NAIRN**—Consumer pressure is not playing any role in some consumers directing their attention in one area and not another? I am trying to find the right words, but let us call them publicly active consumer groups.

**Ms Cornwell**—My sense is that consumer groups are not driving the direction in which gene technology is developing and which plant varieties it is focusing on. My sense is that it is much more being driven from the company end.

**Mr Delane**—Our assessment would be that, whilst consumer groups are very active in some areas, it has been largely technology driven to date, and that has in fact been one of the weaknesses. If you could design this as a model technology development, of course all of the early products which were on the market would be those which had very clear consumer benefits rather than very clear producer or company benefits. For example, one of the last technologies you might release would be a herbicide resistant crop, which is perceived by the consumers as being enabling just further use of a chemical on that crop. The first ones you

would put out would be those that had better quality, either by better amino acid composition or better shelf life, et cetera. So there has been a bit of a challenge there with some of those with some of the earlier products being technology rather than consumer driven.

**Mr ADAMS**—There are some downsides with gene technology. Sometimes the yield is not as good, losing control of the seed base and multinationals setting prices which suit themselves—I think we have had a bit of that in the cotton industry in other states. So there has to be a public good somewhere, in which I think we would see government and government agencies probably trying to play a part. What would your comments be in relation to that? Also you did not mention in your comments that some of this technology is pretty well locked up and that is the reason why we as a country might not get too much out of it and we could lose a lot out of it. Would you like to comment on that?

**Mr Delane**—I think we start very much from the viewpoint that it is a global market, and certainly the products produced here in Western Australia are all traded internationally. We are increasingly seeing the global market operate very freely and so in fact what appear to be very similar products are passing each other in the air, on the water or on road because the market requires—our market or other markets require—products of certain specifications. To be locked out of the gene technology market, unless you have a very dismissive view of the benefits which will accrue from that in terms of competitiveness in production systems or in the market through quality, means ultimately to be locked out of markets.

Our approach is that this is another part of technology, just as large machinery was, herbicides were, and fertilisers—any number of technology developments. They must lead to better quality products, higher yielding products and greater competitiveness. We appreciate there are as many challenges, perhaps more, with this technology than with some previous technology components, but to not adopt them is likely to ultimately lead to us being less competitive. So the challenge is to turn that around and say, ‘How are we in Australia with some large industry and some small industry going to compete as best we can for the technology with the end objective of course to be competitive in international markets.’

**Mr SECKER**—There does seem to be some sort of emotional backlash against ‘Frankenstein’ foods and those sorts of what I term fairly nonsensical terms when they are talking about the technique rather than the end product. I think most people would agree that there has to be some labelling for substantially different types of end products, but does the Western Australian government have a view on whether anything that is genetically modified should be labelled? I bring that point up because—and my colleagues will know I often bring up the case of a frost resistant gene being put into wheat—everything that was made out of wheat as a result of the way the silos are set up would have to be labelled. Every piece of bread, every biscuit and every loaf—every time you went to a restaurant—would have to have a little label on it. It just seems to me quite ridiculous. I wondered whether the Western Australian government has a view on the labelling of genetically modified foodstuffs.

**Ms Cornwell**—That issue is still under discussion. There is actually a meeting of the Australia New Zealand food standards council on 3 August which I think will decide on that issue. It may well be that what will result is an industry developed code of practice for

labelling. The Western Australian government's health minister has taken part in discussions at the food standards council about labelling, which I think we are all aware of because it has been quite highlighted in the public domain. So we are waiting for the outcome of the next food standards council meeting, but whilst the position is not formal—

**CHAIR**—Is that something that you are pushing yourselves or are you waiting for groups like ANZFA to simply put it on the agenda?

**Ms Cornwell**—No, it is certainly an issue that has been discussed by our minister and in the Western Australian cabinet. Our health minister is the minister responsible for food labelling. He is participating in discussions which will occur on 3 August at the next food standards council meeting of ministers. Labelling of substantially different food has already been determined, but labelling of food which is substantially similar has yet to be decided. That meeting will make that decision, and it may be that there will be a code of practice. I think it is fair to say that we are not pushing one way or another.

**Mr Delane**—It is our assessment—we are progressing this cooperatively and nationally—that at the end of the day it may be determined by practical considerations and it simply may not be possible to have labelling of all products with any potential for inclusion of genetically modified material. Considering that we have difficulty in managing 'Made in Australia', then it will be very difficult to manage 'This product contains' or 'may contain'.

