

1 ROYAL COMMISSION OF INQUIRY  
2 ON GENETIC MODIFICATION  
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8 Commission: Sir Thomas Eichelbaum (Chair)  
9 The Rt Rev Richard Randerson  
10 Dr Jean S Fleming  
11 Dr Jacqueline S Te M Allan  
12

13  
14 Mr John Upton, Counsel  
15 Assisting the Commission  
16

17  
18 Ms Therese McLeod (Clerk)  
19  
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21  
22 Stenographer: Ms Rawinia Hauraki  
23

24 Scopist: Ms Katherine O'Brien  
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28 Venue: 8th Floor  
29 Tribunals Division  
30 Kingston Street  
31 Auckland  
32 NEW ZEALAND  
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1 [Commission resumes in Auckland]

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PRESENTATION BY SOIL AND HEALTH ASSOCIATION OF NEW ZEALAND INC

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CHAIR: We do apologise for the delay, owing to some technical problems. We're just as frustrated as you are, especially those of us who got up shortly after 5am to catch a plane to be here on time.

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Now, would you introduce yourselves.

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DR HATCHARD: I'd like to just introduce the members of the panel to you briefly. On the immediate left is Brendan Hoare who is President of Soil and Health and a lecturer in horticulture and sustainable design at Unitech. To my left, Meriel Watts who's just completed her PhD in ethical pesticide policy beyond risk assessment, and is a member of the Pesticide Board.

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And, to my right, Dr Klaus Bosselmann, who teaches at Auckland University, New Zealand's only course in biotechnology law. He Chairs the National Committee of the New Zealand Earth Charter Campaign, and he is legal advisor to the Earth Charter Commission in New York. And, I believe on the far right that you've already met Dr John Clearwater who's an organic specialist and passionately committed to the development of the Organic Industry in New Zealand. Myself, Dr Guy Hatchard, I'm Director of the Natural Food Commission and I work with Soil and Health.

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And I'd like to say that we've sat together and we're aware of the vast mass of information that you've waded through and, therefore, we have looked at our presentations to develop new avenues of evidence and try not to track over evidence which we feel you probably heard quite a lot of from many different people.

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CHAIR: Yes, thank you, we appreciate that. It's difficult coming in at, I think we're between weeks 9 and 10 now, and it's not - you had no control over the stage at which you were slotted in to appear. But, inevitably it means that we have heard a huge mass of material, and it's not easy for some presenters, depending on their particular field, to present literally new evidence to us.

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DR HATCHARD: Well, I'd like to ask Brendan Hoare, as president of Soil and Health, to introduce Soil and Health, its history and how we see its role in society to you.

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[10.38am]

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MR HOARE: I will be very brief. Soil and Health was founded in 1941, it's the oldest Organic Association of its kind in the world advocating healthy soil, healthy food, healthy people.

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It's totally reliant on public support for its advocacy role; has no sponsorship from any commercial organisation, political party, religion or other vested interest. It has 2600 members in a magazine which sold about 6,500 and its title is the title of our organisation; Soil and Health.

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We're the founders of Composting New Zealand; our original name was the Humic Compost Club, in 1941, was the original title of who we were, and that's maybe comical, but then the compost was seen as muck and magic; today it's mainstream in our society, major industry, major business worldwide, the New Zealand Biological Producers and Consumers Council, Bio-Gro, which is New Zealand's leading certifying agency of organic produce.

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Our principal activities include - we were initiated as gatekeeper of sustainable organic farming and growing practices and its relationship to dietary reform in New Zealand. Through this we have sister groups right throughout the world; the Soil Association in the UK, the largest organic organisation throughout the world, Acres in Australia and numerous others.

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CHAIR: Are your 2,600 members a mixture of organisations and individuals?

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MR HOARE: Individuals, farmers, producers, retailers consumers, a very large chunk of our members are consumers. MP's; yes, it's open to anybody. We can offer you a membership, if you like.

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Heavily involved in education with child education through schools right through to tertiary institutes, health, conferencing, regional local development, actively involved in Bio-Gro, retain a seat there on the Bio-Gro Board, Organic Federation of New Zealand, numerous publications and an advisory service.

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I would like now to introduce Klaus Bosselmann.

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[10.42am]

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DR BOSSELMANN: Yeah, thank you for the opportunity to be here and to present my argument on working towards a comprehensive ethical and

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1 legal framework to guide genetic modification techniques and  
2 technologies in New Zealand.

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4 May I just begin with a personal observation. I came to  
5 New Zealand from Germany some 12 years ago and was very much  
6 intrigued and attracted by the well-known anti-nuclear stance that  
7 New Zealand became famous for in the world. The role that  
8 New Zealand was able to achieve over the years culminated in  
9 decisions where New Zealand was clearly visible as one of the  
10 driving forces as a world without nuclear technology, without  
11 nuclear weapons. And, of course, 50 years of the nuclear age has  
12 come to an end; we are seeing the end of this period.

13

14 And I would like to envisage a similar leading role of New Zealand  
15 in the field of genetic modification technologies, simply because  
16 the potential risks involved are potentially much greater than even  
17 the nuclear risks, for reasons that I'm not wanting to go into  
18 today here.

19

20 But I would certainly envisage New Zealand as one of the shining  
21 lights around the world to provide an option that's clearly there;  
22 that's an option of organic agriculture which is clearly one of the  
23 options that's particularly unique, and it's unique to New Zealand.

24

25 The reason why I refer to the nuclear technology is mainly, or also  
26 caused by the fact that, when you look at the legislative framework  
27 of nuclear technology in the 1950s as it emerged we see some  
28 striking similarities to the legal framework as we have it today in  
29 the emerging world of genetic modification. That is a type of  
30 legislation that promotes a new technology, that addresses a few  
31 issues in terms of cautious - in terms of protecting human health  
32 and the environment. However, the emphasis clearly is on promoting  
33 a technology, and to avoid a development that occurred with the  
34 nuclear experience where countries like Germany and many other  
35 countries were almost forced into consistently amending their  
36 legislation to meet the changing perceptions in society and provide  
37 new tools like the Precautionary Principle for example.

38

39 I would envisage a framework that guides genetic modification along  
40 the lines of being informed by ethical principles and principles  
41 that are actually enforceable.

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43 What I am going to talk about briefly is to identify the existing  
44 shortcomings of the situation here in New Zealand at the moment;  
45 and I'd like to demonstrate here what you are going to address.

46

47 As you can see, first of all I'd like to speak to what's called the  
48 lacking enforcement of existing obligations, which refers to the

1 fact that we have legislation available in New Zealand that  
2 addresses some of the guiding principles as they are known  
3 internationally, and the problem here would be to see the gap  
4 between those kind of principles as they are defined by the HSNO  
5 Act, and realise the gap between the approach being taken and the  
6 actual translation into the administration of the Act; more  
7 specifically, the practice of ERMA.

8  
9 And the second example: Only by using those two examples where  
10 genetic modification technologies are being dealt with, the example  
11 of the University of Auckland which is guided by an environmental  
12 policy or a Green Charter and has a similar problem that needs to  
13 be addressed. And, the argument to make here is first, the lack of  
14 awareness of the principles as they are enshrined in legislation,  
15 and the difficulty to enforce them.

16  
17 Secondly, reminding us here in New Zealand that internationally  
18 there are a number of developments that we should take much more  
19 note of, just naming two of the three emerging key principles that  
20 guide international law, International Environmental Law, that's  
21 the Precautionary Principle, sustainable development, and more  
22 recently the aspect, respect for life as an ethical and also legal  
23 principle, and then drawing some conclusions.

24  
25 Only briefly the example of ERMA, by showing you not in detail but  
26 by way of reference an extract of the HSNO Act 96, which of course  
27 has a purpose description and a number of principles that are  
28 either to be recognised or to be taken into account. More  
29 specifically we can see, for example, that we have some reference  
30 made here to what we can call the sustainable development concept,  
31 the maintenance and enhancement of the capacity of people and so  
32 forth to be recognised and provided for by all persons exercising  
33 functions under the Act.

34  
35 Now, this reminds us of a few key principles as they are firmly  
36 established in international law; that's the intra-generational  
37 equity principle and the inter-generational equity principle. They  
38 are both being addressed under sustainable development.

39  
40 Further under this notion of sustainable development can be found  
41 under the clause, sustainability of all native and valued  
42 introduced flora and fauna. We have also another principle that  
43 has clearly an ethical dimension to it, the intrinsic value of  
44 ecosystems, which is of course a metaphor for an ethic that defines  
45 the relationship between humans and the environment in  
46 non-anthropocentric terms, whereby we are able to perceive  
47 non-human life forms for their own sake, for their own value, not  
48 the instrumental value that they have for humans.

1

2 Further reference made, for example, to New Zealand's international  
3 obligations, they need to be taken into account. Finally the  
4 precautionary approach, which is a form of a full fledged  
5 Precautionary Principle.

6

7 Now the observation to be made here is that, although we might be  
8 able to identify some of those principles that International  
9 Environmental Law has enshrined in a number of conventions, they  
10 are not clearly difficult for administrators to actually apply  
11 them.

12

13 Of course, the approach that HSNO has been taking was to - under  
14 section 9 - provide for the possibility of regulations and  
15 meteorological orders. In practise ERMA, Environmental Risk  
16 Management Authority, among other things, has signed a  
17 Methodological Order 1998 which was meant to provide this kind of  
18 guidance in order to further make these principles operable.

19

20 Unfortunately as we said the meteorological order does not do  
21 anything in that direction, but rather takes a rather technical and  
22 procedural approach without further defining the meaning of  
23 principles and how they apply. Of course comments that have been  
24 made by ERMA representatives are known; that is, that ERMA doesn't  
25 feel it has been guided by ethically informed principles.

26

27 So, I would suggest that even ERMA is aware of a dilemma that  
28 occurs when legislative guidance is not clear enough and when the  
29 transformation into orders or regulations is not followed through  
30 by clear ethical or principle guidance.

31

32 Using then the example, of the University of Auckland, which I am a  
33 member of; the university has adopted after about five years of  
34 intensive consultation among staff and students, a policy in 1998  
35 which forms part of the constitution of the university, committing  
36 all staff to pursue sustainability as an ethical commitment.

37

38 The Green Charter further refers to teaching and research as areas  
39 where academic freedom needs to be understood in the light of the  
40 necessity of taking note of the needs of future generations, and  
41 accepting in the intrinsic words, of the environment.

42

43 In other words, a quite enlightened document that should guide us  
44 at the University. You realise the potential conflict with  
45 academic freedom there.

46

47 In contrast, in practice the university has until today not taken  
48 notice of this environmental policy; other than having it

1 recognised and adopted, it has not been implemented yet for  
2 political reasons, and you're aware of the submission of the  
3 University of Auckland which is actually compiled by scientists who  
4 choose not to refer to our own environmental policy, and those of  
5 us who have been drafting this policy and working towards its  
6 implementation have been somewhat frustrated by the way the whole  
7 university conducted its own submission. It's not to say that it  
8 is a submission that should be rejected, but certainly a submission  
9 that seems somewhat one-sided; after all, the university is an  
10 institution that has a role as a critic and conscience of society  
11 under the Education Act.

12  
13 I ask you to take - from there, to realise the kind of gap or the  
14 lack of awareness of what actually the legal framework would  
15 provide; provided we have an understanding that principles do  
16 matter and that there can be terms and, of course, one key measure  
17 or yardstick against which we can assess the development of genetic  
18 modification technologies here in New Zealand.

19  
20 Then briefly the importance of international obligations and  
21 principles, which is an area that New Zealand, I should say, is  
22 notoriously short of recognising in its own legislation; it has to  
23 do with our constitutional culture, largely based on the  
24 Westminster model and finding it somewhat hard to accept, like the  
25 European constitution, international law as being part of our  
26 domestic law.

27  
28 And, if you look at the significance, for example, of the  
29 Precautionary Principle in international law as has emerged since  
30 1987 in a number of global conventions, just to mention a few, the  
31 Climate Change Convention, the Biodiversity Convention, 1992 both,  
32 and also Agenda 21; it is clearly established principle that can  
33 also be burden of proof.

34  
35 The literature is quite explicit about the meaning; the essential  
36 meaning of the Precautionary Principle is to ask an applicant or  
37 developer to prove beyond reasonable doubt that the newly  
38 introduced technique, technology or other risk factor, is  
39 acceptable in terms of scientific risks and also socially  
40 acceptable risks.

41  
42 There's a gap here between the literature on the Precautionary  
43 Principle as it has emerged, by the way, since it was first  
44 introduced in Germany in the 1960s and the reality of how  
45 Governments are actually taking notice of this principle which  
46 clearly emerged, of a very fundamental problem that we have when we  
47 deal with environmental matters and the nature of science being  
48 inherently uncertain.

1

2 Secondly, the sustainable development principle, despite its  
3 reputation of being somewhat vague and undefined and, of course,  
4 acknowledging the variety of meanings, it has to be said that  
5 international law is perceiving sustainable development; one of the  
6 - it's one of the key emerging principles to guide future  
7 development of States.

8

9 More particularly, the World Court in the decision just two years  
10 ago confirmed that sustainable development needs to be seen as an  
11 inherent principle of international law. The Vice-President Vera  
12 Muntrie(?), who will visit us here in New Zealand next month, more  
13 precisely defines sustainability as a principle similar to the  
14 principle of justice, to guide all civilised nations. And, Vera  
15 Muntrie went so far as to say that, in his opinion, nature cannot  
16 be truly addressed as a civilised nation if it doesn't have a firm  
17 view and a firm commitment to sustainability, which is creating a  
18 just world between the generations today in terms of resources and  
19 our commitment towards future generations.

20

21 Of course, I'm pointing out these principles with genetic  
22 modification in mind, and I'm not suggesting that these principles,  
23 if followed through properly, would block genetic research at all,  
24 but they would provide very firm guidance; it would urge us to  
25 justify, for example, our conduct today in the light of future  
26 generations.

27

28 In a way this has culminated in the principle of respect for life  
29 which has recently emerged in the context of two developments. One  
30 is the observations that the United Nations and the international  
31 world is committed to human rights obviously since the Universal  
32 Declaration of Human Rights in 1948 which has established humans  
33 beings as fundamental for human society and for the conduct between  
34 humans.

35

36 The tradition emerged - the tradition to include the environment  
37 emerged through in the 1980s, 1990s to now argue that the respect  
38 is not only owed between people but respect is also owed to the  
39 non-human world. And in a quite significant and also legal sense,  
40 the figure for the life and its diversity in all its forms is, I  
41 would not say, an established principle but certainly an emerging  
42 one, visible in two documents, recent documents, there are only two  
43 global treaties or global agreements that would address all the  
44 issues we are basically talking about when it comes to GM. This  
45 is; commercial enterprise, science, good science, bad science,  
46 trade, peace, environmental matters, the needs of future  
47 generations and so forth.

48

1 One document is the 1995 Draft Covenant on Environmental  
2 Development as being drafted by the world Body of Environmental  
3 Lawyers, the Commission of Environmental Law situated at the  
4 International Uni, on the conservation of nature. This is only a  
5 draft, there is meant to be a convention to be signed up by States;  
6 the United Nations is about to submit this draft at its own United  
7 Nations convention, and in years to come we will see in development  
8 where States are asked to commit to the covenant and thereby  
9 accepting the principle of respect for life.

10  
11 Another development, the Earth Charter, which is probably a  
12 document that has been - found a higher consensus than any other  
13 document internationally in the area of environmental protection.  
14 The Earth Charter is the result of 10 years of communication,  
15 negotiations between about 1,000 non-Governmental organisations  
16 around the world, culminating in the launching of the Earth Charter  
17 last year.

18  
19 What it provides is, as the sub-title is suggesting, an ethical  
20 framework for sustainable development. The key principle again in  
21 the Earth Charter is respect for life in all its diversity and all  
22 its forms.

23  
24 What these remarks suggest is that there are very important  
25 developments internationally that are not always obviously promoted  
26 by governments or states but certainly by the international  
27 community at large concerned by what we call as international  
28 lawyers, the emerging global civil society.

29  
30 To conclude then, the situation that the Royal Commission is faced  
31 with is, of course, to make recommendation that might rectify  
32 existing shortfalls or existing problems in terms of its overall  
33 legal framework as we have it here.

34  
35 I suggest there might be three possible conclusions. One would be  
36 a more sort of legal conclusion, that is to say there is space for  
37 amendments, either within the HSNO Act or revision of the  
38 methodology order, in order to further define those principles that  
39 I have been talking about.

40  
41 Another option would be to see the inherent link between the GE  
42 debate and the sustainable development debate, that New Zealand  
43 only now is embarking on. New Zealand's among 20% of OECD  
44 countries that does not have at yet a national strategy of  
45 sustainable development, not even a draft of concept of sustainable  
46 development, excluding the Resource Management Act, which addresses  
47 the more limited question of sustainable management.  
48

1 Now there are indications that the current Government is taking  
2 steps towards establishing national committees for sustainable  
3 development at Governmental level and also at non-Governmental  
4 level which would in fact be an opportunity for society at large to  
5 try to define what kind of society we want to live in, here and in  
6 the future. I think that's a very important link that the Royal  
7 Commission needs to be aware of.

8  
9 And the final conclusion, perhaps the most demanding one and  
10 nevertheless perhaps the most important one, is that one should  
11 draw the conclusion that there is a fundamental lack of awareness  
12 of the need for ethical reasoning, the need to understand the  
13 implications, for example, of the respect for life principle.

14  
15 And the only way to rectify the situation as we have it here, the  
16 absence of a public debate where ethical issues are being  
17 addressed, I think, is to initiate some kind of a public organised  
18 debate via the means of perhaps a national committee on ethics and  
19 sustainable development like other countries have. There are those  
20 national committees in Germany for example, that operate in the  
21 light of the public, obviously in a similar way as the Royal  
22 Commission. However those committees do have some decision-making  
23 powers and they bring together a range of people that are then  
24 really willing and informed to debate the ethical issues, which  
25 tend to be overlooked.

26  
27 I believe also to be overlooked during the hearings here before  
28 you, because in my perception, I've been closely following the  
29 hearing so far, there is a strong emphasis on the science and on  
30 the scientific assessment of risks and so on, which is all very  
31 valid, but ultimately risks have to be assessed in the light of  
32 their social dimensions and also ethical dimensions, it comes down  
33 to those very fundamental principles.

34  
35 My contribution was meant to point out the gap between some ideas  
36 that do exist in our system here in New Zealand, and helping to  
37 close those gaps by promoting ideas that have been emerging  
38 internationally. Thank you very much.

39  
40 BISHOP RANDERSON: Just before you sit down Dr Bosselmann, can you just  
41 explain the distinction you drew between sustainable development  
42 and sustainable management under the Resource Management Act?  
43 Obviously a lesser form of it; could you just spell that out for us  
44 a bit more?

45  
46 DR BOSSELMANN: The difference is that sustainable management defines  
47 only activities with an environmental impact or an impact on  
48 natural resources, as activities that should be conducted in a

1 sustainable manner.

2

3 It does not address the way how such a management should occur. It  
4 is actions you are aware, is effect-oriented, it's only interested  
5 in the actual effects that the activities have on the environment.

6

7 Whereas the concept of sustainable development addresses those  
8 issues more directly; the means by which we deal with natural  
9 resources. In other words, it addresses the economy, it addresses  
10 technological development, it's much more oriented at the guiding  
11 principle of sustainability as an ethical principle.

12

13 Having said that, it needs to be added that the Minister for the  
14 Environment, Simon Upton, in a number of his speeches pointed out  
15 the need for two things; one the need for establishing  
16 sustainability as an ethical principle, similar to the principle of  
17 justice; and a further comment that Simon Upton repeatedly made was  
18 to actually realise that the Resource Management Act is not about  
19 sustainable development, it is less than that or different than  
20 that.

21

22 Internationally New Zealand would be seen as a very important  
23 country; we have left the world in terms of trying to establish a  
24 new principle of sustainability management, or sustainability in  
25 fact the first in the world; in fact, we have five other countries  
26 doing so. Also increasingly this has not been the answer that  
27 sustainability is much broader. In fact other countries such as  
28 Holland suggest that you cannot conduct political and social moves  
29 and economic moves towards sustainable development without looking  
30 at social development at large, for example addressing issues like  
31 the economic role.

32

33 CHAIR: Doctor, one other quick question. You won't - if I ask you  
34 about a version of the Precautionary Principle, you won't take that  
35 as a derogatory comment, but the fact is that we have been given  
36 many different versions, sometimes subtly different, sometimes  
37 quite widely different. The one that you were propounding, as I  
38 understood you, was that a manufacturer or producer putting a new  
39 food product on the market ought first to prove its safety beyond  
40 reasonable doubt. Is that a fair summary of what you were saying?

41

42 DR BOSSELMANN: Yes, it gives me the opportunity to be more precise than  
43 that, thank you for that.

44

45 To prove beyond reasonable doubt is of course a notion that's very  
46 common here in our legislation here. This is one possibility of  
47 expressing something more fundamental, which can translate to other  
48 phrase - other forms of dealing with the burden of proof role.

1

2 The importance is that the Precautionary Principle tries to respond  
3 to the situation of uncertainty and obviously thereby the need to  
4 establish certain requirements, and the requirement commonly agreed  
5 is of course to act, to do something until the situation of  
6 uncertainty and not allow any damage to occur.

7

8 However, the literature, the commentary literature on the meaning  
9 of what this means to act in the situation of uncertainty is quite  
10 adamant, in my opinion, to say that it carries a rule of burden of  
11 proof in the very general sense that an applicant for a new  
12 technology does in fact carry the burden to show that, demonstrate  
13 that those risks are acceptable. Where again, questions arise in  
14 terms of what is acceptable, whether you apply scientific measures  
15 or other measures.

16

17 The point to be made is that, I believe ERMA has not attempted to  
18 define the Precautionary Principle in any way. The precautionary  
19 approach, as HSNO is putting it, is only being accepted in the  
20 methodology order and in the practice of ERMA decisions as a  
21 mechanism that requires applicants to provide all available  
22 information, and if all available information as being provided by  
23 the applicant, is being assessed as sufficient, then there's no  
24 room for precautionary measures, or it's not being sufficient but a  
25 need to be further provided, then there would be a reason for ERMA,  
26 for the decision-making body to ask further questions.