**CHAIR**—Where do you stand on country of origin labelling?

**Mr Delane**—Do you want to progress down that line, Chair?

**CHAIR**—I do, but I will leave it for discussion.

**Mr Delane**—Just to finish: it is certainly our assessment that there will be market opportunities for material assured to be GMO free. We are receiving quite a number of inquiries internationally from North Asia and Europe seeking opportunities to source products which are GMO free and, in their broad sense, organic. So we are doing some work through not only our regulatory but also our non-regulatory quality assurance programs to endeavour to either extend the SQF 2000 program to include a module for GMO freedom assurance or some other mechanism. Obviously it will be increasingly difficult as GMOs proliferate in the production system. But certainly, in the short term, we see some opportunity for individuals or individual industry sectors to be able to assure markets that we are providing GMO-free material and perhaps other low chemical use freedom, and perhaps organic where it can be determined.

**CHAIR**—We will pursue country of origin later privately.

**Mr IAN MACFARLANE**—You made a comment which I may have misconstrued about farmers educating the general public on GMOs. I will let that one slide. I think farmers have enough on their plate. I see that as being a role for government and responsible consumer groups—and I emphasise 'responsible'. There will be dramatic changes in the way we breed our crops as a result of this technology, whether because of the inclusion of GMOs or whether because of corporate entities moving into the seed market.

As we have seen in the United States, and as you have already identified, there is the issue of major chemical companies 'taking over'—and there are no other words for it—major seed companies. In terms of investment and in terms of where the main game is going, this issue raises the question of how departments of agriculture in Australia, including yours, will be able to address the issue of the investment that companies like Monsanto will put into biotech whilst putting out seed varieties that are just too competitive for farmers to ignore. It also raises the question of how you will preserve your existing breeding programs, which I have to say are excellent, particularly in the area of cereal crops.

**Mr Delane**—We certainly do not see educating the general community as being the role of the agriculture sector. But we do see a challenge remaining to educate the agriculture sector itself on the benefits and the issues of the technology so that it can at least appropriately engage with the industries and the community it will be supplying.

In the global economy our national boundaries, except in a regulatory sense, become quite blurred and commerce increasingly prevails. Major North American or world companies now are certainly having their influence. But in our assessment it would be naive to assume that the same principles will not be adopted here. Major agribusiness input companies will pursue the same line. In fact, you can obtain comments already from such organisations or people purporting to be from those organisations that, if they do not become fully integrated providers of a range of inputs, a range of services and a range of marketing opportunities, they will not be able to compete.

**Mr IAN MACFARLANE**—Are you referring there to the GRDC-AWB-CSIRO collaboration?

**Mr Delane**—Pick any one of the companies. The business is driven by commerce. The business is not driven by Agriculture Western Australia and other like organisations. We can facilitate, but in the end there are three or four major agribusiness supply companies in this country that already have a wide range of alliances, either at the market end or the input end. We would expect them to make decisions in the interests of their shareholders. We see that tending towards the North American model rather than away from it. The challenge for all of us is to recognise those commercial imperatives and, where government and industry can, to moderate those or join in alliances, as with the Graingene alliance referred to, to ensure that government facilitates industry development in Australia to the benefit of the participants in that industry and the broader community.

**Mr IAN MACFARLANE**—Where does that leave the public breeding programs though?

**Mr Delane**—It is early days and this is a very difficult area. Suffice it to say that we see this as being a very challenging environment for public breeding programs.

**Mr IAN MACFARLANE**—You are doing a better job than a politician at not answering the question.

**Mr Delane**—I do not want to beat around the bush, but I think in my opening comments I made the point that it certainly is possible to imagine, if not feel as a *fait accompli*, an

environment where this country will not be able to afford and will not be able to sustain certainly more than three breeding programs for the wheat industry.

**Mr IAN MACFARLANE**—Will they be public or private?

**Mr Delane**—They may well be an alliance of public and private. Ultimately, you could not rule out the majority of breeding for major crops in this country being done by the private sector, as it is in many other parts of the world. Under that paradigm, government fills the market failure areas and breeds oats or lupins. It boosts those private sector programs by managing the risk of gene escape issues, consumer protection issues, general regulation issues, or does the gene technology research which enables those programs to be more competitive here than perhaps in North America.

**Mr ANDREN**—I am interested in whether you expect European resistance to decline or grow over time. I know this is a very difficult area but, given the experience with canola, it strikes me that we are going to develop two camps: the non-GM and the GM. Given that, I am haunted by the remarks my cabby made while bringing me in from the airport last night—a poll of one cabby. He said, ‘I want to know that it’s safe.’

If it breaks into two camps, the message we are sending to the average Joe consumer is that there is a ‘safe’ and a ‘not safe’. How do we overcome that? Doesn’t it come back to this public education program? I just wonder whether, with all due respect, conferences involving key industry people and farmers is really the way to do it.

**CHAIR**—And there is also the question of regulation which you raised in your submission.

**Mr Delane**—Yes. Certainly the signals we are getting out of Europe are quite confused. But, without being overly cynical, we must recognise that this technology is developing in an environment of rapidly changing trade rules. Therefore, some of the noise that is associated with it may be more about trade than technology.

The challenge we see in markets like Europe is for consumers to see the benefits balanced with the risks. That requires a very good regulatory framework. It requires that they see the benefits of reduced chemical use—and many products in Europe are grown with astronomical chemical applications compared with those here in Australia—and that they see the replacement of one risk with another, or the removal of some risk to them. It also requires a focus on products which benefit them rather than being perceived to benefit some farmer, particularly in North America as opposed to Europe.

I do not know that we have any great alternatives to a public education program. Clearly there are risks associated with some technology; mobile phones are a great case here in Perth, and the community has seen fit to adopt them almost faster than they can be produced.

**Mr ADAMS**—Nobody asked them whether they wanted that technology.

**Mr Delane**—No, but nobody forced it on them either. At the end of the day, providing knowledge to make informed choices is a critical role for government, whether it is for producers or consumers.

**CHAIR**—Would you see that regulatory role having a national framework?

**Mr Delane**—Absolutely. Despite our perceived parochialism here in Western Australia, we believe that many areas in agricultural regulation now require a national approach. It will need to be bolstered by regional considerations. At the product end, a national approach is imperative. At the production end, it is unclear yet just where, for example, a National Registration Authority will fit with the Office of the Gene Technology Regulator. But we would see a very clear role for state participation in that and consideration of regional issues. For example, if gene escape or other environmental considerations are important—and we believe they will be in some cases at least—any registration and regulation system will need to take those into account. For example, if certain species which have the ability to be involved in a crisis are more prevalent in Western Australia than eastern Australia, that would need to be taken into account in the registration.

**Mr IAN MACFARLANE**—We have spoken of similarity between organically produced food and normal food. Bearing in mind that 80 per cent of our grain crops are exported and that we have to target our market and compete, in terms of the labelling issue, assuming that this technology will be adopted—and I believe that there is no alternative—where there is not a substantial change to the food stuff, shouldn't we be looking at a labelling system that identifies those foodstuffs not containing GMOs rather than identifying those that do? I think those consumers who want food that is GMO exempt are in the same 'basket', for want of a better word, as those people who want organic food. I seek a response to that.

**Mr Delane**—Certainly we would agree with that. Unfortunately, the organic market has turned out to be very small and it tends to be more talk than substance when it comes to orders. But we have not really been able to progress the near-organic market; low input or low risk food we have not been able to promote. Perhaps we have not done enough from Australia to promote the fact that we are nearly organic but we cannot get certification.

We certainly believe that these requirements will expand. In Europe, for example, one of the new innovations in product labelling is 'animal transport miles' or some such. That simply advocates that it is better to buy a product which is produced down the road, processed down the road and on your shelf than to have one which has been transported from Australia, processed in Asia and consumed in Europe. Those sorts of trade and market influences will always exist.

We believe that the opportunity, which is very clear, exists to demonstrate and assure GMO freedom. As I say, we have already done some work to see whether we can use the SQF 2000 quality assurance system or other systems backed by some regulation. The market feedback we have is that it will require a government or government-backed assurance that that product is GMO free. In North Asia and Europe in particular there are currently—and are likely to be at least to some extent into the future—markets for products assured to be GMO free.

**Mr LEO McLEAY**—I would go back to Mr Andren's poll of one Perth cabby who said that all he wanted out of this was something that was safe; your answer to that was that really it is about informed choice. Unfortunately you picked on mobile phones as an example of informed choice. That, I thought, encapsulated the whole issue. When mobile phone or GSM technology was first chosen, both the government and the carriers said, 'This story about cancer is all wrong, wrong, wrong.' It now turns out, some years later on, that studies have been done that show there is a probability of GSM transmissions being unsafe. That is a more quantifiable technology than gene technology, particularly in food. I would think the big issue with people is: how do we know it is safe? If we are to move away from labelling, people will have no idea about what they are eating, whether it is modified sump oil or a Mars bar.

**Mr Delane**—This could be a very big subject.

**Mr LEO McLEAY**—But for consumers it is the subject. Your argument might be right: they might eat anything as long as they know what is in it and that it is safe to eat.

**Mr Delane**—It is probably a fact that we only know that it is safe by a long historic track record and that our consumers have concerns about the food that they eat now. Certainly all mothers and fathers have concerns about takeaway food and we do not believe that it is safe, but there are enormous queues at the takeaway outlets now. We know that driving cars is not safe, but everyone buys faster cars here in Western Australia. Mobile phones are another example.