27

28 Now this is not an application of the Precautionary Principle. It  
29 would require, in a situation where the validity of information,  
30 scientific data cannot be fully assessed, would require a rule,  
31 what do you do in such a situation? And that's where the principle  
32 applies.

33

34 To take an example. The German traffic law: The very fact that  
35 when you drive a car, it makes you liable for accidents that might  
36 occur in the sense that, if no fault can be found, say a passerby  
37 or passenger crossing the road has been hit by a car and you don't  
38 know who's in the wrong, who violated the traffic rules, then the  
39 fundamental principle applies. The person who introduces a  
40 dangerous instrument into public life, being a car, holds the  
41 burden of proof; you know, that everything hasn't been done to  
42 ensure that no damage can occur, there's a strict liability concept  
43 in some way.

44

45 This is what I feel what the literature, and the philosophy more  
46 importantly of what the Precautionary Principle tries to achieve.  
47 I'm not saying it is directly enforceable, I'm saying this is a  
48 principle in need for being explored. Rather than calling section

1 - you know, the HSNO Act in the relevant passages a precautionary  
2 approach, I think it's misleading rather than helpful. On the  
3 other hand, I think the Precautionary Principle is acknowledged as  
4 a binding principle in international law, not being introduced into  
5 New Zealand - not being implemented in New Zealand at all.

6  
7 CHAIR: Thank you.

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12 [11.12am]

13 DR HATCHARD: Thank you for this opportunity to talk. I wanted to use  
14 the time to express three basic concerns, and I think more  
15 importantly make some recommendations from the point of view of  
16 Soil and Health; and the three basic areas I want to cover are,  
17 first of all, that we have some concerns about the long-term health  
18 risks of genetically engineered food and the necessary experiments  
19 that need to be done to protect the public from those, and I'm  
20 quite aware that you have obviously had this issue brought up again  
21 and again, and we don't want to dwell a long time on it, but we  
22 will mention it briefly.

23  
24 Secondly, we have a concern about the containment of, specifically  
25 about by-products, recombinant DNA experimentation, not just in  
26 fields but in laboratories too.

27  
28 Thirdly, we have given considerable thought to how consumers  
29 interact with the regulatory process, and between us we have had a  
30 lot of experience of that regulatory process and the input that  
31 we've been able to put into it, and we'd like to express our  
32 concerns about that.

33  
34 Finally then, we have some recommendations.

35  
36 First of all very briefly on the health issue. We heard - you  
37 heard, or the Commission heard two weeks ago from Joe Cummins that  
38 the concerns that he had expressed five years ago about the  
39 cauliflower mosaic virus had been basically really shown to be  
40 serious concerns with the discovery of a hot spot in the  
41 cauliflower mosaic virus.

42  
43 Just in the last week I expect you've heard another one of his  
44 concerns about agrobacterium tumorfaciens, which is a soil  
45 bacteria, a phytopathogen, and that had previously been thought to  
46 affect just plants. And, Professor Cummins had expressed concerns  
47 that we had publicised widely from 1996 onwards, and Mae-Wan Ho had  
48 similarly done so, that soil bacterium and others might affect

1 human cells. And a report came out last week from the - it was  
2 published in proceedings of the National Academy of Sciences, the  
3 agrobacterium tumorfaciens, which is a tumour causing bacteria, and  
4 that reported that the agrobacterium attaches to and genetically  
5 transforms several types of human cells.

6  
7 And, it is in these areas where vectors and promoters have been  
8 deliberately made mobile and also have the capability to infect  
9 human cells, that there are particular concerns about the long-term  
10 health effects. And, we urge that this kind of testing has not  
11 been done on genetically modified foods, and it should be done in  
12 order to protect the public.

13  
14 Moving on to the secondary point, which is basically the  
15 containment issue. We just question the containment in  
16 laboratories and how carefully are these monitored? I think you've  
17 been made aware of a report from the UK where by-products of  
18 genetic experiments are routinely disposed of in a fairly casual  
19 manner into the environment.

20  
21 We feel mistakes are inevitable. I'd like to - you know, there are  
22 many examples of mistakes, one of which I'm particularly aware of  
23 in Russia in 1979 at their Bioweapons Institute in Siberia in which  
24 a scientist left a filter off some equipment in a research lab that  
25 was looking at anthrax, and 115 people died in a neighbouring  
26 factory in the town, after that filter was left off, from anthrax  
27 within five days.

28  
29 What we feel is that laboratory containment is something that has  
30 to be clearly - feasibility of avoiding mistakes with biotechnology  
31 is something that has to be looked at very very carefully. And,  
32 we're taking it for granted here that the issue of field trials and  
33 releases of foods is something that we oppose.

34  
35 The next point I want to deal with at a little bit more length is  
36 the experience of consumers. What we feel is, that when we move  
37 into the food area, food production and food regulation, is that  
38 consumers are the major stakeholder in this issue, that they are  
39 the ones who have to consume the food, their children have to  
40 consume the food, future generations have to suffer whatever  
41 mistakes are made or reap whatever benefits are available.

42  
43 And, in this field consumers have an intuitive feeling, I think  
44 many consumers or the majority even, that they have the right to  
45 decide for themselves in their own way, in their own time, for  
46 their own reasons, what they want to eat. And, they also want to  
47 know what they are eating.

1 And, we feel that that is a fundamental right. And yet, as a  
2 consumer organisation, Soil and Health, and many other NGO's in  
3 New Zealand, we have taken a parental role, if you like, in  
4 protecting consumer health and looking at agricultural processes  
5 and food processes, and yet we feel that we're very much excluded  
6 from the decision-making process. We are not recognised as  
7 stakeholders, consumers are not recognised as stakeholders in the  
8 food regulatory environment.  
9

10 Who are the stakeholders? Well, certainly politicians are  
11 stakeholders, bureaucrats are stakeholders in the Ministry of  
12 Health in, ANZFA, in ERMA; scientists are major stakeholders,  
13 farmers are major stakeholders, representatives of industry are  
14 stakeholders, international interests are stakeholders, but  
15 consumers are not stakeholders, in the sense of making decisions.  
16 In one or two cases they have representation but they really don't  
17 have the power to influence the process in a way that they would  
18 like to, and I want to see how we can pursue perhaps how it works,  
19 how we've experienced it and how we feel it can be changed.  
20

21 For example, in the bureaucratic and political arena, in 1996  
22 Dr Dave Lovell-Smith from Christchurch, a general practitioner, and  
23 I myself met with the Director of Public Health, Dr Gillian Durham  
24 in December 96, we met with her for a full hour, and Marion  
25 Riordan, who is a Minister of Health who deals with food safety.  
26 We spent that hour looking at possible effects on health, and we  
27 provided a lot of references, 12 scientific references available at  
28 that time.  
29

30 We looked at various health issues associated with genetically  
31 modified food. We looked at the uncontrollable position effects  
32 which resulted from gene transfer. We looked at acute and chronic  
33 toxic and allergenic effects and how they could be tested for. We  
34 looked at the long-term health risk resulting from increased  
35 mobility of genetic material, and we touched on the effects on the  
36 environment and their potential to influence health.  
37

38 That meeting took place in December and we were given a long  
39 hearing and we submitted references and detailed arguments.  
40 Despite that, within a week Gillian Durham wrote, and this  
41 information was obtained under the Information Act, Gillian Durham  
42 wrote to the then Associate Minister of Health, Katherine O'Reagan  
43 who was responsible for foods, saying that "foods could only be  
44 banned or restricted if there were grounds to do so based on the  
45 need to protect public health and safety". She then wrote, "today  
46 no such data has been provided to the Ministry and we are not aware  
47 of any such material". She went on to say that, "our partners, the  
48 European and American regulatory systems, did not see any problem

1 with these foods", again contrary to what she had been informed.

2

3 That is a problem for us; that we feel that, in the process, we  
4 submit but we are not listened to. There is another agenda.

5

6 As far as I am aware, and I am not a legal expert in any sense,  
7 that there is a definition of a consultation, and this is from a  
8 judgment recorded in the Court of Appeal in September 1993 in the  
9 case of Wellington International Airport Limited v Air New Zealand,  
10 and the judgment reads: "A consultation must be allowed sufficient  
11 time and genuine effort must be made. It is to be a reality, not a  
12 charade. Consultation is an intermediate situation involving  
13 meaningful discussion. Implicit in the concept is a requirement  
14 that parties being consulted will be adequately informed so as to  
15 make intelligent responses. It is also implicit that the party is  
16 obliged to consult, while quite entitled to have a working plan  
17 already in mind, must keep its mind open and be ready to change and  
18 even start afresh".

19

20 We submit that it is time to start afresh. We have been  
21 disappointed with the response of ANZFA, the Australia/New Zealand  
22 Food Authority, to submissions. We note that when P97, the first  
23 consultation on GE first came out, there were 3,000 submissions  
24 from New Zealand. And yet, in the response document that ANZFA put  
25 out after that, these 3,000 submissions were accorded one sentence  
26 in a paragraph admitting that there were concerns, but at the same  
27 time saying that they appeared to be driven by an orchestrated  
28 public campaign. We don't feel that we're being heard.

29

30 We feel that also in the scientific arena, that there is a  
31 perception on Government committees to deal with food regulation,  
32 that scientists have a right to take decisions to pursue their  
33 chosen ends and to set priorities irrespective of public opinion.

34

35 We believe that science unfettered by public opinion leads to  
36 environmental disaster. I think this is basically what happened in  
37 the USSR where the environmental damage has been huge, that science  
38 was allowed to operate without taking account of public opinion.

39

40 We feel that the public are good watchdogs, that consumer  
41 organisations are good watchdogs, and that they should be involved  
42 in the decision-making process, especially in this key area of  
43 genetics and genetically modified food.

44

45 I think you've heard widely from farmers, from industry, from  
46 international interests, certainly international interests have  
47 tried to pressure the New Zealand position, and farmers perhaps are  
48 uninformed on this issue.

1

2 So, what I want to move to, just briefly, or not that briefly but  
3 at least summarise where we are, where we have got to and where we  
4 feel changes can be made, and I've prepared an overhead on this  
5 issue.

6

7 [Dr Hatchard approaches overhead]

8

9 First of all, we support a ban on the release of GMOs in fields and  
10 food, and we support a review of the Patent Law; we feel there  
11 shouldn't be patents on life forms.

12

13 We support a review and a serious review of the containment of  
14 recombinant DNA in labs. We feel that this is the dangerous area  
15 where, especially actually in the light of the recent discoveries  
16 about the structure of the human genome, that it is in the control  
17 mechanisms of the DNA that essential higher functions and human  
18 organisms definitely emerge, and these control mechanisms are  
19 simply not understood. And, therefore, the use of recombinant DNA  
20 techniques could destabilise control mechanisms in animals and  
21 human beings.

22

23 In terms of consumers, we would like to see consumers to be genuine  
24 stakeholders in the whole process of regulating food. And we would  
25 like to see NGO's involved not just as people who are represented  
26 in passing, consulted and forgotten, but whose views are taken very  
27 seriously by everyone who's concerned with that regulatory process.

28

29 We've heard that we feel that the Precautionary Principle should be  
30 strengthening food regulations and in the operation of the HSN0  
31 regulation.

32

33 We would also like to see that the concept of cross-disciplinary  
34 scientific consensus to become a component of safety assessment.  
35 There is, you know, in some cases we feel there has been an  
36 emergence of a scientific elite who feel that they alone are able  
37 to take the decisions. We believe that any determination should be  
38 clearly shown to be held by a wide view of opinion within the  
39 scientific community. And, any determination on that basis should  
40 be open to some form of independent review.

41

42 We strongly feel that consumers have a right to know, and not just  
43 about genetically modified foods but about all foods. I'd like to  
44 say, for example, that under the current regulations, if you buy a  
45 bottle of olive oil and you look at it and it says perhaps 100%  
46 pure olive oil, under our current regulations, our food  
47 regulations, combining the new food regulations on GM, the existing  
48 food regulations, that 100% pure olive oil can contain up to 25% of

1 any other oil and not be identified. That 25% could be canola oil  
2 coming from genetically modified canola plants.

3  
4 That's the state of our legislation. It may be that the actual  
5 industry is more ethical than that, but that is the amount of our  
6 legal requirement. We believe that that is unacceptable to  
7 consumers. There has been a move, Gillian Durham told us, she's  
8 now moved on from her position, but it is being continued and I  
9 confirmed it last week in Wellington, towards less labelling of  
10 foods. We feel there should be full disclosure of labelling of  
11 foods.

12  
13 We believe our international policy on foods should be tied to  
14 notions of traceability and separation of GE foods. We believe  
15 that imported foods should be GMO tested.

16  
17 Finally, we believe that there should be a redirection of research  
18 funding; that there has been a movement in our universities towards  
19 funding of biotechnology and away from alternatives, which includes  
20 sustainable agriculture, organic agriculture, natural medicine, the  
21 use of solar energy and sustainable energy forms. There are many  
22 areas in which we feel that we can make a great contribution as a  
23 nation to the world in a way that is known to be safe and viable.  
24 Thank you very much.

25  
26  
27 \*\*\*

28  
29 [11.30am]

30 MS WATTS: Good morning. Thank you very much for the opportunity to  
31 talk to you. I wish to talk to you briefly about pesticides. I  
32 believe that there hasn't been a great deal of input into the Royal  
33 Commission so far on this subject, and that as it is integral to  
34 the agricultural system for which genetic modifications are being  
35 pursued it's a very important subject for the Royal Commission to  
36 be considering.

37  
38 All of the crops that have been developed so far have been  
39 developed specifically for systems that rely heavily upon pesticide  
40 use. The existence of these GM crops depends on a perpetuation of  
41 the use of synthetic chemical pesticides.

42  
43 The first point I want to make therefore is that GM technology will  
44 inevitably increase pesticide use, not decrease it. I would refer  
45 you to Monsanto's New Zealand submission, pages 3, 9 and 10 where  
46 in describing New Zealand's GM future they mention only herbicide  
47 resistant crops.  
48

1 Unfortunately this herbicide tolerance, whilst known to be  
2 transferred to weeds, has not also transferred to humans, and I  
3 will address the human health effects of this in a minute.

4  
5 There has recently been a finding that a resistance in Roundup  
6 Ready soil - a resistance of a weed that grows in the fields of  
7 Roundup Ready soy. Roundup has been applied to the soy, the  
8 waterhemp has not been killed, and they have had to increase the  
9 rates of Roundup that have been used on this weed.

10  
11 The second aspect of this is insecticides. There have been some  
12 reported decreases in the use of insecticides in BT engineered  
13 crops, but I would like to inform the Commission of a report by the  
14 National Cotton Council of America that Cotton Bollworm has  
15 developed resistance to BT in China. That is, resistance to both  
16 BT as an organic spray and BT expressed in the toxin expressed in  
17 the transgenic cotton. Other insecticides will now have to be used  
18 in place of the BT toxin.

19  
20 The third and perhaps most fascinating area of increased pesticide  
21 use is that of fungicides. This question has largely been ignored  
22 because fungicides are not part of the GM programme, and fungicides  
23 are generally regarded as being of low toxicities; most of them,  
24 however, are actually carcinogenic. I can't tell you whether  
25 fungicide use is increasing or decreasing or remains unchanged,  
26 there is no data available on this, but I will note the results of  
27 a recent study that found elevated levels of fungal species  
28 fusarium in the soil of fields that Roundup Ready soybeans have  
29 been grown, and this is regarded by the researcher as a direct  
30 result of the glyphosate use.

31  
32 Many species of fusarium are in fact pathogenic fungi, and the  
33 point here is that Roundup Ready soybeans will probably lead to an  
34 increase in fungicide use as well as herbicide use.

35  
36 The second point that I wish to make is about the actual toxic  
37 effects of the pesticides themselves. And particularly about the  
38 failure of toxicology to adequately identify the real effects of  
39 pesticides before they are liberated on to the market and people  
40 are exposed to them. There are two aspects to this; one is a lack  
41 of knowledge about the effects of individual pesticides and the  
42 other is the problem of ongoing exposure to low doses of mixtures  
43 of chemicals and the interactions with these to other factions in  
44 the human environment and this is of specific relevance to GM  
45 foods.

46  
47 Firstly I'll talk about individual pesticides. I think the  
48 Commission has been made aware already of the recent finding of a

1 link between exposure to glyphosates and non-Hodgkins lymphoma.  
2 This link was established only 25 years after Roundup was put on  
3 the market and people have been exposed to it in enormous amounts  
4 worldwide for 25 years before this link was even suggested.

5  
6 But I will draw your attention also to another recent suggestion by  
7 Australian medical researchers that glyphosate might also be linked  
8 to Parkinsons disease; this work dates 1999. The actual cause of  
9 Parkinsons disease are still not fully known, but recent research  
10 is centering around the theory that it may result in the chemical  
11 interference mitochondrial electron transport chain known as  
12 complex I. Glyphosate is known to be toxic to mitochondria, hence  
13 the link.

14  
15 The point of this is that no matter what reassurances we are given  
16 by pesticide manufacturers or regulators, and I say the latter with  
17 recent experience, the full effects of individual pesticides are  
18 not known when they're liberated on to the market, and it takes  
19 many many years to unravel them and perhaps it never will be.

20  
21 The second problem is that of low dose exposure to mixtures of  
22 chemicals. And, international scientific attention has begun to  
23 focus on this and the manner in which people are actually exposed  
24 to chemicals; not as single chemicals such as are used in  
25 toxicological laboratory tests. The reality of human exposure  
26 bears little resemblance to these tests where standardised rat  
27 populations are exposed to high doses of single chemicals.

28  
29 In recent years of a number of studies have found synergistic  
30 reactions occurring between chemicals meaning that very low doses  
31 of pesticides such as are found in our drinking water and in our  
32 foods may be interacting with each other to cause toxic effects  
33 that are not experienced by the rats fed higher doses of singular  
34 chemicals. I will briefly refer to two of these studies.

35  
36 One was a five year study on rats and it concluded that low dose  
37 mixtures of the herbicide atozine, the insecticide aldocarb and  
38 nitrate fertilizer caused endocrine immune and behavioural changes  
39 in rats. These changes were found to occur at levels of pesticides  
40 and the nitrate fertiliser commonly found in groundwater.

41  
42 The second study is more recent in the Year 2000. US researchers  
43 have found that the low doses of the herbicide paraquat and the  
44 fungicide maneb(?) in combination caused brain cells known as  
45 dopamine neurons to die. This is the hallmark of Parkinsons  
46 disease. Neither of these pesticides by themselves caused this  
47 effect. The doses used were only 1% of the LD50, the standard  
48 measure of toxicity. The researchers regard their findings as the

1 tip of the iceberg, in their view there are plenty of combinations  
2 of pesticides experienced as residues in our food that could be  
3 causing Parkinsons disease.

4  
5 Hand in hand with this, these types of scientific study, has become  
6 also a recognition that the mixtures of chemicals are interacting  
7 with other environmental factors, or that the responses of humans  
8 to these chemicals is influenced by other environmental factors  
9 such as genetic variation in enzyme levels, levels of nutrition or  
10 malnutrition, the body burden of chemicals and previous exposures,  
11 presence of pathogenic viruses and bacteria, levels of natural  
12 estrogen and so on.

13  
14 The relevance of this to the Royal Commission is twofold. With  
15 each passing year scientists are finding more and more ways in  
16 which commonly used pesticides such as Roundup may be contributing  
17 to the ill-health of our nation. And, with each passing year the  
18 pressure to reduce the use of these toxic chemicals mounts. Plain  
19 commonsense dictates that it is foolish to use these chemicals  
20 unnecessarily if we do not know the ramifications of that use.

21  
22 The second point is that if pesticide toxicology, which is a far  
23 older and more developed science than that of GM, is unable to  
24 accurately identify all the potential actual effects of pesticides  
25 on humans, let alone on other creatures with which we share the  
26 ecosystem, how can it be assumed that the toxicology of genetically  
27 modified foods can identify all the potential and actual effects of  
28 those foods on humans?

29  
30 Where are the tests that show how the newly introduced stray  
31 particles of protein in GM food, the lectins, the vectors, the  
32 toxins, the protease inhibitors, how these interact with the  
33 mixture of chemicals found commonly in our foods I have referred  
34 to?

35  
36 In a real life situation where a person may be suffering  
37 malnutrition or over-consumption of saturated fats, or may have an  
38 enzyme deficiency, or may already have breast cancer. There are no  
39 such tests that I've been able to find.

40  
41 As with pesticides, simply testing a GM food on a number of rats  
42 fed standardised nutritionally adequate diets tells us nothing  
43 about the real world of people and food.

44  
45 I have here a number of examples of possible interactions between  
46 aspects of genetically modified food and other factors on the  
47 environment. I won't go into them now because of lack of time, but  
48 I would like to table this document for the Commission.

1

2

I would simply like to conclude that the state of the real knowledge about the effects of pesticides is actually extremely limited. The state of knowledge about interactions between these chemicals and genetically modified foods is non-existent. Not simply - not knowing about something doesn't mean it's not going to happen; which we have found to our cost over the years with pesticides.

8

9

10

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19

To conclude, I will refer again to the submission of Monsanto. They submitted on page 25 that "Environmental benefits are achieved through the reduction in the use of herbicides". HortResearch, on page 15 of its submission, provided the opinion that "It is desirable that herbicide use be reduced". And again via its witness, Dr Susan Gardiner, and I'll quote, "There is mounting concern about the cumulative effect of all chemicals used in agriculture, households and industry on human health, particularly on vulnerable populations; infants, the sick and the elderly".

20

21

22

23

24

25

26

The Soil and Health Association agrees wholeheartedly with these statements. The use of herbicides and other pesticides must be reduced for the sake of humanness, for the sake of other humans in the ecosystem. We submit that genetic modification will not bring about this reduction, for it depends on the existence of pesticides. Organic agriculture will, however.

27

28

29

30

31

32

33

It is our view that GM agriculture is not sustainable, that it will rely on ever-increasing use of pesticides and chemical fertilizers to deal with the side effects of the GM on the agro-ecosystem and at the same time it will destroy New Zealand's ability to truly reduce pesticide use through the widespread adoption of organic agriculture. Thank you.