It is about the definition of safety. If the cabby is looking for safe food, what does that mean to him? Does that mean someone is overseeing it and, within reasonable bounds, able to assure him that it is 'safe', at least with a small 's'? Of course, it depends on the degree of transformation. The insertion of one gene for frost resistance may not mean that the food produced from that wheat is any less safe than previously. One gene for insect resistance which results in six less chemical applications may be significantly safer than the food previously consumed.

It is a complex area and there will be no simple solution. It will require a combination of regulation through the Office of the Gene Technology Regulator, ANZFA, a National Registration Authority, other best practice applications of this technology through state agencies, industry and food processors, and a public awareness program and general consumer awareness programs based on the best facts available at the time.

**Mr LEO McLEAY**—Do you think you can guarantee people that it is safe?

**Mr Delane**—As I think I said at the start, I am not sure that we can guarantee that any technology is safe, whether related to aeroplanes or GMO food. I do not believe that we can guarantee that the food we are consuming now is safe. But we have a very wide range of measures: best practice development of technology, application of technology, monitoring of production systems, monitoring of chemical residues and other aspects of end products, with now a national food safety program. These, from farm through to plate, manage the risk associated with that food, enabling us to say with a high level of confidence, 'This food is safe to consume.'



**CHAIR**—Thank you very much. I think probably we have ended the discussion almost where we began it, and that is getting the information out into the public. It seems ironic that in an information age we constantly are seeking more information and frequently being denied it simply at times because of the lack of means and lack of regulation. I thank you very much for your contribution and for your submission to our inquiry. I am aware that you will be staying with us for the general discussion.

[9.23 a.m.]

**JONES, Professor Michael George Kepler, Director, Western Australian State Agricultural Biotechnology Centre**

**BARTON, Dr Joanne Edith, Research Associate, Centre for Legumes in Mediterranean Agriculture**

**LONGNECKER, Dr Nancy, Coordinator, Education Program, Centre for Legumes in Mediterranean Agriculture**

**SMITH, Dr Penelope Mary, Lecturer, Centre for Legumes in Mediterranean Agriculture**

**CHAIR**—Welcome. We have received submissions from the State Agricultural Biotechnology Centre and the Centre for Legumes in Mediterranean Agriculture, and we have authorised their publication. Before we begin questions, could I ascertain whether in making an opening statement there will be one spokesperson for each area, or will there be a spokesman on behalf of both areas.

**Prof. Jones**—One for each.

**Dr Barton**—I will make a statement for the Centre for Legumes in Mediterranean Agriculture.

**CHAIR**—Could I stress that, as we have read your submission, we would prefer a fairly short opening statement enabling there to be more time for questions.

**Dr Barton**—Yes, my opening statement will refer to points made in the submission. I will answer questions related to genetically manipulated organisms, Dr Nancy Longnecker will answer questions related to the area of education and communication and Dr Penny Smith will answer questions related to the areas of research and the availability of funding, and so on.

Our submission indicates that CLIMA acknowledges the importance of genetically modified crops in agriculture into the future and that they have the potential to add value for both the producer and the consumer. We also acknowledge that any benefits derived from the introduction of genetically modified crops will be for both these parties, the consumer and the producer. We have listed in our submission a variety of possible scenarios related to whether the consumer and/or the producer benefit from this technology.

We also recognise that at present there are a number of impediments to the introduction of genetically modified plants to the farming systems in Australia, particularly impediments to the development of local genetically modified plants. We also acknowledge that we have some role to play in issues of educating the public in the kinds of technology in which we are presently engaged. That is all I wish to say at this point, thank you.

**CHAIR**—It is most refreshing to hear someone acknowledging their having a role to play in the education of the public. Starting on that point, you have indicated there being a number of benefits to both the consumer and the producer. Dr Longnecker, as this area is your bailiwick, what do you see as being the best way to disseminate this information to both producers and the general public?

**Dr Longnecker**—For a number of years we have conducted both workshops targeting industry, including producers, and a number of public fora which are more consumer oriented and specifically aimed at the general public. So in some respects how we proceed with that depends on who the target for a particular communication message is. For example, with support from GRDC and Agriculture WA, we recently ran a hypothetical on genetically modified foods where we attempted to provide an across-the-spectrum range of views about the technology. That was very well attended, I believe, by about 550 to 600 people. The aim of that hypothetical was to inform people of what the technology is. There are a lot of issues, but our role is not to make the choice for the consumer; our role is to present what the technologies are, what the benefits are and to allow a better informed choice.

**Mr ANDREN**—You as scientists are the people who need to explain to the public, in layman's terms, the possible benefits, cost and health of this technology. I notice that your submissions concentrate on the benefits of genetically modified varieties but not the drawbacks. What, if any, hazards are there from a scientific point in, say, manipulating genetic material by taking it out of a fish and putting it into a tomato to make it frost resistant?

**Dr Barton**—We acknowledge that DNA is DNA and, from a scientific point of view, for example, there is no inherent problem with taking fish genes and putting them into a plant. There may however be ethical issues, and we do not intend to contribute in this area. Those issues are for ethicists to discuss and not for us to deal with. As far as we are concerned, there is no scientific barrier to our using these genes. The regulators will decide whether or not it is a good thing to do, and our submissions all go through the necessary regulatory authorities.

**Dr Smith**—I would add to that. I think also it depends on what the gene is and what the product of that gene will be. So you must take into account what the product of the gene is and what it will do in the plant. Rather than just saying 'a gene from a fish', it depends on what that gene will do.

**Mr ANDREN**—My young son, who knows more about these things than I ever will, says that we have been consuming genetically modified food for many years. Can you give us some examples?

**Mr SIDEBOTTOM**—Beer, wine.

**Dr Barton**—As was commented, the brewing industry, the baking industry and the cheese industry are just some of the industries that have been using genetically modified organisms for many years now. In the last 15 to 20 years this technology has been adapted to the plant kingdom, and we are now seeing the products of that adaptation coming through into the marketplace. Possibly, with organisms being so small that we cannot see them, we

also do not worry quite so much about it, I do not know. But this is the reality now: there are plants out there; they are more difficult to contain; and the issue has been raised.

**CHAIR**—Professor Jones, would you care to make your statement so that you also can take part in this discussion.

**Prof. Jones**—Thank you. Since this is a committee looking into primary producer access to gene technology, I guess we ought to look at the meaning of gene technology. I do not know yet whether you have really covered the applications and benefits of gene technology, and there are other aspects relating to access to gene technology: public perception, public acceptance and also the global perspective.

Just as there has been a revolution in computing and information technology related to micro-electronics, there has been a revolution in molecular biology and our understanding of genes and their organisation and function; it has been just as much a revolution as that in micro-electronics. In my submission I have quoted Sir Robert May, the UK Chief Scientist. He said that the current century ‘is the age of physical sciences, and the next century will be the age of biological sciences’ and that ‘biotechnology’—and gene technology—‘will be one of the major forces generating new jobs and wealth, and Australia must be in a position to capture the benefits of biotechnology’ and gene technology.

**CHAIR**—With that, where do you see Australia being positioned now?

**Prof. Jones**—I see us as being some way behind—and I think well behind—North America and Europe in this. I think the current views in Europe at the moment or at least those in the press will set Europe back in relation to North America and will provide Australia with an opportunity with which, if we take it, we can catch up a bit.

**CHAIR**—What do you think Australia needs to do in order to catch up to what is happening in the rest of the world?

**Prof. Jones**—One of the things that controls this technology is intellectual property and patenting, and we are way behind North America and Europe on that. We have to have funds in basic research to provide our own intellectual property to provide bargaining chips, and we also need to develop alliances and make use of the information that is out there. It is not blocked to us but, if we do not have something to bargain with, we will have to pay for it through licensing fees, royalties and so on.

**CHAIR**—Do you see the more successful way ahead as being with the alliances, or do you see it as being through having sufficient research done here so that we can develop perhaps some niche areas of gene technology ourselves?

**Prof. Jones**—It will have to be mainly through alliances; as you say, there are specific niches in Australia, and we should exploit those where we can. Elsewhere we will have to operate through alliances or through licensing proprietary technology from elsewhere.

**Mr SIDEBOTTOM**—You comment in part 8 of your submission, ‘There is little doubt that GM food is actually safer than conventional food because it is examined much more

closely.’ That is a very assertive statement, and no doubt you stand by it. It is interesting though that the whole story of genetically modified food does not appear as positive as that. So we do not seem to sell the story very well, do we? It just seems to me that so much that comes out is incorrect; there is so much that is misinformation and based on emotion and so forth. If there is a good story to sell and it is a safe story, then we are not doing a very good job with it. How do you react to that?

**Prof. Jones**—It is always easier for the press or others to hype things up. In general, scientists are always more cautious. They will not say that something is absolutely safe, and that applies to normal food as well. I could give you a list of 52 toxic compounds present in Brassicas and cabbages: isothiocyanate cyanogenic glycosides, goitrin, et cetera. There has been a long history of promoting ‘fresh equals healthy’. On the whole, that is true, but it does not always mean that at all.