34

35

36

37

38

CHAIR: Yes, thank you.

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39

40

41

42

43

44

45

46

47

48

[11.42am]

DR CLEARWATER: Good morning. I would like to speak this morning in favour of a 10 year moratorium on the field testing of genetically engineered organisms. I wish to make three points.

Firstly, that the high value of organic products, in particular apples, would be compromised.

The second point is that, we have to make a choice between organic production and genetically engineered production, that there will

1 be inevitably a contamination of organic products through  
2 genetically engineered organisms' presence.

3  
4 And thirdly, I would like to address a concern that has appeared  
5 before the Commission that opposition to genetically engineered  
6 organisms condemns the Third World to starvation.

7  
8 I would like to begin on my first point with discussing the value  
9 of organic apples, and I am indebted to recent articles by Bishop  
10 Randerson on "value". There is a perception amongst many in the  
11 community that the activities of organic growers and green persons  
12 offers very little contribution to the economy of the country, and  
13 it's in response to that consideration that we have made a great  
14 deal of emphasis on the financial value of the products we are  
15 producing. This is certainly not the whole issue, but it is well  
16 to remember that we now have 83 growers of organic apples in this  
17 country, some of them large corporate growers, and that some of the  
18 returns we're getting for these apples are substantial. In  
19 particular, we are receiving \$80 return to grower for organically  
20 produced Royal Galas on the American market.

21  
22 I would like to extend the notion of what value is in reference to  
23 these exports of organic apples. The group of 10 growers that were  
24 initially involved in organic apple production in Hastings were  
25 greatly incensed at a Ministry of Agriculture and Fisheries report  
26 that they were involved in organic apple growing solely for the  
27 financial returns.

28  
29 It has been my observation that even though many of them may have  
30 begun such activities, attracted by the function returns, that the  
31 practice of organic growing is highly seductive. That people  
32 involved in these activities become excited by what they are  
33 achieving; achievements that have until recently ridiculed as  
34 totally impossible. We were told it was impossible even to export  
35 organic apples. We achieved that in 1992 for the first time, and  
36 I'd like to submit a short document to the Commission for its  
37 consideration, of the early history. We now have been able to  
38 export apples to the States, and this was an impossibility - placed  
39 impossibility, but it has happened.

40  
41 The thing I find most interesting is how the practice of organic  
42 apple growing extends to other areas in the orchardist's lives.  
43 For example, sitting at lunch with a group of growers, I found my  
44 own choice of a pie to be highly criticised by the growers who were  
45 all consuming their organic brown bread and salad food, and  
46 suggested that I could perhaps improve my own organic status. But  
47 this is just one very minor example of how organic practices extend  
48 right throughout the lives of people who are growing organically.

1 So truly there is a great deal more in terms of value that are  
2 being added to New Zealand, other than the financial returns;  
3 important though they are.

4  
5 I want to make my second point now; that we have as a nation to  
6 make a choice between growing organic product and growing  
7 genetically engineered product.

8  
9 You are most aware, I'm sure, of the current controversy about the  
10 StarLink corn in the States, and I'd like to table a brief report  
11 on the legal cases that are currently being brought by farmers such  
12 as Don Suppa(?) against Aventis for the contamination of Iowa corn  
13 with StarLink corn. His case makes the point that Iowa corn has  
14 now been adversely affected, European markets of all this product  
15 have disappeared, and that the detection of StarLink corn in food  
16 products in Japan have touched up a sharp decline in their imports  
17 of American corn.

18  
19 I have seen the ability of corn pollen from one variety to affect  
20 the saleability of other varieties. Working down in a corn farm in  
21 the Palmerston North area, I was informed by one of the growers  
22 that he had grown on his farm two varieties of corn;  
23 cross-pollination of one variety with the other had produced corn  
24 with bright pink kernels, and these were completely unsaleable and  
25 had to be dumped. So, there's something particularly effective  
26 about the lifestyle of corn plants which allow a great deal of  
27 contamination.

28  
29 However, my passion has long been organic apples, and I'm very  
30 concerned about the contamination of organic apple crops with the  
31 pollen from genetically engineered apple trees. We know of the  
32 existence of genetically engineered apple trees, in particular  
33 through a newspaper report that informed us that HortResearch was  
34 withdrawing its application for field testing of genetically  
35 engineered apple trees that they produced; so they exist. The  
36 regions in New Zealand in which apple trees are grown are very  
37 restricted. Any growth of genetically engineered apples, in the  
38 Hastings area in particular, would inevitably result in the  
39 contamination of our organic crops.

40  
41 Bees are used for pollination of apples. Bees have flight paths  
42 unconstrained by any form of barrier that humans might like to  
43 place on them. Beehives get moved from orchard to orchard. So,  
44 inevitably, and this is a restricted area, the use of bees, even  
45 wild bees, will inevitably convey pollen from GE trees to organic  
46 trees.

47  
48 And I would like the advocates of genetic engineering crops to

1 consider the wrath of a corporate grower of 100 acres of Royal Gala  
2 trees for which he is confidently expecting a return of \$80 per  
3 carton; when the contamination occurs he would then be looking at a  
4 return of \$8 per carton, a very substantial financial loss, and  
5 such corporate growers would have the resources to make, I feel,  
6 quite compelling law cases. So, there's a great deal that we could  
7 lose.

8  
9 The third point I want to make is the impact on the Third World.  
10 We have seen and heard accusations that our opposition to  
11 genetically engineered organisms in food plants condemns the Third  
12 World to starvation. I believe that Vandana Shiva has given  
13 compelling rebuttals to these arguments.

14  
15 As a scientist, I would like to make my contribution to the feeding  
16 of the Third World through my development of organically  
17 sustainable systems. I spent three and a half years in Kenya  
18 working in sorghum, and my work at that time showed a clear  
19 difference between two types of sorghum. One sorghum, CSH1, was  
20 developed under a pesticide umbrella and used in small grower's  
21 plots in Kenya, rapidly succumbed to the attack of the sorghum  
22 shoot fly.

23  
24 The other variety I looked at was called Sorina bred by Dr Dockett  
25 in Uganda. It turned out that this variety, the Sorina variety,  
26 was non-preferred for overposition by the sorghum shoot fly and it  
27 thrived. It had been bred without the supposed benefit of the  
28 insecticides and had proved to be very useful for the small farmer.

29  
30 It is by such contributions I believe that we as New Zealand  
31 scientists can contribute to the feeding of the Third World. I'd  
32 like to thank you for your time and end here. Thank you.

33

34

35 \*\*\*

36

37 [11.50am]

38 MR HOARE: Just to start with, I think Soil and Health believes we're at  
39 quite a crossroads here. In time, in New Zealand, historically as  
40 a people we have been world leaders in initiating ideas and  
41 concepts to the rest of the world; giving women the vote, Social  
42 Welfare systems, 40 hour weeks, it goes on and on and on. We are  
43 actually initiators, and this symbol of us being "world leaders".

44

45 Food is complex, it contributes to our social, cultural and  
46 spiritual health. Many of us, I hope, we were involved in food  
47 festivities yesterday which chocolate is something, with  
48 Valentine's day - it has a connection. There is this connection

1 with food that we have which is really important that ensures the  
2 well-being of individuals, communities and nations.

3  
4 Food is power. We are facing a power crisis. And, food is a  
5 measure of our culture and relationship to land. I'll be showing  
6 you a visual example of this soon.

7  
8 The Organic 20/20 vision is endorsed by Unitech, the Green Party,  
9 Bio-Gro, businesses such as BioFarm, Fresh Direct, Koanga Gardens,  
10 individuals and communities right throughout New Zealand.

11  
12 Independent research shows that 63 to 70% of New Zealanders want an  
13 organic future of some kind. And a small minority would prefer a  
14 GE one.

15  
16 It's probably been drawn to your attention the Affco report, done  
17 in May last year; clear indication of a strong organic influence  
18 and preferred future.

19  
20 And more recently some research that myself and Unitech and  
21 independent researchers carried out at the end of last year, 500 -  
22 independent research done by consumer link, 500 phone poll and we  
23 asked what do you really want New Zealand to be in 20 years time?  
24 And an overwhelming proportion see New Zealand as this green  
25 future, as this opportunity of organic, very small percentage of  
26 people actually see New Zealand's future being GE alone. This is  
27 the want of the people.

28  
29 So what is organics? I think for - something which New Zealanders  
30 can relate to is, organic is like a surfing nature, we can put up  
31 complicated descriptions of what organics is, but for the sake of  
32 us trying to get the notion of what it is, it is like surfing  
33 nature.

34  
35 That's not a set of practices, a formula, procedure or activities.  
36 It's rather a combination, complex, of cultural attitudes, thought  
37 processes, adaptive actions, and when these are woven together we  
38 create an organic systems approach.

39  
40 Now industrial societies tend to define performance standards and  
41 create unrealistic expectations of nature and I'll be giving you  
42 some visual examples of that. But organics chooses to flow like  
43 suffering chooses to flow; but with, not against natural energies.

44  
45 So organics requires us to have commitment, perseverance, and  
46 detailed knowledge of elements over a period of time. And it's a  
47 subtle excellence in timing and execution. In essence, like  
48 suffering, successful organic practices requires harmonious

1 co-ordination of mind, body spirit, with natural energies.

2

3 And it's a practice that we all can relate to. So, like surfing,  
4 whether that's two foot at Whangamata or 20 foot at Waimea Bay, we  
5 can all participate or have in our life experience that notion of  
6 working with it, not against it.

7

8 So it's collective, it's co-ordinated, it's cultural, it's  
9 intelligence and wisdom; and it's a characteristic of traditional  
10 organic societies, and sophisticated ones.

11

12 So, as has already been presented, it's basically a notion of  
13 working with nature not against it. So, industrial society  
14 neglects and forgets that this rich scientific heritage that  
15 organic modelling actually has. So, the world history of  
16 environmental degradation under industrial scientific societies  
17 demonstrates otherwise.

18

19 So, New Zealand being organic by 2020 is more than just food, it's  
20 about community development, and Soil and Health is involved in  
21 this. It's about economic opportunities not just for food and  
22 fibre, for tourism. And for all the businesses, you name the  
23 businesses, there is a need and an ability for them to participate,  
24 as some of the examples been given about our energy systems and  
25 knowledge base systems.

26

27 We know less than 1% about soil biology. Resource Management is  
28 about wildlife, it's about management of our total diversity. This  
29 is Soil and Health's maxim; healthy soil, healthy food, healthy  
30 people.

31

32 Is it a reality? Margaret Mead, I think, captures this; "Never  
33 doubt that a small group of thoughtful citizens can change the  
34 world. It is the only thing that ever has". If there is any place  
35 in the post-industrial world that could demonstrate this, it is  
36 New Zealand.

37

38 At this moment this Commission is seen of international importance;  
39 we're at a crossroads. So, the steps are of paradigmatic enormity.  
40 Organics itself is gradually requiring inspirational innovative  
41 immediacy in order to remain meaningful. The repercussions of our  
42 status quo, we all know, are extremely risky.

43

44 So, Soil and Health is extremely positive about this and active  
45 through a range of publications, conferences. We had a major  
46 conference last year attended by delegates from right throughout  
47 New Zealand's organic community and internationally. It's about  
48 working with the Organic Federation of New Zealand, which goal is

1 to facilitate the efficient and sustainable development and growth  
2 of New Zealand's organic sector; it's about regional food  
3 economies, and it is about research. These are things that we're  
4 undertaking right now finding out and making positive steps  
5 towards.

6  
7 At a recent paper at the - it was a thinking conference here in  
8 Auckland actually, international thinking conference - I presented  
9 this notion of sustainability, this continuum, and John Clearwater  
10 clearly indicated this. In the organic sector this is where the  
11 money is being made, organic certification, IPMIFH programmes are a  
12 halfway step, but in chemical production there's not the money.

13  
14 Up to 100%, in some cases, of New Zealand's product is exported.  
15 There was a food conference in Australia that was made aware to me  
16 that, if we put all our food together for one meal to feed the  
17 world, it would be lucky if we could put on a morning tea. So, we  
18 do not feed the world, our technologies are not about feeding the  
19 world, we feed the rich palate of the world, that is what we're  
20 about, that is who we are.

21  
22 So the future is about enhancability. We don't want to stay with  
23 the status quo, we want to know how to improve the systems. And  
24 the chemical regime will disappear as we know it today. And  
25 organic in itself will move as we become in and the notions of  
26 sustainability become more enhanced and become far more - the whole  
27 information ability and our chance to actually improve the current  
28 situation will be of economic value and a value to the rest of the  
29 world.

30  
31 It's about taking responsibility and shaping our future. It's  
32 about redesigning the social, physical and spiritual capability of  
33 who we are as a nation. And, as Haikai Tane said, who is unable to  
34 present today, "But we may not be conscious of the fact that we  
35 have left the industrial age but not the colonial myths".

36  
37 I think a deep psyche in New Zealand is this notion, we don't like  
38 to be bullied. I think we can all relate to this. And this is  
39 when I was recently in Asia, in Manila, this is an example of  
40 bullying where the Wildlife Coalition of the US and UK has banned  
41 the law of killing and eating dog. We in ourselves culturally may  
42 feel that eating dog is not a proper thing to do, but in a cultural  
43 company context this is the lives of millions of people, especially  
44 in the south of the Philippines; and the effect that this has on a  
45 culture, we do not have the right to effect how other people  
46 consume, and the rights that those people have in determining their  
47 diet and their own livelihoods.

48

1 I just want to very briefly present to you some images to  
2 demonstrate this because I am aware that visual examples can be  
3 very powerful. So what do - of what food cultures look like. This  
4 is an example. If you're talking about feeding the world, I spent  
5 six years working and trying to understand traditional practices  
6 and what organic means in a traditional global perspective, about  
7 people feeding the world. An important thing to remember is that  
8 often populations and, for example, Eastern China, the population  
9 density is that of Auckland city; and they feed themselves.

10  
11 And people feed themselves with, in this type of manner; extremely  
12 intensive complex systems, intermarry through society, through  
13 cultural values, for an understanding of relationship with food  
14 society themselves and their own well-being's about being  
15 empowered.

16  
17 At the moment, if you did go to many rural communities in  
18 New Zealand, they can't feed themselves, have no capacity for this,  
19 have lost the skills and the resources to do so.

20  
21 Philippines; this is a rice example. Rice is being touted as a  
22 possible - this is Melichon, this is northern Yuzon in the  
23 Philippines, one of the most productive ecological rice systems  
24 there are on this planet; 2,000 years old. And you first may look  
25 and just see the rice, but in fact it's far more complex than that.  
26 This is a whole - interwoven between pig, fish, rice, vegetable  
27 culture. They obtain their Vitamin A through maintenance of the  
28 walls. These walls are stone walls. German engineers spent three  
29 months trying to understand how these systems worked, through  
30 engineering the use of water, and couldn't map them fully.

31  
32 This is a whole interrelationship. They continually manage the  
33 walls by harvesting weeds, are the vegetables which contain - and  
34 there's hundreds of varieties through different seasons which  
35 actually maintain the livelihood in this community. Once again, a  
36 complex interwoven society and communal interactions. Beautiful;  
37 why can't our agricultural societies be beautiful?

38  
39 Here we have farmers of two centuries. New Zealand. There's an  
40 Arab saying; first there's sheep, then there's goats and camels.  
41 This is a goat farm; not uncommon. This is Mahia Peninsular, this  
42 is the King Country; we know the industrial way of behaviour and  
43 working the systems. When it rains, we know what happens. But we  
44 create unexpected demands on nature and the result is not the  
45 rain's fault. And, so often this is what is portrayed; it was the  
46 rain, it was everything else but our own way of practicing land  
47 management.  
48

1 The Canterbury Plains. If we are in the notion that our - where we  
2 live and our food that we eat and our whole surroundings have an  
3 effect of who we are, this is 3% of existing tree cover now  
4 existing in the Canterbury Plains; we know it's contamination  
5 through industrial agriculture and horticultural practices with  
6 DDT. This is also the home, Ashburton, of our previous Prime  
7 Minister. Our deep understanding of landscape and how it affects  
8 us.

9  
10 We drink wine. These are the systems we support. This is in the  
11 Hawkes Bay, which John would know well. So, when we are drinking  
12 wine, our industrial connections, this is the systems that we're  
13 supporting in New Zealand. It doesn't have to be like this.

14  
15 This is the use of Roundup for so-called minimum tillage. The  
16 clear blanketing of hundreds of hectares of land in New Zealand.  
17 That's what it looks like.

18  
19 This is the corner of Crop and Food in Lincoln University, this is  
20 the way we treat - in fact, our demands on nature, our simplistic  
21 understanding of water systems. We call our water systems  
22 "drains", as if they were plumbing mechanisms. We have to  
23 understand where we are as a culture and the implications of this  
24 in the decisions we make.

25  
26 We just know this is not a good look. That's not a good look for  
27 tourism, and increasingly tourists are aware of what we are doing;  
28 our clean and green image is a myth. There are alternatives. This  
29 is a 1,000 hectare organic farm interconnected between a whole  
30 range of animal species, of tree culture, of polycultures, farm,  
31 forestry mixed together. It's complex.

32  
33 This is in Nuhaka. If those who understand the East Cape and the  
34 depression on the East Cape, this is a biodynamic organic farm on  
35 the East Cape. It is one of the only businesses in the area that  
36 employs people. It needs people. Organics needs to employ people;  
37 that's one of the benefits of it.

38  
39 And really, it is about getting back to this thing of healthy soil.  
40 And actually the whole notion of organics is, the difference is,  
41 we're not farming plants, we're planting soil; we're not growing  
42 plants, we're growing soil, and in a lot of some of the earlier  
43 slides here showing depleting it.

44  
45 That is the end of my time; that is the end of the submission from  
46 Soil and Health. Thank you.

47  
48 CHAIR: Thank you. We'll take a break for 15 minutes.

1

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Adjournment taken from 12.10pm to 12.28pm

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CHAIR: Yes, cross-examination. Mr Hodson?

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8

MR HODSON QC: Yes please, sir.

9

10

CHAIR: Yes.

11

12

MR HODSON QC: I must apologise to the group for addressing them from behind. And, although the few questions I have are directed to individual submissions, I have of course no difficulty with any member of the group answering any question as they think appropriate.

16

17

The first question I have is, the definition of sustainability. Now, I tried to write it down as the doctor was speaking. I think that essentially you regard it as the balance between the needs of the present and the needs of the future. Is that right?

21

22

23

DR BOSSELMANN: This only refers to one commonly agreed aspect as been provided by the Brunden(?) Commission in 1987 in its very influential report. This is inter-generation and intra-generation justice. Now the sustainability debate has moved on from that. Following the report, following international negotiations and then the literature, the key question is, what kind of sustainability are we talking about? The sustainability of existing systems like the economy and so forth, or is it the ecology that needs to be sustained, the environment?

31

32

33

And the debate in particular surrounding political theories, you find a very important --

34

35

36

MR HODSON QC: Could I focus the question? Could you tell us please what is the group's definition of sustainability for the purpose of its presentation?

37

38

39

40

DR BOSSELMANN: I cannot speak on behalf of the group, I can only offer my own opinion. I think sustainability needs to be distinguished as ecological sustainability. And I think it has to be referred to as strong sustainability and weak sustainability. We have a report here brought out two weeks ago called Sustainable New Zealand provided by a number of researchers with all the definitions available, appropriate definitions for New Zealand and so forth. The report is called Sustainable New Zealand and been edited by the Pacific Institute for Resource Management in collaboration with a

44

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46

47

48

1 loose group of academics, Local Government organisations, called  
2 Sustainable New Zealand. So, that report is worth looking at.

3

4 MR HODSON QC: Can anyone help? Does the group have a definition it  
5 would wish the Commission to adopt?

6

7 DR HATCHARD: I don't think we do - we don't have a commonly - it's a  
8 topic that needs to be focused on and discussed. And as Klaus  
9 started off saying, is that, one of the main issues here is the  
10 issue of bequeathing problems for future generations, that through  
11 our own lack of attention to the Precautionary Principle it's a  
12 central thing, and then Brendan wants to add to that.

13

14 MS WATTS: I'll add something very briefly with respect to agriculture  
15 systems and it's a very simplistic definition of sustainable. If  
16 you can't keep on doing it into the future permanently, it's not  
17 sustainable.

18

19 MR HOARE: I'd just like to add to that. Lady Eve Balfour, who is a -  
20 supposed one of the patrons of the Soil Association  
21 internationally, described that in a single word, and that's  
22 "permanence".

23

24 DR CLEARWATER: I would like to answer the question in terms of organic  
25 apple orchards. A sustainable organic apple orchard would be one  
26 that contains a rich and living soil, full of a diversity of life  
27 that fully sports the needs for the nutrition of the apple tree for  
28 an orchard that contains the maximum of biodiversity. In  
29 particular, an example would be the ability of red and yellow  
30 admiral native butterflies to New Zealand that are very much at  
31 home in organic apple orchards and are exterminated from any other  
32 conventional apple orchard. We're looking at a system that  
33 increases in its richness of ecology while at the same time  
34 delivering a bountiful harvest of the fruit that we're looking for.

35

36 MR HODSON QC: Well, aren't you in the situation then that we spent -  
37 the Commission spent a good deal of last year listening to people  
38 who believe that certain genetically modified products are or may  
39 be sustainable, those terms. Your view is very clearly definitely  
40 to the contrary. Someone has to decide, should not somebody such  
41 as ANZFA or ERMA be the appropriate body to decide?

42

43 DR BOSSELMANN: Can I just reply as a lawyer who claims some expertise  
44 in how decision-making is being con - decision-making in the  
45 democracy obviously is in collective enterprise and there's no such  
46 a thing to leaving such crucial fundamental decisions over  
47 sustainability to one existing body. Take the example of justice.  
48 If we would have a body here in New Zealand that defines what

1 justice is and what isn't, it would be the end of pluralistic,  
2 democratic society. Obviously it is a pursuit that has involved  
3 all the so-called stakeholders of society. In other words,  
4 sustainability is a commitment it's an ethical commitment to make  
5 it happen to explore what it means.

6  
7 No one of us can even begin to claim to have a monopoly of defining  
8 it, certainly not ERMA or any other institution I can think of,  
9 including environmental organisations. This is a task that  
10 humanity has been faced with, and this is the commitment that the  
11 States have been making in international agreements,  
12 notwithstanding the fact that we are at the very beginning to  
13 explore what the concept of sustainability or enhancement will  
14 become.

15  
16 It's, I believe, fundamentally opposed to industrialism based on a  
17 very linear way to production, and not being concerned with the  
18 products themselves. For example, the very appearance of waste is  
19 a clear indication that we might not even have a glance of what  
20 sustainability is. In nature there is no such thing as waste, and  
21 I don't think an economy is a good economy that has a problem with  
22 waste.

23  
24 So, in other words, each of us is an expert or not an expert, and I  
25 mistrust any effort to give any monopoly or power to any single  
26 institution, be it New Zealand or elsewhere, to define for the rest  
27 of us what sustainability is.

28  
29 MR HODSON QC: But the solution that you've come up with is to simply,  
30 in the context of genetic modification, demand.

31  
32 DR HATCHARD: Yes. I think, if I might say, what we heard this morning  
33 about this cotton plants which in both Australia and in China have  
34 within three crop generations developed resistance - the pests have  
35 developed resistance to the pesticide engineered into the plant.  
36 That's - what sort of technology is that? It costs millions of  
37 dollars to develop and three generations later it's useless. We've  
38 also heard of the instability of the crop lines, and we feel that  
39 the evidence is simply not there to support the fact that  
40 biotechnology is sustainable. There are thousands of years of  
41 organic agriculture which have shown how you can co-operate with  
42 nature in a sustainable way.

43  
44 MR HODSON QC: I'm really seeking information here. Could you just  
45 clarify for me then, given the position that was very clearly taken  
46 I think, that you would not support the concept that we have any  
47 right to ban or dictate to others what they eat; how do we have the  
48 right to dictate to the genetic engineers that they shall not

1 produce something which they think people want to eat?

2

3 DR CLEARWATER: I would like to take a very strong - I'd like to take  
4 you up on the point about people wanting to eat it. If we were so  
5 foolhardy as to attempt to sell our markets in Europe - genetically  
6 modified apples, we would very quickly discover that our attempt  
7 was economically unsustainable.

8

9 MR HODSON QC: I'm happy to accept that at the moment there is no market  
10 for genetically modified foods. But a number of persons have been  
11 before the Commission to state that, if the market changes they  
12 want to be ready for it, but you would not permit that.

13

14 DR HATCHARD: I think it's a question of the Precautionary Principle,  
15 Klaus could perhaps say something on that. But basically it's the  
16 question of taking a precaution about something that has some very  
17 big unanswered questions [indicates question mark in the air] and  
18 these have only been underlined in the months that the Commission  
19 have been sitting. There are some big safety [indicates a question  
20 mark in the air] and a ban is to - a precautionary measure to  
21 protect the public, which is an overriding concern.

22

23 MR HODSON QC: It seems, with respect, to be the ultimate precaution.

24

25 DR HATCHARD: Good.

26

27 MS WATTS: Can I refer to that about people's right to eat and I think  
28 what is the fundamental importance here is the fact that several  
29 surveys of consumers have indicated that New Zealand consumers want  
30 to eat organic produce, they want this country to be organic. And  
31 I think the Commission has heard at length that it is impossible  
32 for this country to be organic and have genetically engineered  
33 crops. Dr Clearwater indicated the problem with organic apples and  
34 GM apples. Do the consumers in this country, if they are given GM  
35 apples, what happens to their ability to eat organic apples? And  
36 it's quite clear organic apples themselves do not stop the growth -  
37 GM crops being grown, but the opposite is true. GM crops will  
38 prevent the consumers in this country having access to good fresh  
39 healthy organic food.

40

41 MR HODSON QC: May I move on from that one to seek a couple of  
42 clarifications, I think they're both in section 5 of Dr Hatchard's  
43 presentation. Paragraph 5.1.ii on what - on my numbering is page  
44 29.

45

46 CHAIR: It might be on page 25.

47

48 MS WATTS: 23 in mine.

1

2

DR HATCHARD: 23 in mine, yes, okay, 5.1.ii.

3

4

MR HODSON QC: The sentence "in the field of biotechnology this is a terrible mistake because inevitable mistakes can reproduce themselves and spread without limit - never able to be contained or cleared up". We've heard that a number of times; I wonder, Dr Hatchard, if you had any particular reference you would like us to look at in that connection?

10

11

DR HATCHARD: The question that arises is, if I can just put on an overhead and review this whole issue of containment, because I think this is a crucial issue.

12

13

14

15

MR HODSON QC: Dr Hatchard, we have had a great deal about containment. All I wanted to know, if you yourself, when you wrote that sentence, have any particular reference in mind? Some paper - a particular paper we should look at?

16

17

18

19

20

DR HATCHARD: Well, I think Mae-Wan Ho and Joe Cummings have written extensively on that, but I think the whole question is that, because the material can reproduce itself, you're not dealing with immeasurable quantity. When you're dealing with the risk of nuclear material you have the problem of containing a measurable identifiable quantity of material that has a measurable lifetime. In that situation it has still proved impossible, despite the best scientific minds, to contain nuclear material, and to prevent the misuse of nuclear material.

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And with biotechnology you're talking about a quantity that can reproduce itself, can sustain itself in time, and, therefore, the whole issue of containing it is a complex issue that hasn't really been properly addressed, because you can create a new illness, a new communicable disease, and how do you contain it? It is simply - the technology doesn't exist to contain biological pollution.

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36

So, it's - we have seen - for example, here in New Zealand --

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38

39

MR HODSON QC: Dr Hatchard, doctor Mae-Wan Ho did present her position, that was the essential element of the question. A couple of pages over, 5.3.18 point C(iv) point C in bold, "anything less than full disclosure labelling", etc. Can I just be clear, is it your position that labelling to the standards you would like to see adopted, would have avoided the BSE crisis or made people aware of the possibility of it in some way?

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DR HATCHARD: What happened with the BSE crisis, according to the Commission of Inquiry in Britain, was that it was a culture of

48

1 secrecy that led to the development of a crisis in public health  
2 and a crisis in the agricultural industry. If there was one area  
3 that the Commission identified, it was the secrecy that surrounded  
4 the process.

5

6 MR HODSON QC: I thought that was probably what you meant.

7

8 DR HATCHARD: Yes, and I feel as far as the public is concerned, and  
9 what goes on in their plate, one element of that is for disclosure  
10 labelling. I think we ought to know what is happening to our food,  
11 and there is - I have met many CEO's in the Food Industry in  
12 New Zealand, there is an openness in some and there is a reluctance  
13 in other major New Zealand industries to disclose the ingredients  
14 and the processes that are being changed in our common food items.  
15 I don't think it's helpful.

16

17 MR HODSON QC: If I could just backtrack there to 5.3.II which for my  
18 copy at least it's the preceding page "it should be a priority for  
19 New Zealand to ensure that all foods are labelled with complete  
20 information". And I read that paragraph to be really independent  
21 of the GM debate.

22

23 DR HATCHARD: Yes. I think I want to avoid the idea that labelling of  
24 GE foods will protect the public; I don't think it will. But I  
25 think in general the fact that this whole issue of whether or not  
26 to label has arisen on top of a labelling policy that does not  
27 disclose to the public what goes into foods. In a commentary "Food  
28 in New Zealand" you can basically have up to 25% of content  
29 undisclosed under current labelling regulations.

30

31 So, the - what I found visiting ANZFA in Canberra and talking to  
32 the Ministry of Health here and many manufacturing bodies, was that  
33 there is a huge reluctance to disclose to the public what is in  
34 their food. And, the whole issue about labelling, there has been a  
35 perception in industry that it is their prerogative not to tell the  
36 public. I maintain that public are good watchdogs if they know  
37 what goes into their food. If they don't know they become guinea  
38 pigs.

39

40 MR HODSON QC: Let me put two examples to you, and could you tell me -  
41 the coffee shop over the road here selling muffins and ham  
42 sandwiches. Now, should they be labelled and, if so, with what  
43 information?

44

45 DR HATCHARD: If they are ham sandwiches - I always remember Ralph Nader  
46 in America many years ago. He was a consumer advocate who we know,  
47 and he had something called a lemon meringue pie and he read out in  
48 a television interview the ingredients of the pie, and it was a

1 long long list, and he said "yes folks, no lemon, no meringue; must  
2 be all pie". I think if something that you are selling is a ham  
3 pie it should have ham and pie crust. If it has a lot of other  
4 things, people have a right to know.

5

6 MR HODSON QC: Lastly, is the group aware that, and I think it's  
7 relatively recently, Aventis have accepted full responsibility for  
8 compensation for StarLink, have allocated many millions of dollars,  
9 and those responsible for it or held responsible, are no longer  
10 with the company.

11

12 DR HATCHARD: We are - I have heard that.

13

14 MR HODSON QC: Thank you.

15

16

17 \*\*\*

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19 [12.46pm]

20 MR UPTON: Yes. I should just explain that I am Counsel Assisting the  
21 Commission, and I just want to explore some of the issues that have  
22 been referred to this morning. Could I just pick up a point  
23 Mr Hodson was talking about earlier, and it relates to this  
24 consumer choice issue. Does the panel have any difficulty with  
25 consumers having the freedom of choice to eat GM foods as long as  
26 they're properly labelled? Or, do you visualise a total ban on GM  
27 foods in New Zealand at some stage?

28

29 MS WATTS: There is a difference here between growing GM foods and  
30 importing them and selling them. Our concern is with the growing  
31 of GM foods here. And the second concern is that any GE - we don't  
32 have the legal ability, internationally, ability to ban the entry  
33 of GM foods into this country, as I understand it. Correct me if  
34 I'm wrong. But what consumers in this country need for their  
35 protection is that for any foods coming into this country, we are  
36 assured which have GM components and which don't and those that do  
37 have GM components are adequately labelled. And, that the consumer  
38 is appropriately informed of all the possible risks associated with  
39 eating those foods.

40

41 DR HATCHARD: I mean personally I would go further than that. I would  
42 say that there is a parental duty of care which is evident in  
43 New Zealand law which means that, if something is potentially  
44 harmful or it cannot be reasonably decided that it is safe, and  
45 this is clear in the HSNO legislation, that the Government feels it  
46 is their responsibility not to authorise such things. And I think  
47 that that is the key point here, is that we would not allow the  
48 sale of something that was harmful even if people wanted it. And I

1 think that our duty of care, as I've said, has to extend to a  
2 scientific consensus about it. It shouldn't be that there is a  
3 scientific elite of people who, without reference to the general  
4 debate and consumers wishes can decide on that, it has to be  
5 broadened out.

6

7 MR UPTON: But the Government allows foods that are harmful,  
8 surely it allows products that are harmful to be consumed, and at  
9 the end of the day, if properly informed, it's consumer choice,  
10 isn't it?

11

12 MS WATTS: This is exactly true and I would draw you again to my  
13 comments about pesticide residues. Some of them are extremely  
14 harmful and the Government is not only allowing it, it is  
15 sanctioning it. The food containing those residues is not  
16 labelled. The consumer picking up a beautiful green apple in the  
17 supermarket has no idea what the level of pesticides in those  
18 apples are. And even if they were told this is the long list of  
19 chemicals that are contained, the consumer doesn't know what that  
20 means.

21

22 This comes back again to Guy's comment about parental care. If we  
23 are going allow foods with those kinds of risks to be available on  
24 the market then we have to ensure that consumers are accurately  
25 informed of what they face. And as Guy said, should we allow those  
26 foods to be on the market if we know that they cause a risk, that  
27 they have a risk or potentially have a risk.

28

29 MR UPTON: Then you get into the whole debate, don't you, about  
30 whether people should be allowed to consume tobacco, alcohol,  
31 chocolate or whatever; you get into that huge debate, don't you?

32

33 DR HATCHARD: One thing is this, that the existence of one risk does not  
34 justify the introduction of a new risk. And here we're talking  
35 about a risk that is a serious risk, evaluated by a significant  
36 proportion of the scientific proportion of the scientific community  
37 as posing a serious risk.

38

39 So we cannot say - I met with Lockwood Smith when he was Minister  
40 of Agriculture, again for an hour, and he tried to introduce the  
41 same argument. Well life is very risky anyway, maybe you won't  
42 leave my office because you'll get run over by a car, are you  
43 afraid of that? Well, I - the thing is that you have to realise  
44 that, we can't go on introducing risks and we can't look back and  
45 say well, we have had the habit of justifying risks therefore we  
46 can just let another one on.

47

48 We've moved beyond that because we've got two invasive technologies

1 that are right in the block hole of how life is organised and we  
2 don't understand yet what we're doing. We need to, as Michael  
3 Antoniou said, go back and we need to know a lot more before we  
4 move forward and just allow it to go on. Because the freedom of  
5 rights does not extend to taking unnecessary risks.

6  
7 And the other thing is that, what has happened in the biotechnology  
8 publicity or public relations spin really, I feel, is that cutting  
9 edge medical technologies and medical risk assessments have been  
10 carefully taken into the food sector, and they are inappropriate.  
11 The consumer does not consider that risks with food are  
12 appropriate, and that view of the consumer, which is a generally  
13 held view and I don't think anyone would dispute that, must be  
14 taken account by the Government because, otherwise, there will be  
15 public disquiet and even public unrest as has happened in some  
16 countries.

17  
18 MR UPTON: Well, if we move --

19  
20 DR CLEARWATER: John.

21  
22 MR UPTON: Sorry, I think Dr Clearwater wanted to say something.

23  
24 DR CLEARWATER: Can I perhaps give a very brief example. A number of  
25 years ago I considered the needs of my family for vaccination  
26 against Hepatitis. I considered cell based vaccines and GE  
27 vaccines, and on the base of my current knowledge I chose to have  
28 my family vaccinated with GE vaccine. I'm a scientifically  
29 literate person, and on the best available information I made that  
30 choice. Now, I would not make the same choice again today. In  
31 fact I wouldn't have them vaccinated at all because basically the  
32 lifestyle of myself and my family does not put me at high risk of  
33 contracting Hepatitis. So this is a case where somebody who did  
34 have scientific competence made a poor choice of a product which  
35 was then currently on the market.

36  
37 MR UPTON: Well, that leads on to the next topic that I wanted to talk  
38 about, and it's this question of genetically modified medicines or  
39 genetically modified medical research into genetically modified  
40 organisms. Presumably you accept that that's a reality and that it  
41 must continue. Your concern is with foods as I understand it?

42  
43 DR CLEARWATER: Can I comment on that again?

44  
45 MR UPTON: Yes.

46  
47 DR CLEARWATER: I consider that research into molecular biology is an  
48 extremely important activity. I think we must know more and more

1 about the chemistry underlying biology. I think that there is a  
2 great deal to be known and potentially cured in the cases of  
3 genetically based diseases. For example, like Huntington's chorea,  
4 we now know that a copy number of a certain part of a gene, if it  
5 exceeds 40 times, people are going to get Huntington's chorea. So,  
6 being able to identify these sorts of genetically caused illnesses  
7 and with the hope in being able, in some way, to reduce that copy  
8 number and preventing people from getting such a disease is a great  
9 good. I think research into genetically based diseases is  
10 something that must continue and I fully support it.  
11

12 MS WATTS: I'd like to add something if I may. I am deeply concerned  
13 that such an immense emphasis is placed on the role of genetics and  
14 disease prevention. And I would draw attention to particularly  
15 things like breast cancer. We have heralded in our newspapers the  
16 genetic cause is being unravelled and we find in small print the  
17 genetic involvement is possibly less than 5% of breast cancer  
18 cases. And it's relatively well agreed amongst environmental  
19 scientists that something between 07 to 08% of the cases of breast  
20 cancers actually lie with environmental chemicals, such as dioxin,  
21 such as the residues we're finding in our food. What I would like  
22 to see is the emphasis being placed on understanding those causes  
23 and eliminating those causes, the 95% of people - women getting  
24 breast cancer, in my mind, are actually more important than the 5%.  
25 I would like to see a redirection of that research money away from  
26 the genetic medicine to understanding and eliminating those  
27 environmental causes.  
28

29 DR HATCHARD: I would go even further to say that, even genetically  
30 based illness does not necessarily only have a cure in gene  
31 therapy. There are people doing very interesting work, like Harry  
32 Sharma in Ohio at the University of Columbus, where traditional  
33 medicinal combinations have shown their worth in preventing tumors,  
34 in repairing DNA in vitro; there are other strategies. So, it is  
35 not black and white. There are a lot of medical strategies that  
36 are open to research, and we should not think that it is just a  
37 choice, are we going to fund genetic research, there are a lot of  
38 things that are not getting funded.  
39

40 MR UPTON: I'm not suggesting there's one alternative versus another,  
41 I'm simply asking whether there is still room for GM work or GE  
42 work in the field of medical research, or medical treatment, and I  
43 sense in general terms it's accepted that that can continue,  
44 although it may not be the be all and end all.  
45

46 DR HATCHARD: We have an issue about recombinant DNA technology.  
47

48 MR UPTON: I understand that.

1

2 DR HATCHARD: And its containment and we feel that that's a serious  
3 issue, and our submission is not concentrated so much on the  
4 medical side of things.

5

6 MS WATTS: I would say that we also have an issue of insertion of human  
7 genes into animals and that kind of trans-species technology for  
8 medical purposes.

9

10 MR UPTON: Right. Can I then come back to the food area again. I think  
11 it was Mr Hoare that said that food was power and we have a power  
12 crisis. Is that a comment relating to the world at large or to  
13 New Zealand?

14

15 MR HOARE: The world at large.

16

17 MR UPTON: Do you see that we have a food crisis in New Zealand?

18

19 MR HOARE: Yes.

20

21 MR UPTON: In what area?

22

23 MR HOARE: Can I give you an example?

24

25 MR UPTON: So I understand what you're talking about.

26

27 MR HOARE: Okay, that malnutrition in New Zealand, I mean developing  
28 countries are increasing their rights of malnutrition. Our lack of  
29 understanding has generally been discussed, of people's  
30 understanding of what food is, the power and ownership of food, and  
31 food directly related to our health. So, we have increasing  
32 malnutrition and it shows in all its forms of heart disease,  
33 diabetes and on it goes. Power crisis is not the lights going out,  
34 although that can result --

35

36 MR UPTON: I understand.

37

38 MR HOARE: Good.

39

40 MR UPTON: Are you saying it's organics that will solve the  
41 problem, in New Zealand terms?

42

43 MR HOARE: No, you've got to remember it's not a single bullet that's  
44 going to save everything entirely, and organics is I suppose as a  
45 philosophy has an extremely long history and that it's actually an  
46 understanding of the connection as I showed in those slides between  
47 why that we drink - that is - we are connected to that land use and  
48 the repercussions of that and we don't pay the real cost of food in

1 New Zealand or in many parts of the world.

2

3 DR CLEARWATER: Perhaps, at the risk of boring the Commission, I'd like  
4 to take an example from the apple industry.

5

6 MR UPTON: I take it you have some interest in apples.

7

8 DR CLEARWATER: I'm sorry.

9

10 DR CLEARWATER: One of the things that greatly motivates me is the  
11 plight of the farmer. I spend a great deal of my life in direct  
12 contact with farmers. They do a great deal of work and receive a  
13 decreasing concern for their efforts. They face a problem of  
14 increases in their inputs as big companies dictate what they will  
15 pay for the things they must buy, and they face from the other side  
16 a reduction in their returns as again big buying conglomerates  
17 restricting the prices that they obtain. So, the grower in - the  
18 conventional grower in many respects, the conventional apple grower  
19 in many respects is powerless to stop the erosion of a fair income  
20 for their efforts, and one of the things that organics does is, it  
21 breaks the apple grower out of that problem. They again begin to  
22 get a fair return for their efforts. They regain a high degree of  
23 power.

24

25 MR UPTON: Can I just continue on with that discussion? Do production  
26 levels go down with organic apple growing?

27

28 DR CLEARWATER: Our experience is variable. We have several examples of  
29 orchards on good soil that have completely maintained their  
30 production level. We have other orchards where production losses  
31 are 20% and in the UK organic apple orchards have shown a reduction  
32 loss of 30%.

33

34 MR UPTON: We've heard similar figures earlier I think in the hearings.  
35 As I understand it, the organic apple growing is more labour  
36 intensive than conventional apple growing.

37

38 DR CLEARWATER: There are certain aspects where the grower must be much  
39 more active, particularly in disease control where he is, for  
40 example, spraying more frequently.

41

42 MR HOARE: I'd just like to add on to that that I think rural employment  
43 in New Zealand is a positive thing.

44

45 MR UPTON: Have we got any evidence that? If we take apples, strangely  
46 enough, as the example, that GM crops have contaminated organic  
47 produce in countries where they are both being grown alongside each  
48 other, if we took California or the Argentine, for example.

1

2

DR CLEARWATER: I don't have information on that. In the case of New Zealand we were about to see field tests, but the request for permission to do field tests has been withdrawn.

5

6

MR UPTON: Are our fears of concern expressed by the group this morning theoretical in the sense that we don't have examples of contamination?

8

9

10

DR CLEARWATER: We have good examples of contamination in the area of corn, and in terms of apples, my efforts are in large part motivated by the wish that we not face that prospect in New Zealand. I don't have overseas information. Does anybody else know of apples?

15

16

DR HATCHARD: I'm not sure that apples are grown commercially genetically modified anywhere else in the world. My latest information is that at California they are getting ready to approve almonds, apples and some other stone fruit, but it is not yet happened. Whether they've had field trials I simply don't know.

21

22

MR HOARE: Can I come back to this thing? Patrick Holden who is part of our submission here, I talked to him on the phone in the UK a couple of nights ago about this issue of coexistence and the possibility of it. He is clearly indicating that consumers are increasingly become aware and are not in favour of this ability to coexist. So in fact in Argentina is organic production and that input into Europe and especially the UK the consumers have an awareness that there is this possibility of contamination. So, it is I think at this point in time as consumers become increasingly aware of, as the positions move, keeping a very strong finger on the pulse and I think that's a very positive thing because it is this relationship coming back to your original point of this relationship and power between producers and consumers and I think it's a very positive one.