**CHAIR**—What is the definition of ‘fresh’?

**Prof. Jones**—That is a good question. If you buy a banana, it has been picked green, it has been transported and it has been gassed with ethylene. In the depot, before it goes out, they can control exactly when it should ripen. They can be told that it must ripen in one, three, seven days, and they just apply the appropriate amount of ethylene. Then when you get it in the supermarket it looks just perfect. Is that fresh? I do not know. All food should be safe, whether GM or non-GM. That is the first thing.

**Dr Barton**—Very often people only become aware of the good points or bad points of a specific technology when they get to use it themselves. Genetically modified crops that we are seeing at the moment have benefits to the producer and not to the consumer. The producer acceptance seems to be there. I speak to a large number of farmers fairly regularly, and they do not seem to have the same concerns that are expressed when we have a public gathering where consumer concerns are raised. At this stage, as I said, genetically modified crops largely target the producer with benefits, and the consumer just has to come along for the ride. I think at this stage the consumer is saying, ‘What’s in it for me?’ We need to answer that kind of question.

**Mr ADAMS**—But there is no guarantee of an increase for the producer. I have not read anywhere where anyone is guaranteeing the producer a great increase in their income. This will go to agribusiness; the people who control the intellectual property will make the money out of this. That has been predetermined by the companies that already have it in the bag. Isn’t that the truth of the issue?

**Dr Barton**—To date, the multinational companies have tried to dictate the terms by which they sell their seed to the producers. However, there has to be something in it for the producer to make him accept the technology, to grow the seed, otherwise they would continue to grow whatever they were growing before. Even if the technology means that they manage the crop more easily, that might give them sufficient benefit to take it on board.

**Mr ADAMS**—And if there is an increase in the price of chemicals needed by producers to use on their present seed to get that to produce and the other seeds are cheaper, there will be leverage on them to produce and to grow what the companies are putting to them.

**Dr Barton**—Certainly in the United States with the Roundup ready technology, the cost of the herbicide has come down and the cost of seed has gone up. The evidence shows that.

**Mr ADAMS**—But in Australia they charge the cotton growers more money for their seed, and they argue, ‘We can give you the seed and you’re saving this amount of money from herbicides, therefore we’ll charge you this,’ which is a different price to the one the American farmers pay for their cotton seed.

**Dr Barton**—Certainly there has been discrimination between American and Australian farmers in terms of cotton.

**Mr ADAMS**—But you have just put to this committee that there is a gain in it for producers. I am asking you to tell me where the producer is making a gain. This is your research area; you have been working in this field. You are saying that the consumer has to come along for the ride. Where does the producer make the gain?

**Dr Barton**—I am not saying that the consumer has to come along for the ride; I said that the consumer so far has been carried along with the technology. With respect to the producer having some gain, the technology we developed at CLIMA was a herbicide tolerant lupin; we had not yet worked out a package for the farmers as to how the price would be structured for that product. But certainly there were gains for the farmer in the technology that we had produced. There were gains for the farmer in terms of management practices—in other words, there were advantages in how weeds were controlled in that particular crop, and how the weed seed bank could be controlled. That would give the farmer advantages not only for the crop he was growing but also for future crops.

Those things are definitely in the minds of those Australians who are developing transgenic crops. Where the multinational companies come in, should they wish to charge more for a product which, as you contend, is not yielding as well as a local product, quite honestly I think market forces will sort it out.

**Prof. Jones**—Just returning to the cotton case, obviously commercial factors will be far more relevant to the decision of whether or not to buy transgenic seed and go along with that package. It is true that in Australia the pricing of the overall package with management meant that a farmer ended up making about the same profit using transgenic or non-transgenic. That is because the companies were getting the maximum return they could at the time. Already the management package is coming down. But one of the benefits to the farmers was the cutting down from something like 12 sprays a year to four sprays a year. That also had environmental benefits and there was decreased exposure of farm workers to chemicals, and so on. So, even though in that case there was initially not a great financial gain, there were environmental, health and other gains.

**Mr ADAMS**—There was a public good.

**Prof. Jones**—There was a public good, yes. Indeed, already the costs of those packages are coming down. One of the differences between the US and Australia is the scale of operation. It is a much larger operation in the US and, therefore, producers gain better financial benefits as the companies are able to charge less for their management package.

**Mr IAN MACFARLANE**—I turn to the issue raised on page 4.4 of CLIMA's submission. It is an area which I think is very important in terms of rotations and sustainability in agriculture in a world sense with small or unimportant crops—and I would even go so far as to include lupins in that. How do we afford getting some of that biotech—it is already available in legumes like soya beans—and putting it into these crops, particularly the ones in the public breeding program; and are the companies prepared to allow programs which at this stage offer them no competition access to that sort of genetic stock?

**Dr Barton**—In the two cases where we have investigated the use of proprietary technology, our experience has been that access to the technology of the companies is either too costly or that we cannot get access to it because the companies are not prepared to take the risk of growing what you would call a very small crop.

**Mr IAN MACFARLANE**—Just following up on that, you are saying that these multinationals who made these billion dollar investments into biotech are behaving like a dog in the manger; that is, they have got Roundup ready soya beans and they have no interest in using that gene in lupins or pigeon peas or whatever, but they are not prepared to let it go for the public good.

**Dr Barton**—CLIMA has had discussions with Monsanto in respect of Roundup ready technology. I would not say that they will not make it available, but we have not carried our discussions to a suitable conclusion.

**Mr IAN MACFARLANE**—Are you optimistic?

**Dr Barton**—I would say we would be cautiously optimistic. As for access to the use of the BAR gene, we would very much like to have had access to this gene but, from what we currently understand, access is not available to anyone around the world who is working on legumes as we are. The reason given for this is that the company does not want to bear the risks associated with a very small crop as it would have only a small profit margin for them.

**Mr IAN MACFARLANE**—But this is a crucial point. Monsanto will probably never invest in these small legume crops; it is not where they will make their money. So, in a commercial sense, were Monsanto to allow public breeding programs access to those genes, it would have no commercial impact on them. There would be no risk to them, and yet they are still not prepared to do it, are they?

**Dr Barton**—It would seem that they are not prepared to do it, that is right.

**Prof. Jones**—One of our experiences in relation to access to proprietary technology and licensing is that companies do not like to deal with public organisations. They do not like to deal with departments of agriculture particularly, or university organisations, or even CSIRO particularly. They would much prefer to deal with other companies.

**Mr ADAMS**—Why would that be, do you think? Would it be because they do not have to declare as much, that there is not as much openness in the arrangement? Might it be that,

in dealing with a government body or a university, they have to be more transparent than with commercial in confidence?

**Prof. Jones**—I could not say exactly why. But sometimes companies are more transparent than government organisations, so I would not necessarily say it is that. It is to do with the fact that this is a commercial operation, that there are intellectual property considerations and commercial in confidence activities. Maybe they are not very confident that public organisations can keep private their commercial plans and their research results. So, if they have agreements with companies who deal in the same way that they do, they feel more confident. This will be one of the reasons why plant breeding in Australia will follow what has happened in Europe and go more into the private sector. It is 100 per cent like that in Europe, and it is shifting that way in North America. That trend is bound to occur in Australia as well.

**Mr ADAMS**—But basically we are saying that there is a public interest here. I guess this is what this committee is trying to do. A lot of people are defending multinational companies, but we would see ourselves as trying to defend the public interest and find a public interest role here.

**Prof. Jones**—I guess it depends on whether you see production of food and agriculture as separate from other sorts of businesses. If you look at any other businesses—mining, banking or pharmaceuticals—there is the move to mergers, larger companies and global activities. The same thing basically is happening in agriculture, and the question is whether it should be different. If patents run out—and they are not there forever—it does mean that there is public access to those genes and that technology. But that runs behind the leaders if they are in the commercial site. So it has not gone forever, but it does mean that it is more difficult to get hold of that technology or that it comes later.

**Dr Barton**—With respect to public interest and the development of this technology, from our own experience we have found that producing the transgenic plant is only a small part of the actual cost of moving it out onto the farm. Very often you need to have a large amount of capital to take your transgenic through the regulatory processes and through the processes involved in accessing the intellectual property to get it out onto the farm. So, whereas we can be engaged in public interest activities in terms of developing a transgenic crop, taking it out onto the farm is quite an enormous step which requires a large amount of investment.

**Mr SECKER**—Professor Jones, you mentioned earlier partnerships between the private and public sectors. Could you briefly tell us a bit about your operation at Murdoch University and how you are doing that?

**Prof. Jones**—Yes. The state ag biotech centre operates as a multi-user facility, if you like. In other words, we provide state of the art facilities, equipment, labs, and they can be rented out. For example, they could be used on research projects from Grains Research and Development Corporation, on a university based project or through a company. We have a number of companies renting space in the state ag biotech centre: they pay a commercial rate and they have access to the equipment. That helps establish and incubate small companies in the area. We have Dr Ian Edwards from Biotechnology Australia as an example of where their applied practical work is being carried out in the state ag biotech centre.



We would see spin-offs from that because companies, as I say, find it easier to—indeed, they will not survive unless they do—develop alliances and they can licence proprietary technologies that they want. So one of the things that they do is make sure that their licences for particular technology are there up-front. They have to develop that all the way—from the licence, to the science, to getting it out in a product into the marketplace.