36

37

DR ALLAN: Mr Hoare. This issue does interest us. I'm taking up a number of points that people have brought up and I'm still wondering how, say, the field release of, say, a cereal in New Zealand I'm not saying we want it or don't want it or whatever, would affect the growing of organic apples.

42

43

MS WATTS: It won't effect the growing of organic apples, it will effect the growing of organic wheat.

45

46

DR ALLAN: Right, so therefore we're talking coexistence only as it relates to exactly the same breed, not a general ban.

48

1 MS WATTS: Not entirely. With the emergence of herbicide resistant  
2 weeds, those weeds can travel into other crops that aren't - of the  
3 same nature as the genetically engineered crop. And so what you'll  
4 be starting to do is inflict an increasing weed problem on organic  
5 growers and on conventional growers as well.

6  
7 DR ALLAN: But surely the increased use of pesticides is going to create  
8 increased resistance of weeds, separate than GM.

9  
10 MS WATTS: Yes - I'm sorry I'm not quite sure of your point.

11  
12 DR ALLAN: If you use more pesticides you're going to get more resistant  
13 crops or weeds or whatever, that's - I don't think anybody in their  
14 entire Commission has debated that.

15  
16 MS WATTS: That's - right.

17  
18 DR ALLAN: And so if we continue to use pesticides even at the present  
19 level, let alone the graph we've done in the last 20 years, which  
20 is a steep rising graph, if we do that we're going to have more  
21 resistance in organics, nothing to do with GM, are going to find it  
22 harder and harder to practice. Is that what you're saying?

23  
24 MS WATTS: Not with respect to resistance. With respect to the  
25 proliferation of weeds, but not with respect - because the organic  
26 growers are not using sprays to which any resistance is developing.  
27 But they are affected by the proliferation of weeds outside of the  
28 boundaries of their properties, and if those weeds are  
29 proliferating because of GM practices causing resistance and the  
30 weeds multiplying, that has an effect on organic products.

31  
32 DR ALLAN: Would you argue that already in New Zealand that some of the  
33 conventional farmers are very concerned about organic farmers being  
34 on their boundaries because of the weed control issue already?

35  
36 MR HOARE: I can --

37  
38 MS WATTS: I have heard that debate, but I have never seen any evidence  
39 provided to support it.

40  
41 DR ALLAN: You haven't seen any come to the Pesticide Board?

42  
43 DR HATCHARD: No.

44  
45 DR ALLAN: Oh, good.

46  
47 MR HOARE: Just on this notion of weeds. I actually presented a lecture  
48 yesterday on this very topic. We really do not understand the

1 interconnectivity between weeds and the whole biology and  
2 enhancement of biological systems. I'll give you the example of  
3 Tiri Tiri Matenga. Now it's seldom understood that it's actually  
4 the Wattle at Tiri Tiri Matenga that are supplying the food for the  
5 birds to actually exist on.

6  
7 It's never actually disclosed that the weeds are an important part  
8 of our ecology, and it's an understanding of those relationships,  
9 not a blanket decision that, you know, this is good, this is bad;  
10 weeds are good, weeds are bad. It's an understanding of their  
11 interrelationship with the whole ecology of the site. Not only  
12 above ground, what we can see, but below the ground which we have  
13 very little understanding of what is really going on. And it's  
14 this kind of interrelationship which we need to know a lot more  
15 about.

16  
17 The example of the herbicide use is that what tends to happen with  
18 the ecology of weeds is that, certain species start to become  
19 extremely dominant and the proliferation of single start species.  
20 In fact, many organic farms work with weeds as part of the ecology  
21 which feed the insects, the birds, and that whole ecology which  
22 works to create a sustainable enhanced environment. And actually,  
23 one of the things, once again the consumers are very aware of, is  
24 that organics is not about food, it's the protection of wildlife  
25 and biodiversity, of which weeds are a very important part of.

26  
27 DR CLEARWATER: Perhaps I could respond briefly to the question about  
28 genetically modified wheat and organic apple growing. The organic  
29 apple growers are very heavy users of mulches, both to develop the  
30 soil and to retain soil moisture. We use a great amount of pea  
31 stalks and maize stalks in particular, so we would be very  
32 concerned about any of these crops being genetically modified being  
33 brought in as a mulch and then being contaminated.

34  
35 DR ALLAN: This brings me back to an issue already we've had in that one  
36 of organic farmers talked about losing certification because he'd  
37 used non-organic fertilizers. Obviously therefore it's the rules  
38 that run organics that put those lines in and I have trouble with  
39 understanding sometimes the logic in some of those rules in terms  
40 of a scientific background or in terms of a philosophy, and I do  
41 understand the ecology issues, I can tell you.

42  
43 MR HOARE: Well, I think this is kind of the crux of it. Those rules  
44 are internationally recognised by the organic community. And, they  
45 are difficult to understand, that's exactly right, it is a  
46 difficult - there's a process of learning and I'm part of having -  
47 in New Zealand we cannot get good education, ecological  
48 understanding of our production systems, you have to go overseas

1 for experience, for work experience or for further studies. We do  
2 not have the GATT capability here in New Zealand.

3  
4 So it's once you actually, like with anything, you've really got to  
5 spend some time understanding that and that's why part of Soil and  
6 Health's proposal for Organic 2020 that it does start in schools,  
7 this is interconnectivity between understanding of these  
8 relationships, and John made that very good one about the  
9 relationship between mulch, we don't know actually the answer  
10 between wheat and apples, it could well affect the biology of the  
11 soil.

12  
13 DR ALLAN: What about the situation like where you have organic  
14 sweetcorn marketed in New York that comes from New York State, and  
15 New York State also grows GM maize.

16  
17 MR HOARE: That's New York's problem actually, that's New York's, and it  
18 actually, I should actually be in Europe at this point in time at  
19 an important meeting with the IFOAM organic working group and this  
20 is something which the organic community is putting pressure on  
21 North America for. In New Zealand we have this opportunity not to  
22 even have this part of it, this question raised, and that's - you  
23 know, this complication, of which I mentioned before, our markets  
24 internationally, whatever produce we export, we don't feed the  
25 world. And so, you know, we are - it's actually in understanding  
26 that to a point where we can strengthen our market and not decrease  
27 it at all.

28  
29 DR ALLAN: I'm not arguing that, I'm just asking about how on earth have  
30 these two managed to be compatible?

31  
32 MR HOARE: It is actually - this issue is of concern. Now, what  
33 organics actually - when a certified product is certified, it is  
34 the practices and what actually take place - I mean the same  
35 question takes place, how can you call it organic in Europe when  
36 it's raining --

37  
38 DR ALLAN: Acid rain.

39  
40 MR HOARE: So, what is certified are the practices of that particular  
41 farm; it is the concern of the international community, we don't  
42 want to keep adding this pollution, whether it's genetic or any  
43 other kind, into our solution. So, that's the endeavour - it's not  
44 the endeavour of it, it's --

45  
46 DR ALLAN: Are IFOAM's requirements the same as New Zealand, or do they  
47 vary between countries?  
48

1 MR HOARE: IFOAM have a standard in which it - New Zealand has one of  
2 the strongest certifying brands in the world because of this,  
3 because it is seen - I mean, one of the most powerful images you  
4 have is Mount Taranaki, between pasture, cow and pasture, it is  
5 lifting. So that branding, together with the organic label in a  
6 very strong standard sets our market as a precedent.

7  
8 DR ALLAN: So, our standard for organic in New Zealand, is that what you  
9 are saying, that our standard for organic is stricter than that  
10 practiced in New York State?

11  
12 MR HOARE: I couldn't actually answer that because I don't know their  
13 standard.

14  
15 DR ALLAN: Or Switzerland's or other places?

16  
17 MR HOARE: Bio-Gro's - we have three standards existing at the moment,  
18 but Bio-Gro's certification standard is considered one of the most  
19 strong and sought after brands.

20  
21 DR ALLAN: I see. So, there's different labels that come under  
22 different branding levels. I'm aware that the Demeter has got its  
23 own strict rules.

24  
25 MR HOARE: That's what people look for. [Refers to Bio-Gro New Zealand  
26 certification mark].

27  
28 MS WATTS: I think the other part is that there is another organisation,  
29 Agriqua(?), which has recently entered the market here and its  
30 standards are not as high in most instances as the Bio-Gro label.

31  
32 DR ALLAN: And, you would argue that that goes down to the IPM systems?

33  
34 MR HOARE: Yes.

35  
36 MR UPTON: There was just one other topic I had to finish off with, and  
37 that is I just wonder if the panel is aware of the report that was  
38 published in Nature a couple of weeks ago about the ecological  
39 risks associated with GM foods and the tests that have been carried  
40 out over the last 10 years, have you seen that?

41  
42 DR HATCHARD: We haven't read it and we would be happy to --

43  
44 MR UPTON: It was tabled with the Commission a couple of weeks ago, and  
45 I just wondered if you are aware of it. But basically it showed  
46 that the plants in the trials, genetically modified, tended to die  
47 off rather than go forth and invade the world.

48

1 MS WATTS: That would have to be described as the ultimate in  
2 unsustainability.

3  
4 MR UPTON: That's right. Yeah, when they were being farmed they were  
5 fine, but when they were left unfarmed, they just died off. And I  
6 just wondered if you were aware of the report, that was all.

7  
8 DR HATCHARD: We haven't read the report, we would have to read the  
9 report. I have read similar reports, I haven't read that one, and  
10 I - for example, this is the kind of thing that people are now  
11 discussing. In the last year there have been two new corn viruses  
12 in the United States, and these corn viruses are proving very  
13 difficult to treat and to discover how they work.

14  
15 And one of them is an unusual corn virus in as much as rather than  
16 being insect-borne, it is - it goes through the soil. And, it is a  
17 cross between one corn virus and the tomato virus, or the tomato  
18 virus. The origin of that new virus is not understood, but it is -  
19 researchers have noted the fact that the first genetically modified  
20 plant to be introduced in America was the tomato plant, Flavr Savr  
21 tomato plant, and there has been some speculation in the literature  
22 that the creation of this new virus had something to do with the  
23 genetic modification of the tomato plant.

24  
25 So, when we're talking about whether these plants can sustain  
26 themselves, that's one issue; but whether the highly genetically  
27 mobile parts of the plant that are used to affect the genetic  
28 modification, whether those are contained, is an issue that is a  
29 very complex scientific issue. And, we don't want to go back, as  
30 we did with pesticides, where pesticides were introduced without  
31 looking at the long-term health effects. And now, 15, 20, 30, 40,  
32 50 years later we're looking at serious side effects of pesticides,  
33 that's the side dealing with serious increasing incidences of  
34 serious illness.

35  
36 In genetic modification we have scientists warning against far more  
37 virulent and serious risks, and those risks cannot be determined by  
38 simply saying "we haven't seen any evidence of these plants  
39 persisting". The mobile genetic vectors may be persisting, and the  
40 test to identify what effect they're having, what they're creating,  
41 are complex; long-term ecological issues that could not be left to  
42 our children.

43  
44 MR UPTON: Thank you. That completes my questions, thanks.

45  
46  
47 \*\*\*  
48

1 [1.17pm]

2 DR FLEMING: Just a minor point of clarification. You mentioned a  
3 conversation with Patrick Holden concerning compatibility or  
4 changes perhaps in the awareness of consumers in, let's say, the  
5 Northern Hemisphere with regards to Argentinian organic produce.  
6 Do you have any figures? I mean - or, does Holden have any figures  
7 on changing markets or whatever?  
8

9 MR HOARE: I can seek that for you. Consumers aren't just - these are  
10 examples right throughout the world; most recently even in Taiwan  
11 where I recently visited. Consumers aren't saying the label is  
12 organic, they trust it; no. Consumers are enquiring - they're  
13 actually pursuing deeper than that and that's - the certification  
14 standard is essential to that, they're not just accepting the word  
15 "organic" and that's a key issue here in New Zealand.  
16

17 DR FLEMING: Do you have any evidence that Argentina in particular is --  
18

19 MR HOARE: I could get that to you.  
20

21 DR FLEMING: That would be good.  
22

23 CHAIR: Dr Clearwater?  
24

25 DR CLEARWATER: Perhaps I'd like to comment about the traceability. One  
26 of the things that we've found very successful in organic apple  
27 sales in the UK is that there seems to be a very positive response  
28 by the buyers to large photographs of the organic apple grower and  
29 his family sitting in their organic apple orchard, and that this  
30 does seem to give sales an extra impetus.  
31

32 BISHOP RANDERSON: Yes, I had four questions, hopefully briefly with the  
33 first one to Dr Hatchard. I wonder if I could just clarify appro  
34 of the debate we already had about labelling, the words in section  
35 5.12.VI, page 40 on my copy.  
36

37 DR HATCHARD: Yes, I've got it.  
38

39 BISHOP RANDERSON: So, while on the one hand you're talking about the  
40 need for full disclosure labelling, and I'm not contesting that in  
41 any way, but you're also saying that you believe that that even  
42 full disclosure labelling is going to be insufficient and,  
43 therefore, there needs to be a ban on the release of genetically  
44 altered foods. It was those words, "ban on the release of  
45 genetically altered foods"; does this mean that no foods should  
46 come into the country that has any GM or has been manufactured as  
47 part of any GM process, for example.  
48

1 DR HATCHARD: It's our belief that the foods have not been sufficiently  
2 tested for long-term health risks at this point and that there are  
3 unanswered questions about all currently available genetically  
4 engineered foods. And that, we feel that that poses a public  
5 health issue, and the Health Act puts a duty on the public health  
6 sector and Ministry of Health to protect and promote public health.  
7 Until those questions have been properly answered, we feel that it  
8 is irresponsible to sell foods, particularly here we accept that  
9 toxic effects of a drastic nature are not showing up, but we've had  
10 many scientists comment --  
11

12 BISHOP RANDERSON: I understand all that. My question is that, any food  
13 that had genetic modification process that had been part of a -  
14 your recommendation is that it should be banned from entry into  
15 New Zealand, that's what --  
16

17 DR HATCHARD: It is, yes.  
18

19 BISHOP RANDERSON: Okay, thank you for that. My other questions were to  
20 Mr Hoare. Just the question on compatibility that's already come  
21 up. And I'm not now talking about the consumer perception issues  
22 and marketing issues which we are aware of, but we have found  
23 difficulty on the Commission in getting any kind of comprehensive  
24 overview of the problems that organic farmers might be facing, for  
25 example in Canada or the United States or as has been referred in  
26 Argentina, in the face of GM crops.  
27

28 I mean we've heard a lot of anecdotal evidence but we're just  
29 wondering whether, perhaps through your membership of IFOAM, there  
30 are any sort of descriptive overviews of how organic farmers across  
31 the board in some of those countries are coping with the advent of  
32 GM crops in their vicinities, and it may be something that you  
33 might be able - there may be information or reports there that you  
34 might be able to get for the Commission.  
35

36 MR HOARE: Sure, I will attempt to do that, in fact I will do that. But  
37 I do believe you were presented with the case of corn chips, I mean  
38 there are genetic tests starting in those countries from organics -  
39 I mean food --  
40

41 BISHOP RANDERSON: It's not a specific thing, are you referring to the  
42 StarLink?  
43

44 MR HOARE: No, I'm talking about the --  
45

46 DR CLEARWATER: There was a case of taco shells that had organic  
47 certification. A Dutch --  
48

1 CHAIR: That is the StarLink one.

2

3 MS WATTS: Not StarLink.

4

5 MR HOARE: Not StarLink. It was previous to that. There was deep  
6 concern - the concern is that the genetic tests are now taking on  
7 organic crops because of this consumer concern again and it was  
8 actually found the organic farmer did not know that his crops were  
9 contaminated and genetic tests showed that there had been  
10 cross-pollination and the repercussion of this was that the farmer  
11 had lost, that was it, the trust had been lost. The certification  
12 agency came under - under umm, yeah under a cloud, there was a  
13 general concern with that.

14

15 BISHOP RANDERSON: But those are the sorts of examples that we have had  
16 presented and, of course, we understand that those examples - I  
17 think we're looking to see whether or not there is any more  
18 comprehensive overview as to how the organic industry as a whole,  
19 in some of those countries, might be responding. I mean do they  
20 feel the game's up now for organics? Or do they feel that there  
21 can be negotiated buffer zones or other techniques for  
22 compatibility? A more comprehensive overview, I think, rather than  
23 just examples. There may not be any; if not, we won't pursue the  
24 matter further.

25

26 MR HOARE: I'm quite prepared to get back to you on that one. As I  
27 mentioned, there's - it's happening tomorrow - there is an  
28 international meeting on this very point. But what I can say is  
29 right throughout the world there is deep concern from growers who,  
30 organic growers, especially in North America and South America,  
31 whose genuine heart is to actually supply good healthy food to  
32 people, of quality. And, they are concerned. So, it's actually  
33 coming from the grass roots up, it's not just a consumer thing,  
34 it's like this relationship again. So I'll do my best to get you  
35 that information.

36

37 BISHOP RANDERSON: We quite understand the general concern. I think  
38 it's more perhaps the detail, the substance, the extent of the  
39 responses that are being made to, you know, those kinds of  
40 question, rather than the basic problem, we're aware of the  
41 problem. What are they doing in the face of the problem, I think  
42 that's the kind of information that would be helpful.

43

44 My other two questions also to Mr Hoare, one was about the  
45 Government organic working group that you're a member on, and we've  
46 heard about that group in earlier evidence that's come to us. But  
47 we understand that they are looking particularly at the matter that  
48 you've raised today about the allocation of research funding within

1 New Zealand. Are you able just to give us an update on that matter  
2 and when that group is likely to report and have some  
3 recommendations?  
4

5 MR HOARE: I am sitting on that subgroup, we're meeting on Monday the  
6 19th to clarify our position, and to present information to the  
7 organic working group. And the agreed date is by the end of March  
8 that should be presented to the appropriate Ministry.  
9

10 BISHOP RANDERSON: And that that might include some recommendation about  
11 allocation of research funding within New Zealand.  
12

13 MR HOARE: Absolutely and its relationship - what I can tell you is  
14 research on its own can't be seen in that context and that's what  
15 the four sub-groups are looking at, they're all interwoven between  
16 the extension role, the education role and the research role.  
17

18 BISHOP RANDERSON: Thank you. My final question was about the 2020  
19 vision and New Zealand as an organic nation. How would you see  
20 conventional farming relating to that? Would it gradually all be  
21 subsumed under a kind of an umbrella of sustainable management and  
22 it would sort of merge with organics into a - you know, that  
23 sustainable process that you've described for us.  
24

25 MR HOARE: I think this is a dynamic and ongoing process. I don't know  
26 the answers to those questions and I - you know, this is an organic  
27 process in a sense, that we would need continual discussion. It  
28 was raised before, you know, we shouldn't be concerned to discuss  
29 things and to debate. We need a lot more of this in our society,  
30 and what we do know is that a lot of conventional farmers for the  
31 use of the word are concerned about their management practice with  
32 relationship to their soil and water and that part of these  
33 sub-groups again. We have Federated Farmers actually saying there  
34 are practices within organics that we need to get, that information  
35 needs to get out there, we aren't able to move at this point in  
36 time because of funding really and expertise.  
37

38 BISHOP RANDERSON: Okay, thank you very much.  
39

40 CHAIR: Well, thank you all, five of you, very much for coming along  
41 today and for your presentations and for adding to this debate,  
42 this challenging debate that's going on before us. We'll take a  
43 break now until 2 o'clock.  
44

45  
46  
47  
48

Adjournment taken from 1.28pm to 2.10pm

1 PRESENTATION BY SAFE (SAVE ANIMALS FROM EXPLOITATION)

2

3

4 CHAIR: Yes, good afternoon, if you would give us your names and proceed  
5 with your presentation.

6

7 MR REESE: My name is Gary Reese, I'm Co-director of SAFE, Save Animals  
8 From Exploitation. Before I start, could I make a couple of points  
9 of - maybe of order. We initially were brought in to make this  
10 presentation tomorrow, on Friday. We were only recently asked to  
11 change our presentation to cover both days. I'd like the  
12 Commissioners to note that it has caused some problems for us, we  
13 do so reluctantly, but I feel having our presentation over two days  
14 makes our cross-examination difficult. Our main ethicist is  
15 tomorrow, so our cross-examination of individuals - perhaps we  
16 could have some leniency of Professor Alan Holland tomorrow. Also  
17 another witness, Dr Michael Morris, had already booked to fly in  
18 from Japan today and he couldn't change his flights. He's due in  
19 to arrive this afternoon, so we're not sure whether he'll make it  
20 this afternoon or not from the airport obviously.

21

22 CHAIR: So, which witnesses will present today, Mr Reese?

23

24 MR REESE: I will present the substantial SAFE submission, and Joyce  
25 D'Silva will be the presenter, as a witness.

26

27 CHAIR: The reason you were asked if you could come - to start this  
28 afternoon was to give more time for your presentation. We have  
29 Greenpeace tomorrow and we thought to ask both you and Greenpeace  
30 to present on the one day would restrict time unduly for both of  
31 you. It was not to suit our convenience but to suit yours. I'm  
32 sorry it's caused difficulties, but that was the reason for it.

33

34 MR HODSON QC: I can assist with respect, sir, I have very brief  
35 cross-examination which will be able to be completed this  
36 afternoon, despite the problems you've mentioned.

37

38 CHAIR: Fine, okay. Well, Mr Reese, will you go ahead then.

39

40

41 \*\*\*

42

43 [2.12pm]

44 MR REESE: SAFE's submission essentially describes an ethical objection  
45 to the genetic engineering of animals. SAFE believes that ethics  
46 is paramount and it's becoming clearer in our nation and in a  
47 nation and society like New Zealand and a modern society that our  
48 value systems and ethics of how we live and how we interact with

1 nature and with animals is perhaps a central defining element of  
2 our society's progression.

3  
4 We believe that ethics is more important than improving standards  
5 of living, but that we should look for ways so that both of these  
6 issues are compatible, both in improving our standard of living and  
7 our standard of ethics.

8  
9 Our submission describes how animals, and will increasingly be used  
10 in - with genetic engineering technology as bio-reactors. This is  
11 a new name given by scientists to animals, and they will be used to  
12 produce a huge range of products of new products that couldn't  
13 previously be used before, sorry, that couldn't previously be  
14 produced by animals.

15  
16 We believe that the future applications of GE are more significant  
17 and will tell a more truthful story to the Commissioners than the  
18 current applications of genetic engineering technology. This is a  
19 technology in its infancy that we believe will grow substantially  
20 as the computer industry has, as other technologies have.

21  
22 Some of the applications of genetic engineering towards animals,  
23 I'd like to go through some of them because we believe they are  
24 very significant. Paragraph 67 of our submission talks about  
25 genetically engineered animal food that we expect, and many others  
26 expect, will start with extra vitamins and flavours and then move  
27 more towards transgenic food, as well as other opportunities like  
28 human milk in cows. To quote a Professor Street, the Department of  
29 Agriculture, Reading University, paragraph 68, "In effect with this  
30 implanted and designed embryo - this is of course using GE - if we  
31 are then able to manipulate the feeding system, we can design the  
32 whole carcass, if you like, from embryo to plate to meet a  
33 particular embryo market niche".

34  
35 We feel this is the use of genetic technology. We also use what is  
36 called hyperintensive farming. What SAFE is referring to as  
37 hyperintensive farming. As I say, already factory farming is  
38 already the largest factor of animal abuse in New Zealand and leads  
39 too increased exploitation and mechanisation of this already  
40 extreme industry.

41  
42 Some examples in New Zealand, paragraph 70, King Salmon, genetic  
43 engineering experiments result in the severe deformities, but  
44 overseas salmon have been produced to be 11 to 37 times heavier  
45 than normal salmon. The growth rates have been increased by 400 to  
46 600%, resulting in salmon that weigh over half a tonne. Chicken  
47 and pigs can, and we believe will be bred without wings, without  
48 legs. Already mice and frogs have been genetically engineered

1 without heads, flies without wings --

2

3 CHAIR: I think that's a slight exaggeration, Mr Reese. They certainly  
4 tried, but I don't think it was a success.

5

6 MR REESE: This is in our submission, and --

7

8 CHAIR: Yes, well, we've heard about it from elsewhere. We accept - I  
9 certainly accept that someone tried that.

10

11 MR REESE: Which particular case are you referring to?

12

13 CHAIR: The headless mouse.

14

15 MR REESE: I did mention mice and frogs. I would be interested in, if  
16 that's the case. Certainly that's the information that we have  
17 suggestions that they were produced. Obviously that's a point that  
18 needs to be clarified. Mice and frogs, and flies without wings.

19

20 Studies that have been done, as we've mentioned in our submission,  
21 paragraph 73, showed that chickens are going to be very well  
22 adapted for - to be genetically engineered, and a case study which  
23 Dr Karen Davis, which researched the potential of genetic  
24 engineering of chickens, her conclusion - comments in her  
25 conclusion was that, "Chickens and other domestic fowl do not have  
26 a future worth living in their encounter with the human species to  
27 eliminate not only diversity and autonomy but joy and happiness in  
28 other creatures".

29

30 There is real pressure to change animals in intensive farming  
31 systems. These are very topical issues in New Zealand right now  
32 with the Government considering and feeling the huge amount of  
33 pressure, public pressure which is wholly against the intensive  
34 farming the pigs and chickens, which is still happening despite  
35 public concern and ethical objections.

36

37 There is pressure rather than to change the environment that these  
38 animals are kept in, but to use technology to change the animal  
39 themselves, so they can adapt to these unnatural conditions, hence  
40 is why we are predicting chickens without wings and as has been  
41 mentioned by the scientists chickens without breast plates and  
42 animals without legs.

43

44 Pharming, with a PH, another term, a new term, biopharming or  
45 pharming which has been applied to a new industry. Paragraph 77:  
46 The replacement of traditional production pharmaceuticals with the  
47 farming of animals genetically engineered to produce animals with  
48 human protein in milk, blood, urine and eggs. Already in

1 New Zealand we've got PPL Therapeutics producing a pharmaceutical  
2 HAAT.

3  
4 Paragraph 79: There is strong international interest in  
5 New Zealand because we have a clean and currently disease free  
6 environment and very efficient farming systems. So SAFE do like to  
7 draw to the attention of the Commission that there is real and  
8 there will be real pressure to really expand a genetic engineered -  
9 an industry in New Zealand using genetically engineered animals.  
10 This is a very serious issue that we feel needs to be looked at.

11  
12 Xenotransplantation using GE techniques is also a real opportunity  
13 for the industry, but the other side of the coin is these spare  
14 part animals that are kept in sterile and confined environments  
15 than are suffering and that will suffer if this technology is  
16 allowed to be used. Also, cloning using GE techniques is another  
17 area of very strong interest for animals. GE provides additional  
18 tools to clone animals.

19  
20 On the subject of vivisection, the experimentation of animals,  
21 nearly every GE experiment - this is paragraph 83, means more  
22 animals are being used in experiments. This is - we'll be - more  
23 evidence will be presented by some of the witnesses, that there is  
24 an increase of animals being used, substantial increase has been  
25 shown in the UK due to genetic engineering experiments, and an  
26 increase in suffering as well, because of the huge amount of  
27 variables in GE factors, variable factors in GE research.

28  
29 A New Zealand scientist commented, which I heard myself on national  
30 radio, there was a huge opportunity to export designer genetically  
31 engineered animals with designer diseases. And while that again  
32 may seem like exaggerations, 200 million animals are used worldwide  
33 by experience. That is a billion dollar industry to supply animals  
34 to this market.

35  
36 We believe that these issues, the increase of animals being used in  
37 experiments because of genetic engineering, goes against current  
38 New Zealand legislative principles which includes the three R's  
39 which is a commitment to reduction of the use of animals which is  
40 consistent with, we believe, current public opinion and current  
41 ethical thought. But once - it's very hard to control, of course,  
42 once the technology has been - is open to use - to be used.

43  
44 To summarise some of that, the people are already shocked by  
45 battery hens and battery pigs, but GE does enable a greater degree  
46 of mechanism. Genetic engineering is moving away from a general  
47 direction - this is not necessarily in paragraphs in the submission  
48 - the current direction of society is moving towards a greater

1 degree of sympathy towards, compassion towards animals, towards a  
2 greater degree of animal welfare and we believe that engineering of  
3 animals is moving against this trend and will be going against this  
4 trend. There is a current thought in civilised societies that we  
5 need to respect animals and their rights. So we currently have the  
6 power with genetic engineering, and we will even more so have the  
7 power to totally enslave animals. This is a fact.

8  
9 We have to make a decision and we ask, and we believe that the  
10 people of New Zealand will want to very carefully discern those  
11 decisions and in the choices that we make.

12  
13 We ask that the Commission makes note of these great sides in  
14 animal welfare both in legislation in New Zealand, the rights that  
15 have been given to non-human great apes in New Zealand legislation,  
16 a world first. The increasing strides in legislation of animal  
17 welfare in Europe, and an effective ban on the genetic engineering  
18 of animals in the Netherlands after many years of discussion,  
19 deliberation, which will be expanded on more as - in the  
20 submission.

21  
22 New Zealand survey 1993, paragraph 149: 76% of New Zealanders  
23 agree with this statement, "Animals have rights which people should  
24 not violate". We should work out what these rights are in terms of  
25 genetic engineering.

26  
27 There have been suggestions at this Commission, we believe, that  
28 public opinion shall not be integral to the Royal Commission or the  
29 recommendations of the Royal Commission. I believe this is  
30 saddening if this message is being put to the Commission, and we  
31 have seen this trend in the New Zealand Government consultation,  
32 and we believe that it's a sad trend that will only lead us from  
33 trying to inform the general public about important decisions and  
34 lead us away from an important process that all New Zealanders  
35 should be involved in important decisions of society to empower us  
36 - citizens, people of New Zealand, and that definitely will lead to  
37 a more healthier society.

38  
39 We're concerned that university submissions have lacked and have  
40 been fairly much sided on the hard sciences, the hard scientists  
41 within the university, hard versus soft and in many cases we  
42 believe have failed to consult with the ethicists within the  
43 universities or even - and we're concerned that hard - what I'm  
44 calling hard science, is becoming dominant in society and there's  
45 good reasons for this because they receive a substantial amount of  
46 additional funding over the soft sciences from commercial  
47 enterprises as well as Government funding. This is creating an  
48 imbalance in society where the hard sciences are having a dominant

1 influence on our legislative structures and policy.

2

3 Some of the ethical arguments were presented in our submission.  
4 Paragraph 196 is the concept of animal integrity. The ethicists  
5 argue that genetic engineering violates this integrity and inherent  
6 worth in animals. And, it's - this worth and integrity is based on  
7 the genetic make-up, on the genome of the make-up. That the  
8 wholeness of the animal and the ability to carry out its species  
9 specific natural behaviour is threatened by genetic engineering.

10

11 We talk about dignity, paragraph 196, or some ethicists talk about  
12 dignity. This is expressed as a spiritual ethic but also important  
13 to many parts of the community. It's an ethic that goes further  
14 than animal welfare and it's related to the wholeness of the living  
15 being.

16

17 Paragraph 200 talks about species integrity, that is species, a  
18 biological species is a type of ecology into itself and that  
19 genetic engineering is already breaking down this ecology. There  
20 are boundaries between species. Biologists and ecologists do  
21 understand this, it's not an artificial boundary.

22

23 And paragraph 201, very few species interbreed successfully, and  
24 some - where it does happen, it happens difficultly, with horses  
25 and donkey species, they're actually quite close together already.  
26 Mules, the offspring mules are actually infertile.

27

28 We talk about the ethics and the primacy of evolution. That  
29 evolution is a step-by-step process taking millions of years. And  
30 GE, genetic engineering, changes this, these factors overnight.

31

32 Paragraph 204 talks about the ability of animals to suffer, the  
33 ethics, an important ethical principle which defines sentient  
34 beings which the human species are part of. Most genetic  
35 engineering does cause suffering and has the potential, because of  
36 unknown factors, to cause suffering to sentient beings.

37

38 Paragraph 205: We talk a little about traditional changes in  
39 breeding of animals versus genetic engineering; that these can not  
40 be compared. It's like comparing nuclear weapons to conventional  
41 weapons; it's substantially different technology. Traditional  
42 breeding does not create half tonne salmon. It cannot create  
43 animals without brains or flies without wings.

44

45 The ethical issues of modern agriculture are referred to as well,  
46 that it's imperative that we stem what is an industry-lead  
47 manipulation of animals which is restricting their species-specific  
48 natural behaviour. Animals are becoming no more than units of

1 production which is said to increase with genetic engineering.

2

3 Paragraph 242 talks about the inadequacies of the current  
4 regulatory structure within New Zealand, we believe there are some  
5 serious current issues that need to be currently addressed.

6

7 Paragraph 243 refers to the Animal Welfare Act which has just been  
8 introduced last year. It was a huge piece of legislation which  
9 many people were involved in. As far as our analysis of it, is  
10 that it doesn't regard, take any regard to genetic engineering and  
11 the introduction of GE technology. We have brought to the  
12 attention of National Ethics Committee, a Government appointed  
13 National Ethics Committee, paragraph 244, that foetuses, embryos  
14 and eggs may not be classified as animals, in the first half of  
15 their gestation period of foetuses and, therefore, experiments can  
16 bypass all the ethical procedures - GE experiments can bypass all  
17 the ethical procedures set up for experiments on animals.

18

19 What happens of course is the experiment is continuing with genetic  
20 engineering, a somewhat different technology, an experiment will  
21 continue maybe for many generations but there's potentially no  
22 monitoring of these experiments.

23

24 Paragraph 248 talks about Ethics Committees not the Institutional  
25 Ethics Committees, which is the current structure set up for  
26 experiments on animals, is not working. Our witness Dr Michael  
27 Morris will present more information on this.

28

29 We believe there's a lack - severe lack of policy analysis and  
30 research by Government appointed committees on animal welfare. We  
31 know, for example, that New Zealand King Salmon, who carried out  
32 experiments, procedures on thousands of salmon, bypassed the  
33 ethical framework. We're not sure if this is to do with the  
34 loopholes in the Act or whether they just bypassed them themselves.  
35 They were then asked retrospectively to apply and go through the  
36 ethical procedures detailed in the Animal Welfare Act.

37

38 We understand that both the National Advisory Committees on Animal  
39 Ethics, NAWAC and NAEAC. And MAF have not received special persons  
40 status with the Commission, we feel that there has been - that SAFE  
41 is the only organisation of any substantive submission on these  
42 sorts of issues, which seems somewhat strange to me considering, of  
43 course, which we believe this is going to be genetic engineering of  
44 animals which we feel are significant issues with regard to genetic  
45 engineering technology.

46

47 CHAIR: I suspect our recollection is none of those organisations  
48 applied to be "interested persons".

1

2 MR REESE: No, that's what I mean, sorry, I didn't mean they were turned  
3 down, in fact none of those organisations applied. In fact in one  
4 of those organisations the Chairperson, wasn't even aware of the  
5 closing date and missed applying.

6

7 I expect my 10 minutes is through.

8

9 CHAIR: No, that's all right, Mr Reese. You carry on if you've got  
10 more to say to us.

11

12 MR REESE: I hope I've tried to summarise my submission, it is quite a  
13 large submission, and we have - felt I need to cover so many issues  
14 because of the lack of other contributions to the Commission.

15

16 That's the main points that I prepared for, thank you.

17

18 CHAIR: Thank you very much, and thank you for the trouble that the  
19 organisation's been to with the submission itself, it's very  
20 comprehensive. Thank you.

21

22

23 \*\*\*

24

25 [2.30pm]

26

27 MRS D'SILVA: Well, I think to fully address the ethical questions  
28 raised by genetic engineering for the animals we need to see what  
29 it means for the animals, and there is a lot in the submission and  
30 in my own statement and in what Gary has just said about - to see  
31 what it means for the animals and for society as a whole, and I  
32 think perhaps we could do this by addressing questions, and I would  
33 like to restrict my paper mainly to farm animals because that's my  
34 area of expertise. Why aren't genetically engineered farm animals  
35 produced? Are they good reasons or not so good reasons? How are  
36 they produced and what are the results for us, for the animals, and  
37 for the environment?

37

38 And if we look at the reasons why, well Gary's mentioned some of  
39 them already, to increase productivity, pasture, growth, greater  
40 yield of milk and flesh and so on. Pharming with a PH to produce  
41 speciality proteins or pharmaceuticals in milk or urine or blood of  
42 animals to make animals disease resistant and we're talking farm  
43 animals being resistant to the common diseases, factory farmed  
44 animals. And to produce farm animals as sources of organs or  
45 xenotransplants.

46

47 So, let's see, are these actually good reasons because they might  
48 all sound quite good at first thought, because after all

1 productivity, perhaps it might be very good to produce more meat  
2 from one animal or more milk from a cow. But actually, if I'm sure  
3 many of you do know what selective breeding has already done to our  
4 farm animals, you already have cows producing 10 times as much milk  
5 as the calf that drink from them. We have broiler chickens that  
6 get to the slaughter gate at half the time it took 30 years ago,  
7 and go lame as a result. We have pigs growing too fast and too  
8 long and growing lame. So, there are a whole host of problems  
9 already with increasing productivity and fast growth in animals.

10  
11 But also I think it will be good just to mention that animals  
12 already consume 32% of the world's cereal production, and to get  
13 one kilogram of weight gain in poultry and pigs you have to feed 4  
14 kilograms of grain for a kilogram of beef - 10 kilograms of grain.  
15 So, it's not actually the most efficient way to feed the world,  
16 which is something I'm sure we all have in common that we'd like to  
17 enable and facilitate, but actually making more meat isn't  
18 necessarily the best way to do this. You know, it may be better  
19 for the cereal to go straight to the people.

20  
21 If we look at pharming; again there's been quite a lot of  
22 publicity, I might be rude and call it "hype" about the cures that  
23 are going to happen by producing pharmaceuticals and proteins in  
24 the milk of sheep and so on. But, we have not as yet seen any  
25 results of this; we don't know if there ever will be. And it's  
26 interesting, there was an interview in the UK newspaper the  
27 Guardian on the 6th of January this year with Ron James the  
28 Managing Director of PPL, pharmaceutical proteins, and he's quoted  
29 as saying "our aim is to make drugs and to make money", and I  
30 think, you know, that's very frank and very honest of him. I have  
31 to say I think, you know, the profit motive is obviously enormous  
32 here.

33  
34 If you look at disease resistance, as I mentioned, the diseases  
35 which scientists are looking at are the diseases which are endemic  
36 in the factory farm, and at first sight science good to make  
37 animals resistant to disease, who wants an animal to get disease,  
38 it may suffer if it gets disease. But if you think these diseases  
39 are inherent in a farming system which is highly suspect on welfare  
40 grounds, then the whole thing takes on a different complex, because  
41 in fact you are just trying to make these animals better suited to  
42 a totally unsatisfactory environment in which they're forced to  
43 live.

44  
45 And if you look at xenotransplantation, I think that's quite a  
46 difficult issue to address, but there have been estimates of  
47 absolutely multi billion pound global markets for organs from  
48 genetically engineered pigs. I'll have a bit more to say about

1 that later, but that although there may be genuine concern for the  
2 seriously ill and who might not share that concern, I think there's  
3 also substantial profit motive behind that as well.

4  
5 So I would say in fact these reasons for genetically engineered  
6 farm animals are also all sound financial reasons but that doesn't  
7 make them sound ethical reasons.

8  
9 If I could update some of the points I made in my witness statement  
10 and just look at some of the points I made, such as what are the  
11 results of genetic engineering for farm animals, in paragraphs 1 to  
12 13 of my original submission I mentioned many of the experiments  
13 which have resulted in - well, animals with totally unsustainable  
14 bodies, malformed organs, unable to stand up, unable to mate etc  
15 etc. Unfortunately this trend continues.

16  
17 For example, there's fairly recent experiment from Australia,  
18 experimenting with regulating the amount of growth hormone in  
19 sheep. They put a growth hormone gene into sheep together with the  
20 promoter gene to control the expression of this hormone, and to  
21 quote the scientists, they said the first time this was tried, we  
22 found that the transgenic animals were characterised by a very high  
23 base of the gene resulting in severe acromegaly, which is severe,  
24 which was enlarged head or extremities.

25  
26 In the magazine Nature in June 2000 our friends PPL, Pharmaceutical  
27 Proteins, announced the results of an experiment of gene target  
28 cloned lambs by putting foreign DNA into cultured foetal cells.  
29 From 80 embryos transferred to recipients used, 14 lambs were born  
30 alive, of which all but three died within 12 weeks, 7 died within  
31 hours of birth; the dead lambs or dead fetuses had abnormalities  
32 of the kidney, brain or liver.

33  
34 And further inquiry by the Compassion in World Farming organisation  
35 showed in this experiment that 166 ewes were killed to remove eggs.  
36 Another 15 temporary surrogate ewes were killed to remove embryos,  
37 and 46 were used as final recipients to carry the transgenic  
38 embryos, making a total of 227 recipient ewes to produce three  
39 surviving lambs.

40  
41 And indeed Ron James the Managing Director of PPL is actually  
42 quoted in that Guardian article I referred to as saying, "Probably  
43 about half of the animals that have been produced by genetic  
44 engineering are abnormal". Those are his words, not mine.

45  
46 Animals producing proteins with pharmaceuticals in their milk also  
47 have lactation induced by hormone injections; I mentioned this in  
48 my original submission in paragraphs 19 and 20, and this trend

1 continues in that experiment that I referred to. Again, one lamb  
2 was induced to lactate at six months old to check that she had the  
3 desired Alpha-1 antitrypsin in her milk.

4  
5 Obviously this is something thoroughly unpleasant for the lambs to  
6 have massive doses of hormones to induce lactation; it would be  
7 similar perhaps to induce lactation in a 7 year old child.

8  
9 The production of proteins expressed in only the udder is also not  
10 always achievable, and I refer to this in paragraphs 22 to 24 of my  
11 original submission. Even Ian Wilmut, who's the main creator of  
12 the famous sheep "Dolly" has written more recently, and I quote:  
13 "It's one thing to put a gene into a new cell and it's quite  
14 another to ensure that the gene is then expressed properly. It  
15 could be damaging to the animal if a gene that was intended to  
16 express in a mammary gland also expressed itself in muscle or brain  
17 or what you will, especially if, for example, the product of that  
18 gene was a clotting factor. But then in principle a protein like a  
19 clotting factor might be produced exclusively within the mammary  
20 gland but then leak into the rest of the body". Imagine having -  
21 what that causes.

22  
23 And I think we also need to look at the usefulness of the products  
24 that are being produced by farming, of the nine products produced  
25 from the mammary glands of farm animals at the moment, only three  
26 are in clinical trials, one each at Phase 1, phase 2 and phase 3.  
27 We have absolutely no idea whether any of these products will  
28 actually help anyone anywhere to be cured or to help to contain  
29 their health problems. And three of those nine products are in  
30 fact nutraceuticals rather than health products. So, you know,  
31 associated with better cheese making qualities and milk and so on.

32  
33 In my original submission, paragraphs 25 to 27 I have referred to  
34 how transgenic animals themselves were produced, and there's a  
35 plethora of painful procedures inflicted on animals just to produce  
36 transgenic animals and cloned animals are also the result of  
37 similar procedures. And I'd like to just give a recent example  
38 from close to home; I mean, from here in New Zealand.

39  
40 If you look at the lamb cloning experiments undergone at Ruakura by  
41 David Wells and his colleagues, and I'm quoting - not quoting  
42 directly but giving the results that were published in The Press,  
43 The Scientific Press. In these lamb cloning experiments, and you  
44 may say cloning isn't within the brief of the Commission, but  
45 actually at the beginning of the abstract of that particular piece  
46 of work David Wells himself says, "The production of transgenic  
47 farm animals will be greatly enhanced with the development of  
48 cultured cell lines that remain totipotent following nuclear

1 transfer and cloning". So, in other words, cloning will help to  
2 make up for the inadequacies of genetic engineering because you  
3 could take one so-called successfully engineered animal and clone  
4 many properties of it.