So we see on one side that we are promoting the development of small companies in this area. On the other side, though a company may, for example, concentrate on one particular crop. We may have an inquiry, say, from Malaysia about a different crop that that could be applied to, and we can reach an agreement with the company to expand that licence to apply it to a different crop from the one that they are specifically interested in. So it also helps in allowing us access to patented genes and technologies that might be more difficult for us to get access to. We are also providing facilities to incubate and support development of new companies in this area.

**Mr ANDREN**—I wonder whether the public perception of all this is somewhat clouded by the fact that it is the very chemical giants who have control over these patents; therein lies a lot of the public suspicion perhaps. Would you like to comment on that?

**Dr Longnecker**—I think that is an accurate statement, and I think it is also reflected in the concerns expressed. We have recently done a survey in the farming community, and that is certainly one of the major concerns expressed in that survey—the control by multinationals of the technology.

**Mr ANDREN**—Are you aware of any understanding within the multinational chemical companies that that perception is out there and, in fact, they may be hoist on their own petard, or whatever the expression might be?

**Dr Longnecker**—I am sure that they are aware of the concern.

**Mr ANDREN**—Therefore would there be any inclination to free up access to this? It strikes me that there may even be a case in terms of the WTO on access or related to a non-tariff barrier or something in denying access to poorer countries particularly who may want to access this technology.

**Dr Barton**—As far as I am aware, the multinationals are indeed very aware of the fact that there is concern, particularly about access to Third World countries. There are programs in place, I understand, in order to address issues in Third World countries through genetic engineering projects. We at CLIMA have been engaged in our own form of technology transfer; in this case, to ICARDA in Syria. I personally have been involved in a project in which gene transfer technology has been made available for use in that region.

**CHAIR**—Dr Longnecker, it has been brought to my attention that you conducted a survey amongst farmers about genetically modified crops. Would you just give us briefly the results of that?

**Dr Longnecker**—I believe that the abstract for that has been tabled and should be available to all members of the committee.

**CHAIR**—Perhaps you could just talk to it.

**Dr Longnecker**—I will give a brief overview of it. In brief, we sent out a survey through The Grain Pool of WA that went to 1,000 farmers across WA. It was randomly sampled. We received back, without any follow-up, about 200 surveys. So there was a 20 per cent return rate. The respondents to the survey indicated that they were in general—this is in general, because there were very definite exceptions to this—willing to use the technology and very interested in the benefits that would accrue to the farming system. Interestingly, we posed a number of the same questions that have been posed to general consumers in previous surveys, and the concerns that were raised basically were parallel to concerns that were raised by consumers across the society. Acceptability of the technology was, again, very similar.

The two exceptions to that are not hugely surprising. There were two particular products that were seen to be more acceptable in the farming community. They were a sheep genetically engineered to be resistant to blowfly strike, and wheat containing herbicide resistance from another plant. They were the two that were significantly more acceptable to the farming community than to the general public. But, apart from those, there were very similar responses.

**CHAIR**—Given the importance of this technology to the sector that you were surveying, were you surprised that you only received a 20 per cent return rate?

**Dr Longnecker**—No, that is quite a good return rate, especially considering that we had no follow-up. Because it was sent out and the authors of the survey did not—

**CHAIR**—So they had to send it in; you did not provide them with a reply paid mechanism.

**Dr Longnecker**—Yes, we provided them with a reply paid mechanism, but the authors of the survey did not know who specifically the survey had gone out to. It was randomly sent to people who receive a grains newsletter. So we had no opportunity to follow up and ask people to send back. A 20 per cent return rate is very good. Generally the indication is that there is a lot of awareness about the technology. Of the people who responded, I believe about 93 per cent had previously heard or knew something about genetic engineering and were very willing to participate in the debate. So there is a lot of interest in the farming community about the technology. A lot of people wanted to know more and, again, I can talk about that at another time.

**CHAIR**—What percentage wanted more information?

**Dr Longnecker**—I do not have that exact figure here, but 72 per cent responded that, yes, they had a basic understanding or some understanding of genetic engineering.

**CHAIR**—Of those who said they wanted more information, how was that addressed? Was there a follow-up?

**Dr Longnecker**—There will be a follow-up, as this is still a draft report. We will send the report to all people who provided an address, because that was not required in return. But we will send the report to all people who provided their address so that we could send the survey. We are also providing workshops in rural communities around the state about the fundamental technology, what DNA is and how the technology works. So we are addressing that in workshops around the state.

**CHAIR**—On behalf of the committee, I thank you for giving evidence before us this morning.

**Committee adjourned at 10.03 a.m.**