5  
6 In this case the donor used was superovulated by being given two  
7 intervaginal hormonal devices, one which was kept in for 10 days  
8 and one for four days, a series of 10 hormonal injections followed  
9 by a laparotomy operation to flush out the oviducts. At one stage  
10 in this process they were placed with teaser rams who have been  
11 vasectomised. And then the surrogate mothers into whom the cloned  
12 embryos were placed were also given an intervaginal device for 12  
13 days followed by more injections. The embryos were placed in them  
14 with surgery, two embryos a piece; more intervaginal devices  
15 followed for one to two weeks, and two or three weeks later they  
16 had their blood tested by having blood taken from the jugular vein  
17 of the neck and were regularly scanned with ultrasound from day 35  
18 of their pregnancies.

19  
20 Parturition was either induced or caesareans performed, and the few  
21 resulting live lambs were subjected to, and I quote, "jugular  
22 venipuncture soon after birth and at regular intervals afterwards".  
23 And that means again that the lambs were having blood removed  
24 regularly from the jugular vein in the neck. And I think it's  
25 really really important that the Commission realises the micro  
26 stresses to these kind of procedures caused to sheep and indeed to  
27 any animals. Just being handled by an intervaginal device,  
28 injections can be stressful as we all know. Operations from  
29 post-operative pain, extracting blood from the jugular vein is  
30 extremely painful and stressful. I want to stress, there's nothing  
31 unusual about what David Wells and his colleagues at Ruakura were  
32 doing, this is what normally happens when you are cloning or making  
33 genetically engineered animals.

34  
35 As Gary mentioned the increase in experiments in genetically  
36 engineered animals is outstripping the reduction happening as  
37 cosmetic experiments are being abandoned, and that seems very sad  
38 that in fact the whole - that huge number of animals that are being  
39 now used to produce genetically modified animals, it is going to go  
40 through the roof literally. So, all those figures of reduction  
41 which happened for just a few years, certainly in the UK and  
42 Europe, is now being lost.

43  
44 There is a huge wastage of life. For example, in that particular  
45 experiment at Ruakura, there were three different sections of the  
46 experiment, and I'll give you an example of one section. 75 cloned  
47 embryos were transferred to 37 ewes. Four of the foetuses that  
48 died in late gestation were found to have, and I quote,

1 "significant abnormalities". Only three live lambs were born by  
2 cesarean section after induction, and one of them died after 10  
3 minutes from respiratory failure; and the other experiments were  
4 not very much different.

5  
6 In Science magazine in June last year there was a news article on  
7 cloning which reminded readers "what the press accounts often  
8 failed to convey is that behind every success lie hundreds of  
9 failures". Very few of the injected embryos survive, in  
10 United States experiments only 0.08% of injected zygotes produce  
11 transgenic calves. And United States dairy genetic engineers  
12 illustrated that to produce one transgenic animals they need to  
13 inject foreign DNA into either 110 sheep's eggs or 90 goats eggs or  
14 1,600 cattle eggs, and I've got references for those if you want.

15  
16 George Sidle, who's one of the leading scientists at Colorado State  
17 University, said hundreds of millions of dollars were invested in  
18 transgenic farm animal research in the 90's, much of it by the  
19 private sector, primarily for producing pharmaceutical products.  
20 Thousands of personal years of efforts much of it from the private  
21 sector have been expended without yielding any product.

22  
23 We also note that in the UK in the last four years 10,000 pigs have  
24 been used in xenotransplant research and 300 monkeys of various  
25 kinds who have had genetically modified pig organs inserted into  
26 them, or have been used in those experiments. As you also know,  
27 talking about wastage, all PPL weigh lambs are inseminated at  
28 birth.

29  
30 So finally I'd like to talk about the effects of the environment  
31 and when I did talk about in my original witness statement and I  
32 mentioned the possible damage genetically modified fish could  
33 cause. From the New Zealand King Salmon fiasco you have here, you  
34 know, all about this. I also refer to the danger of narrowing the  
35 genetic base of farm animals, many species of which are already  
36 under threat.

37  
38 There are further fears that come to light. There's a recent  
39 report that scientists in Australia had unintentionally made a  
40 normally harmless virus lethal to mice. They engineered the mice  
41 pox virus to add a gene which they believed to be beneficial to the  
42 mice immune system. According to Nature magazine the opposite  
43 occurred and as a result the virus killed the vaccinated mice  
44 within days. The New Scientist magazine comments "adding the gene  
45 turned a merely nasty virus into a killer" and both Nature and New  
46 Scientist magazines pointed out that this incident showed how easy  
47 it would be for a bioengineer to create a weapon.

1 I shall like to just also point out briefly that  
2 xenotransplantation itself is now recognised to have huge potential  
3 for causing havoc in human health. Just this week the  
4 United Kingdom Xenotransplant Regulatory Authority held their third  
5 annual meeting and they were becoming noticeably more sceptical  
6 about the whole possibility of xenotransplants ever working. But,  
7 you know, that's perhaps not surprising because pigs carry an  
8 enormous number of viruses, many of which could be quite disastrous  
9 if released into the human population.

10  
11 For example, the pig chromosome carries 50 copies of the PERV  
12 virus, Porcine Endogenous Retro Virus, and also herpes virus,  
13 pseudo-rabies which causes a fatal nerve disease in humans. And in  
14 fact in the United Kingdom the Xenotransplant Interim Regulatory  
15 Authority said when they were talking about the possibility of  
16 viruses being transmitted to the recipients of pig hearts, that  
17 should this happen and the virus spread among the population there  
18 would have to be "rapid emergency legislation including detention  
19 for testing". In other words, people wanted to see if they had  
20 this new virus.

21  
22 So, to finally conclude, I referred in paragraphs 48 to 52 in our  
23 submission about our huge power over animals and how genetic  
24 engineering has totally revolutionised that power. You know,  
25 through selective breeding we've already created disease and  
26 crippled boiler chickens and pigs and some of those are spelt out  
27 in paragraphs 280 to 221 of the SAFE submission. Now we have a  
28 much greater power in our hands we can totally subvert evolution  
29 and set it on a different track. And I do think it's terribly  
30 important that we look at the reasons behind all this; the profit,  
31 accolades, scientific pride, genuine concern to help others, I'm  
32 not denying there are any of these significant justification if you  
33 look at the whole picture.

34  
35 I think we all have our own views on how many species of goods have  
36 developed through natural evolution, Darwinian theory and so on, or  
37 most a combined belief that evolution is itself a manifestation of  
38 divine will; but, whatever the case, genetic engineering of animals  
39 seems to contradict the flow, the natural flow.

40  
41 So, should we allow genetically engineered farm animals to be  
42 produced? As we know recent years there's been much greater  
43 recognition of moral worth and sentience of animals. And this  
44 sentience has been formally recognised by the European Union in the  
45 protocol attached to the European Treaty after the Amsterdam Summit  
46 in 1997 which now actually refers to animals as sentient beings  
47 instead of just as goods and products as before.  
48

1 And I know the New Zealand Government has recognised a special  
2 status for the great apes which is, you know, wonderful and leading  
3 the way. And, interestingly in the United Kingdom the committee  
4 appointed by the Government to look at the question of  
5 xenotransplants, the first committee, declared that primates should  
6 not be used as source animals for producing these genetically  
7 modified organs, as to do so would, and I quote, "be too great an  
8 infringement of their right to be free from suffering".  
9

10 And, I personally believe that the ultimate criterion should be, is  
11 suffering caused? And, I believe that animal suffering is just  
12 absolutely inherent in the development of genetically engineered  
13 and cloned farm animals, and I believe the reasons for developing  
14 them are sometimes trivial, sometimes misguided and sometimes  
15 simply myopic. Can we do it? That's the big question for so many  
16 scientists, can we do it? Surely the ethical question is, should  
17 we be doing this at all? Thank you.  
18

19 CHAIR: Thank you.  
20

21  
22 \*\*\*  
23

24 [2.55pm]

25 MR HODSON QC: I'm sorry to have to address you from behind, but this  
26 layout makes it very difficult. My name is Hodson, I'm instructed  
27 on behalf of the Life Sciences Network. Just a couple of topics.  
28 The first one; SAFE, I take it, is an incorporated society?  
29

30 MR REESE: Yes.  
31

32 MR HODSON QC: Does it draw its membership from individuals or  
33 organisations?  
34

35 MR REESE: Individuals.  
36

37 MR HODSON QC: Can you give us an idea of how many?  
38

39 MR REESE: Numbers of listed supporters and members who receive - who  
40 subscribe to our magazine and the like are approximately 3 to 4,000  
41 people. Sorry, I can give you the exact time --  
42

43 MR HODSON QC: Last year, the organisation I represent invited Professor  
44 Gary Comstock to give evidence to the Commission, and following the  
45 evidence he gave I think your organisation also invited him to  
46 provide a witness brief.  
47

48 MR REESE: That's correct.

1

2 MR HODSON QC: Could you look at the document that I have here.

3

4 [Document distributed to presenters and Commission]

5

6 MR HODSON QC: And just confirm for me that that is the brief.

7

8 MR REESE: I'm not sure if I can do that, because we had a problem with  
9 receiving this brief, we couldn't receive it in time - in a format  
10 that we could read.

11

12 MR HODSON QC: Happily we've got this one, which I understand to be it  
13 and we can help you with it.

14

15 MR REESE: You understand it is or you know it is?

16

17 MR HODSON QC: I believe it is, he sent a copy to us and in fact he says  
18 on the first page that it is the brief.

19

20 MR REESE: As I say, I can't confirm it, but it probably is in terms of  
21 reading the first two paragraphs.

22

23 MR HODSON QC: Well, in the conclusion on page 11 he gives an answer to  
24 the three questions which he poses at the beginning, having dealt  
25 with the first when he was before the Commission last November.  
26 The second, he argues that New Zealand does have an ethical  
27 responsibility to develop and use biotechnology for medical  
28 research. If such development will demonstrably saves human lives  
29 and the transgenic animals in question are not interested  
30 individuals - there's a lot of explanation of that.

31

32 Secondly, he maintains the view that there's an ethical  
33 responsibility not to develop or use biotechnology essentially  
34 where it's to develop animals to be consumed as meat. I take it,  
35 from your submission, that you would totally agree that his  
36 conclusion be, or not necessarily, or perhaps not at all because of  
37 conclusion A?

38

39 MR REESE: Sorry, are you saying --

40

41 MR HODSON QC: I'm saying, you totally agree with conclusion B?

42

43 MR REESE: Yes; well, representing SAFE I need to digest this a little  
44 bit more, but certainly at a cursory glance, yeah.

45

46 MR HODSON QC: I certainly wouldn't ask you to commit the organisation  
47 if you hadn't had the opportunity to read it in full. But,  
48 conclusion A, you would at the very least have reservations about?

1

2

MR REESE: Yeah. Certainly reservations. I mean, it's an interesting question, and I think it's one that we have addressed in some ways in our submission, and perhaps it's a model that's been used in the Netherlands with their structure that's been set up; which is, no genetic engineering of animals unless there is a demonstrated benefit which outweighs all the negatives of the suffering and the ethical objections towards genetically engineering animals.

9

10

And in fact, the application of that principle has meant in the Netherlands that no animal experiments - animal genetic engineering has been approved; we've just had that confirmed recently with communication with someone who was on - Henk Verhoog who was in our submission substantially. So, not necessarily.

15

16

Certainly I think it was one of our third choice recommendations to the Commission, that as a principle, you know, it's not necessarily - it's certainly not something that we would recommend. Initially we believe - we certainly recommend a complete ban on genetic engineering of animals for all reasons, but I can understand - in speaking to Gary Comstock which, of course, I did when he was here, he didn't really have much information - which he admitted to me - on the biotechnology genetic engineering of animals for medical purposes, and he was really very interested in and actually asked me for more information about things such as PPL's HAAT, which has been promoted as a medical breakthrough, but in fact HAAT has been available for over 10 years from human blood serum, and it's not at all a medical breakthrough.

29

30

The reason it's been promoted is because - it's a cheap and cost-effective way of producing the HAAT, and in fact - and we believe in a lot of medical applications of question and in fact about this, it's about commercial enterprise, being able to produce products cheaply enough for them to get involved in the health industry. But that's a political issue, obviously how we fund our health system, whether we do it publicly, whether we allow commercial enterprises to do it, or - set up a system whereby commercial enterprises have to fund our health system and have to use the technologies like GE. But - so he was lacking information which he was interested which, you know I can understand why he came to the conclusion of A. As I say I'm not completely adverse to that myself.

43

44

MR HODSON QC: Thank you very much. I'm very happy for professor Comstock's paper to be tabled sir, and that's all I have this afternoon.

47

48

MR REESE: Can I just, on that, so the Commissioners are clear, we did

1 ask Dr Gary Comstock, and I thought it was very interesting that he  
2 actually agreed. He is very much in principle against - obviously,  
3 he's in principle against the use of animals with genetic  
4 engineering animals, but he has not completely - and this details  
5 some of those views and he felt that he didn't have an opportunity  
6 to air those views when he presented to the Commission, and he was  
7 - thought it was - would have been right to air them as a witness  
8 for SAFE.

9  
10 We really didn't want to use him, there was some concerns that we  
11 had about the fact that he already appeared, but the main reason,  
12 and this is certainly the truth, that we didn't use him was because  
13 we didn't get his material in a time, in a format that could be  
14 used. We were always 50/50 about whether we used him as a witness  
15 and that was the final reason and I thought it certainly would have  
16 been good for you to hear him.

17  
18 CHAIR: Thank you for that.

19  
20  
21 \*\*\*

22  
23 [3.05pm]

24 MR FORMAN: My name is John Forman and I represent two interested  
25 parties, the New Zealand Lysosomal Storage Diseases Trust and the  
26 New Zealand Organisation for Rare Disorders. I would like to  
27 clarify a couple of points that you have made in your submission.  
28 The first is in your numbered paragraph 16 where you say that a  
29 permanent ban be placed on all genetic engineering of animals as  
30 option 1. Do you acknowledge that that would halt much currently  
31 accepted and ethically approved research?

32  
33 MR REESE: I agree that it would halt some of the experiments which have  
34 been - you're talking about genetic engineering experiments which  
35 have already been approved - I will contend that they haven't been  
36 ethically accepted at all. We don't have a structure set up to  
37 consider the ethical considerations, certainly not to any real  
38 extent, of these experiments. But, yes of course, a complete ban  
39 would stop experiments on animals - genetic engineering experiments  
40 on animals.

41  
42 MR FORMAN: Perhaps you're answering a different question. The question  
43 is that there is - well, refers to the fact that there is already  
44 in place a substantial amount of research which has been going on  
45 for many years and decades which involves the use of genetically  
46 engineered animals, and that if your proposal was accepted, then it  
47 will be - lead to a halt to that work which has been accepted and  
48 ethically approved for decades.

1

2 MR REESE: Again, I certainly - you know, I can't accept and won't -  
3 that it's been ethically approved. We haven't had a system in  
4 place and our submission shows that. There's so many failings in  
5 our structure in our legislative structure, and ethical structure,  
6 ethical approval structure in New Zealand, and ERMA, for instance,  
7 you know, are not - were not set up to approve these experiments on  
8 an ethical basis. I could expand on that if you like, but if  
9 that's what you're asking, no, I don't agree with that.

10

11 MR FORMAN: Can I suggest that you were saying that you don't approve of  
12 the ethics which have allowed it, but I'm talking about the fact  
13 that that research currently exists.

14

15 MR REESE: The research has certainly been underway without adequate  
16 ethical consideration.

17

18 MR FORMAN: I will suggest to you that, when you propose your ban, that  
19 in fact that you are not talking so much or solely about not going  
20 down a particular path in genetic engineering, but reversing what  
21 is currently accepted practice.

22

23 MR REESE: It's accepted by a few people but I think the existence of  
24 this Royal Commission suggests that it's certainly not a fully  
25 accepted practice. And I think that - at all. The other point is  
26 that it's very early stages. I mean this is, what we've got  
27 underway in New Zealand in terms of genetic engineering is just a  
28 glimpse of what we would see if we allowed the continuation of this  
29 over the coming decades. You know, this is a very very powerful  
30 technology, and of course, you know, a lot of scientists would love  
31 to get their hands on genetic engineering animals.

32

33 And so, when you say it's a well-established or an established  
34 technology application of that technology, it's not yet I don't  
35 think. I mean in some ways but not relative to what the future  
36 will hold.

37

38 MR FORMAN: Perhaps for clarification for the sake of answers to further  
39 questions; we already hear there's a technique called knockout  
40 which is to genetically engineer an animal to represent a  
41 particular disease form so that research can be conducted on that  
42 disease form in the animal, so it can then be applied to the human  
43 form of the disease. And that, there is a substantial amounts of  
44 research using that technique, which has been going on for many  
45 years in New Zealand.

46

47 MR REESE: What research is this? You know --

48

1 MR FORMAN: Perhaps we may have to accept that you don't have knowledge  
2 of that --

3

4 MR REESE: I'm not clear whether you are talking about genetic  
5 engineering research or exactly what sort of research are you  
6 talking about?

7

8 BISHOP RANDERSON: Knockout mice isn't it what you are talking about?

9

10 MR FORMAN: The most common form is the genetic engineering of mice,  
11 that is the most common animal model.

12

13 MR REESE: Yeah, we have presented to the Commission and we've certainly  
14 researched all the experiments or tried to research all the genetic  
15 - experiments in New Zealand involving genetic engineering,  
16 although we have some concerns that there shouldn't be - that was a  
17 question by the Commissioners, should it be up to an organisation  
18 like us and we're concerned that the Commission needs to carry out  
19 their own research and find out exactly what is going on, but we  
20 are pretty much, I think, aware of most of the research that's  
21 going on at the moment.

22

23 MR FORMAN: To move on then. In paragraph 31 of your submission, about  
24 one-third of the way through, you use the sentence "these  
25 applications would include the so-called medical applications" and  
26 you have the word "medical" in quotes. Could you explain why you  
27 used the phrase in that particular way?

28

29 MR REESE: Yeah, it's because there has been this, certainly an  
30 over-extension of benefits in a lot of the applications, genetic  
31 engineering applications. And, in fact I'd use the word "hype". I  
32 have already mentioned the PPL Therapeutics and both in terms of  
33 the general public and in terms of even people, many many people  
34 who I have talked to who should know more. People think this is a  
35 medical breakthrough and they don't - it's not excellent medical  
36 opportunities, when in fact I would call it a pharmaceutical  
37 product, you know, in terms of something - it's something that's  
38 already available, it's not a new medical breakthrough at all.

39

40 And I think in many other cases there was another application which  
41 has been made recently and approved in New Zealand - I haven't got  
42 the exact details - by AgResearch, the double muscle in sheep. It  
43 was interesting how the initial application only talked about the  
44 agricultural benefits, but it came back to ERMA, my words,  
45 redressed as - with the medical opportunities that they could  
46 discover through causing heart attacks. You know and it's  
47 certainly evident and very clearly has been seen today that if you  
48 take an application to ERMA with medical attached to it then you're

1 going to have a much greater chance of getting it passed. And of  
2 course scientists know this that are involved in this industry.  
3 So, that's the so-called, some of the medical applications, I don't  
4 know, Joyce might have something to say.

5  
6 MRS D'SILVA: Well, it's not my great area of expertise, but it's  
7 interesting you mentioned some of these things. There was a lot of  
8 interest in the early 90s in Europe when the first ever transgenic  
9 animal patent was granted by the European Patent Office in Munich  
10 and this was an American application from DuPont and Harvard for  
11 the onco mouse, this was a mouse which had been genetically  
12 engineered to carry an oncogene which made it very susceptible to a  
13 range of cancers. So obviously it was destined for a life of  
14 suffering. And, my own organisation and another one put in a  
15 formal opposition to that patent which in spite of numerous paper  
16 submissions and an oral hearing has still not finally been resolved  
17 by the Patent Office. So, the whole thing still is unresolved.

18  
19 But the patent was granted in America, of course, and we hear that  
20 this animal way was hailed as a huge breakthrough for cancer  
21 research has never been used. Yet at the time there was so much  
22 hype about it, it was amazing. And, you know, I think, you know,  
23 you - Dr Forman is it - represent a society of people who we would  
24 all, you know, have the deepest compassion for, and I think it's  
25 something which people who campaign for animals feel very strongly  
26 that they don't - they genuinely don't feel that animals come  
27 before people, but that animals and people both count and both have  
28 huge moral value. And we don't want to be seen as heartless and  
29 most of us have experience of loved ones who have been seriously  
30 ill etc and know what it's like.

31  
32 You know, there is a lot of hype about it. For example just to  
33 take my own knowledge of pharmaceutical proteins in the UK, I  
34 invited Dr Ron James to speak at a conference we put on in 1992 so I  
35 thought, you know, let's hear every side of the story. At that  
36 time he was hyping Alpha-1 antitrypsin as a cure for emphysema. He  
37 even read out at the conference a letter from an emphysema sufferer  
38 saying, you know, do ex-the experiment to me, forget the sheep.

39  
40 Now, suddenly about two years later the words emphysema were  
41 dropped wherever he talked about it he talked about Cystic  
42 Fibrosis. I'm afraid, I'm cynical enough to say that when you  
43 think emphysema, you think, elderly person coughing and  
44 spluttering, probably smoke all their lives and it's not a  
45 particularly marketable picture. If you think of Cystic Fibrosis,  
46 you think of a young child or a teenager having a horrible  
47 inherited disease and, you know, it's just very tragic to  
48 everybody. And, I have to say I'm cynical enough to think that,

1 you know, they realised that the emphysema thing wasn't getting the  
2 money in, wasn't getting the investment, and so they hyped up the  
3 cure for Cystic Fibrosis and, you know, hoped that money would come  
4 rolling in, which presumably it did, or you wouldn't have been able  
5 to have 10,000 sheep in New Zealand.

6

7 MR FORMAN: If I can come back to the question it was about using the  
8 phrase so-called medical applications. Do I take it from that that  
9 you were referring to future use of genetic modification for what  
10 you would call "so-called medical applications" rather than the  
11 existing and current uses of genetic modification for medical  
12 purposes.

13

14 MR REESE: I think we've explained the "so-called", and tried to answer  
15 your question, but certainly we're calling for a ban on - or what  
16 is termed "medical" which we are saying sometimes may be medical,  
17 some times may not be, even though it's been labelled as such.

18

19 CHAIR: So, just to try to bring a closure to Mr Forman's question; your  
20 submission relates to both present and future uses?

21

22 MR REESE: Yes.

23

24 CHAIR: Or research in the medical field. Is that right?

25

26 MR REESE: Yes.

27

28 CHAIR: Thank you.

29

30 MR FORMAN: To move on then. Do you accept that substantial human  
31 health benefits have come from animal research?

32

33 MR REESE: Animal, not genetic engineering animal research? You were  
34 talking about animal research?

35

36 MR FORMAN: Both in fact, but I use an expression "animal research"  
37 because it's conducted in both ways, non-GM research and other  
38 research.

39

40 MR REESE: Well, if you're talking about animal research, which is a  
41 very huge - it's a huge question, you're talking about hundreds of  
42 years of, has any animal research over hundreds of years, in fact  
43 it dates back to even the late 1800s, or earlier, has it provided  
44 any medical benefit? I'm not sure if that's even a question that I  
45 feel - I mean it's such a big question for me to answer that  
46 adequately, is it a relevant question for the Royal Commission?

47

48 MR FORMAN: I think it's a relevant question as to the credibility of

1 your organisation because your organisation seems to suggest that  
2 there are little or few benefits to be gained and similar kindred  
3 organisations state quite clearly that they believe that there is  
4 no benefit, they're what I would call in denial of the historic  
5 reality of medical benefits.

6  
7 MRS D'SILVA: I mean I think most people acknowledge that the huge  
8 advances in, you know, longevity and human health generally have  
9 come primarily from better nutrition and better public hygiene and  
10 so on. But it's interesting what you say about the medical  
11 establishment. Just to - this is - the nature of gossip but it's  
12 true, you know, I came over last weekend on an aeroplane and I find  
13 myself sitting beside a consultant gynaecologist from a major  
14 hospital in England. And, we got talking and I asked him about his  
15 views on the benefits from vivisection and he said, 98% of it has  
16 been absolutely no use to the medical establishment. I'm sorry,  
17 that is the truth.

18  
19 MR REESE: Yeah, yeah, that certainly is the opinion of the  
20 organisation, you know, we question definitely any - the amount of  
21 advancement that has been purported, that some people might  
22 suggestion has come through animal research and as Joyce has said  
23 that's certainly not the case, it's always often overstated.

24  
25 MR FORMAN: If we could move on then. In paragraph 31 you also state  
26 there are no convincing arguments to allow commercial applications  
27 of GE animals. Now, if there has been health benefit from past  
28 animal research, health benefit to humans, and there is the  
29 potential for further health benefit to humans by using new  
30 technology in research in animals, is that not a good ground or a  
31 good argument to allow the continued commercial application of GE  
32 animals?

33  
34 MR REESE: I think firstly, there's two different questions there, we've  
35 just been talking about animal research in general and not as the  
36 submission is talking about genetic engineering of animals. So, to  
37 be specific - to finish the statement that was actually made in  
38 paragraph 31, was that, there is no convincing arguments to allow  
39 commercial applications of genetic engineered animals to go ahead  
40 when faced with the overriding ethical arguments regarding the  
41 welfare and the rights of sentient beings. And we certainly, SAFE  
42 certainly believes in that statement. And it's interesting that in  
43 the Netherlands with the structure that's been set up with the  
44 committee that considers all experiments and considers very, I  
45 would - believe comprehensively, what are the real benefits of each  
46 individual experiment, that none have been proved, we've been told,  
47 animal experiments.

1 So, that's something that's been put into practice.

2

3 MR FORMAN: Could I draw your attention to your comments in paragraph 77  
4 and 78 where you point out a number of instances where  
5 pharmaceuticals and proteins can be or are produced via the milk,  
6 urine eggs and blood etc of animals, and in paragraph 78 you refer  
7 to one particular company which is creating animals to produce 50  
8 different human proteins. Is there not a contradiction in your own  
9 submission that says on the one hand there is no argument for it  
10 but look that's where they're doing them all and that's how many  
11 there are?

12

13 MR REESE: Again we did not say there's no argument we said when  
14 consideration the overriding ethical objections there's not enough  
15 reason. Again as I talked about before, in most of these cases,  
16 it's about your weighing up, most of the time not medical  
17 opportunities, but the profit that can be generated by producing  
18 these pharmaceuticals more cheaply. And no, we don't believe that  
19 is, certainly not important enough to override the ethical  
20 objections.

21

22 MR FORMAN: We'll come back to the ethics in a minute then. In  
23 paragraph 80 you state in your view, "that this industry is not  
24 about medical breakthroughs", and then you go on to say it's about  
25 producing pharmaceuticals and human proteins cheaply. Now, what is  
26 your response to the statement that, in fact, this technique or  
27 this technology is about the possibility of producing them at all?  
28 In other words, some proteins or products which cannot be produced  
29 by methods other than the use of animal cells?

30

31 MR REESE: Well, I'm not aware of any research, in fact, and you know  
32 again, just talking about what Joyce was talking about before, I  
33 think, mostly what I get from the research I have done, that it is  
34 sad about how much hype there has been; sad to those people that  
35 are really suffering, and I don't see a huge amount of, you know,  
36 potential of medical breakthroughs. We know what causes 80% of  
37 cancers, you know for instance, it's sun, it's diet, it's smoking.

38

39 We know how to cure those and there is still despite, you know, the  
40 years, many years of what people have been using animals for in  
41 medical research, there is no cure, and I don't think that GE is  
42 going to provide all these miracle cures. It's more likely that,  
43 as in cancer, we're going to find the best results through studying  
44 human life-styles and human studies, which is in fact where we get  
45 most medical results, is from human trials and --

46

47 MR FORMAN: Okay; well, look, we will provide in our rebuttal evidence  
48 information to the Commission which makes it quite clear that

1 certain proteins can only possibly be generated through the use of  
2 animals, and that they are not possible to be obtained from  
3 micro-organisms or yeast or other basic bacteria. But, I am  
4 wanting to put that proposition to you and seek your response to  
5 that.

6  
7 MR REESE: Well, I'd be interested to see that as well, and what it is  
8 that's actually been produced and what the benefit is; if it's a  
9 human protein, obviously we'd want to see what the human protein  
10 was going to be used for and what the benefit of that - I would  
11 doubt, from what you've said, that there was anywhere near the  
12 benefits that you should have - that you should require to outweigh  
13 the huge amount of ethical objections to genetic engineering over  
14 sentient beings. And, that opinion is shared by many of the  
15 leading ethicists around the world, some of which we've quoted in  
16 our submission.

17  
18 MR FORMAN: Did you consult with the Green Party in the production of  
19 their submission, because it has some very common themes about the  
20 avoidance of using genetically modified animals as bioreactors,  
21 which is the phrase that was used.

22  
23 MR REESE: Well, that phrase is used by scientists, so I imagine a lot  
24 of the material might be similar because it's common knowledge. I  
25 am aware - it's actually been quite minimal; I would be surprised  
26 if there was anything - we certainly didn't get together and work  
27 through our submissions together. But, of course, Sue Kedgley, the  
28 Green Party MP, has been very active as the animal welfare  
29 spokesperson, has been doing quite a bit of work, and I have had  
30 telephone conversations with her, but nothing - I'm not sure where  
31 you're leading --

32  
33 MR FORMAN: Simply to the fact that they say very similar statements to  
34 yours, and they also state that they see there is no need for this  
35 because the proteins which are sought can be adequately  
36 manufactured from micro-organisms and, as I said, again, that is  
37 something which we will prove to the Commission is not the case; it  
38 is not possible.

39  
40 But, if we could move on then.

41  
42 MR REESE: On some rare occasions --

43  
44 MR FORMAN: There are many rare occasions, there are about 5,000  
45 different rare diseases for which current science and biomedical  
46 technology has no solution to the disease.

47  
48 MR REESE: But you're not suggesting that in those 5,000 cases there is

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1 a genetically engineered solution, are you?

2

3 MR FORMAN: I think the arguments that we put to the Commission is that  
4 many of them will be fixable, or treatable as a result of this new  
5 technology, and I have some evidence to submit here.

6

7 [Document distributed to presenters and Commission]

8

9 MRS D'SILVA: Can I just comment briefly?

10

11 MR FORMAN: I'll refer to the citations that are here - that I have  
12 submitted; and you will see that, if we go to citation number 2, or  
13 the top of the second page, it refers to recombinant human  
14 Alpha-glucosidase from rabbit milk used for Pompe patients. And,  
15 this shows that the protein was produced in that way and it is  
16 effective, and that soon production of that will be at a level  
17 where it will, subject to approval and regulatory approval etc,  
18 will soon be available for the treatment and apparent cure of this  
19 very severe disease which kills children who are born with it at an  
20 average of 2 years of age. Do you have any response to that now,  
21 in response to your other claims about the value of such technology  
22 and such use of animals?

23

24 MR REESE: Certainly no other comment in terms of the information that  
25 we've got here, which doesn't really tell me anything, and I think  
26 - you know, and consistent with what we've said, and quite clearly  
27 will show, given examples, just because someone has said it's going  
28 to be a cure, certainly it doesn't mean that there is going to be a  
29 cure. It doesn't mean much.

30

31 MR FORMAN: This is provided as a citation for a researched article  
32 which demonstrates that fact.

33

34 MRS D'SILVA: Sorry, the evidence I've got from Dr Phil - I'm not quite  
35 sure how you pronounce it - L'Hullier from Ruakura is that that  
36 particular product is only in Phase 1 to 2 clinical trials; that's  
37 in his paper Genetic Modification of Livestock for the Production  
38 of Therapeutics in the Design of Foods.

39

40 MR FORMAN: I don't know exactly whether you are referring to the same  
41 item or not.

42

43 MRS D'SILVA: This is for complese(?) disease in rabbits.

44

45 MR FORMAN: The evidence from that trial is that it works.

46

47 DR FLEMING: Perhaps this citation refers to the research work, whereas  
48 the clinical trials are the ones that - where the product is tested

1 in humans, are the ones that are at Phase 1, 2 or whatever.

2

3 MR FORMAN: Yes, and the second citation is in relation to some actual  
4 trials on human subjects to demonstrate the effectiveness.

5

6 Could I then move on to your comments about the Dutch ban or the  
7 Netherlands ban. This particular piece of research which led to  
8 the production of this treatment for this disease was actually  
9 developed in the Netherlands, and the whole production process had  
10 to move out of the country. Is that the sort of thing that you  
11 would imagine would apply under your regime; that if anything is  
12 possible to be developed here, it would not be developed here, and  
13 it would have to be shipped offshore or the production or  
14 development of it?

15

16 MR REESE: Again I'm not clear, you know entirely if that was the case.  
17 There's all sorts of reasons why people might move offshore, you  
18 know, if it was. We have no hesitation in - that there is - there  
19 should be a complete ban on the genetic engineering of animals,  
20 that we don't have a right to genetically engineer another species,  
21 to change the genetic structure. In fact, as Allen Holland was  
22 saying in his witness brief, for the non-vital needs and for the  
23 vital needs of human beings. And in most cases, and in the vast  
24 majority of cases it will be the non-vital needs.

25

26 MR FORMAN: I accept that what you are saying is your ethical position  
27 in relation to that but I'll come back to the ethics in a minute.  
28 Remaining with this issue of particular diseases which may or may  
29 not be treated and whether this technology will present solutions.  
30 What would your view be then of the product of those genetically  
31 engineered animals, their proteins extracted from the bioreactor  
32 animal, being available to New Zealanders.

33

34 MR REESE: I think there's a - quite a number of hypothetical steps that  
35 I certainly wouldn't agree with your conclusion that there is  
36 definitely going to be yet a product that's available as a cure,  
37 and that there is no other alternative. So, you know - you are  
38 asking me whether I think that product should be available, if it  
39 was, if it existed?

40

41 MR FORMAN: Yes.

42

43 MR REESE: It would totally depend on, you know, the huge number of -  
44 amount of information that we don't have about that product and  
45 what - alternatives that I suspect there would be.

46

47 MR FORMAN: To use another example then. Another lysosomal disease,  
48 Fabre disease, which has a number of complications including kidney

1 failure and heart disease. Now, people with that are destined to  
2 die on average at 45 years of age, but an application has now been  
3 made for licensing in New Zealand of replacement enzyme generated  
4 from animal cells, and will soon be available subject to the  
5 regulatory process. So, in other words, it's efficacy is  
6 established, its safety is established and the supply of it is  
7 established. What advise or what hope would you offer to those  
8 people and people who would be in similar circumstances under your  
9 proposed ban, on this type of technology producing such proteins.

10  
11 MR REESE: Firstly, your group has already presented to the Royal  
12 Commission?

13  
14 MR FORMAN: Yes.

15  
16 MR REESE: You presented this information?

17  
18 MR FORMAN: Substantially this sort of information, yes.

19  
20 MR REESE: But not this information? It's not documented?

21  
22 MR FORMAN: We referred to both these diseases and the development of  
23 these proteins and the pending availability of a number of them,  
24 the advanced research, where some are currently available, some are  
25 soon to be available, and some are at an advanced stage of the  
26 animal research.

27  
28 MR REESE: And you said that it comes from animal cells, not from - it's  
29 produced from?

30  
31 MR FORMAN: The production from animal cells is an alternative at times  
32 to the production from the bioreaction process. And this perhaps  
33 leads to another question, because on the one hand, if it's to be  
34 produced from animal cells it may mean, for example, the sacrifice  
35 of a substantial number of animals in order to get cells from their  
36 ovaries, for example.

37  
38 On the other hand, it may mean the generation of a transgenic  
39 animal from whom the protein will be extracted from the milk. Is  
40 there not a contradiction in your stance about an implication  
41 perhaps that the bioreaction option is not possible, but that the  
42 existing process of generating from animal ovarian cells is okay?

43  
44 And, why would you make such a distinction? Is it simply because  
45 this is an apparently new technology?

46  
47 MR REESE: I think that the Commission has - obviously has a huge job on  
48 its hands, and we don't believe that this process hasn't been

1 nearly enough to address all these sort of ethical questions, and  
2 in fact in one of our recommendations was that we're promoting a  
3 much longer process to explore these sorts of ethical questions,  
4 which they are very serious ones.

5

6 There's so many - again, I think that it's still very early stages  
7 of the work that's being done. And so, there's - but again, we  
8 don't think that we should allow genetic engineering of sentient  
9 beings, which is a very specific technology we're talking about,  
10 we're not talking about standard vivisection. This is not a matter  
11 for the Commission, we're talking about should we use the  
12 technology to alter the very fabric of another animal that's  
13 taken millions of years to evolve at the DNA level? And, should we  
14 be using this technology for whatever - for, you know, whatever  
15 benefits financial in and possibly some medical benefits. We  
16 believe, no we shouldn't be, certainly not now, certainly not  
17 unless there was some sort of much greater consensus by the human  
18 race, which you know we don't have.

19

20 MR FORMAN: So in an ethical level, how would you distinguish between  
21 the rights and wrongs of using a genetically modified animal as a  
22 bioreactor or sacrificing substantial numbers of animals in order  
23 to obtain cells from them so that a protein can be generated from  
24 their cells?

25

26 MR REESE: I think we should be looking for other ways in which there  
27 are a lot. One of the things that's often overlooked is GE --

28

29 MR FORMAN: Sorry I'm asking on an ethical level, can you respond in  
30 terms of the ethical arguments you've presented and the  
31 alternatives between bioreacting and sacrificing animals in order  
32 to obtain cells?

33

34 MR REESE: I repeat my last ethical statement and to support that, the  
35 reason I support that is that there's a lot of different types of  
36 ways that our scientists can proceed. One of those ways is genetic  
37 engineering, it's not the only way to proceed to improve medical -  
38 the situation for medical sufferers that's been talked about, and  
39 it's - wherever we put the funding is where our scientists are  
40 going to do the work. It's not like there's only one solution for  
41 many medical problems so I don't think there's --

42

43 MR FORMAN: When you say there's only one solution --

44

45 MR REESE: There's not only one solution.

46

47 MR FORMAN: I'll happily divert from that then in response to your  
48 comments.

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2

CHAIR: Mr Forman, you've got a number of other questions?

3

4

MR FORMAN: I'll be no more than another 10 minutes.

5

6

CHAIR: Yes, well, we'll take the break then.

7

8

Adjournment taken from 3.35pm to 3.53pm

9

10

BISHOP RANDERSON: Sir Thomas has had to go to another engagement for the rest of the afternoon. I will continue with the chair, and Mr Forman I think there were some questions you wished to continue with.

11

12

13

14

15

MR FORMAN: Just before the adjournment there was some reference to alternative methods of solving health problems. Now, you were not the first group who have suggested this thing about alternatives, that we should be looking into alternatives and there were a number of other groups who I might characterise as the "green lobby" in its widest sense who have spoken quite strongly on that point. What I want to ask you specifically on that point is, when we have all taken personal responsibility for improving our health by not smoking, and when we have all improved our diet and our environment, and we have cleaned up known infectious diseases and all of the other problems are solved, and we are only left with genetic diseases, what then? What will you offer as the solution to people who have genetic diseases?

16

17

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29

MR REESE: It's not in our place to offer - to try and come up with the solution. Of course, we're not an organisation that is expert in those - in that field.

30

31

32

33

MR FORMAN: But you advocate denial to them of options for treatment or cure of their diseases.

34

35

36

MRS D'SILVA: I think you're kind of jumping the gun a bit. You know you gave a long list of products which you say are being developed in animals at the moment but we don't actually know if any of them work. What we do know is that people are very anxious to get funding for their research, and you know, to find out if things do work, but it's still a terribly experimental stage. As I said there are only nine products in clinical trials at all.

37

38

39

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41

42

43

44

MR FORMAN: But you would advocate that there be a denial of the opportunity to find out if any of those products actually do work?

45

46

47

MRS D'SILVA: I think what we're saying is, that you're trying to force us into a position of saying, we regard animals and their welfare

48

1 as more important than humans, some of whom may have genetic  
2 disorders. And I think that that's a false argument and false  
3 situation that you're trying to create.

4

5 MR FORMAN: Well, it's not actually the argument that I put to you.

6

7 DR ALLAN: Excuse me Mrs D'Silva, I can tell you as a doctor in New  
8 Zealand, that one of the products that's used in New Zealand in one  
9 of the forms of diseases Mr Forman is talking about, in Gaucher's  
10 disease is recombinant product, it's a protein resolved from the  
11 sorts of experiments he's talking about, and it's actually in use  
12 here.

13

14 MRS D'SILVA: Right, thank you. I'd still want to make the general  
15 point, if you're trying to make a situation where you're trying to  
16 force us into a corner; what we're saying is that we believe that,  
17 because animals are sentient creatures with intrinsic value, that a  
18 kind of cost-benefit analysis is actually not going to ever, in the  
19 current climate, come out in favour of the animal. We're always  
20 going to, as a species - and perhaps this is part of our human  
21 survival instinct, put ourselves first, and that is perhaps what  
22 many people in society do.

23

24 But that doesn't mean just because that's what we do, and because  
25 we are anxious for our own longevity and our own good health and  
26 everything else that that actually has an intrinsic moral  
27 precedence in itself. Surely the ultimate moral value is  
28 compassion, and compassion in its widest possible sense, not  
29 confined to your own species your own family or your own human race  
30 or countries, but universal compassion for all species, and all  
31 living creatures.

32

33 MR FORMAN: There are two points in this discussion, one is about  
34 alternative ways of providing for solutions for such diseases, the  
35 other one is what you have raised in your response; about the use  
36 of animals and their status of animals in relation to the status of  
37 humans and those two things have been combined to some extent. The  
38 first point though was about - I come back to that question, what  
39 would you offer when all other environmental and all other  
40 solutions are found to health improvements and other lifestyle  
41 improvements and so on, to those people who have and we are left  
42 only with genetic diseases, you would - are you saying that, by  
43 preventing genetic engineering, you would absolutely cut off what  
44 appears to be one of the few opportunities available to people  
45 affected by such diseases.

46

47 MR REESE: In response to your question I think let's - I'd like to see  
48 us get to the stage where we've actually removed all the huge

1 amount of diseases and illnesses that are caused by lifestyle and  
2 then let's have another look at that question.

3

4 MR FORMAN: Why would we wait when some of it is achievable now? Why  
5 must some people be left in the too few, too hard, too bad basket?

6

7 MR REESE: I think, you know, I'm feeling we're going to be repeating  
8 what we're saying quite a bit. We've answered this question, and  
9 certainly the information that's been provided I'm still not clear  
10 and in the majority of cases and these genetic engineered products  
11 are available alternatively from other sources. If it's a human  
12 protein then you should be able to obtain that human protein from  
13 the human blood certainly. Unless it's already been presented to  
14 the Commission, I think it's - you're trying to paint a picture  
15 where there aren't alternatives, and I don't think that is the  
16 case.

17

18 MR FORMAN: Well, I think that we would probably have a substantial  
19 difference of opinion on that, but I don't think that's appropriate  
20 for us to argue the science of that point because neither of us are  
21 sufficiently expert in that area.

22

23 MR REESE: No, but it's the premise you're basing your questions on. If  
24 you're not then I've already answered the question.

25

26 MR FORMAN: I said before that we will provide in rebuttal evidence to  
27 the Commission, evidence that many human proteins cannot be  
28 produced from yeast and microorganisms and so on --

29

30 BISHOP RANDERSON: I think Mr Forman, this is developing into a debate  
31 rather than cross-examination. So, this could be a good moment to  
32 decide, is there another area that you want to pursue with the  
33 submitters.

34

35 MR FORMAN: Okay, thank you. Coming back then to your submission in  
36 relation to your ethical stance. How do you reconcile your ethical  
37 stance with the likelihood and the probability that such technology  
38 would offer improvements to the health of animals?

39

40 MR REESE: Again, we're against the genetic engineering of animals, and  
41 that obviously that wouldn't be - there wouldn't be an exception  
42 there. I don't think, and certainly don't think there's any way  
43 that in allowing this - the genetic engineering of animals, would  
44 be a significant benefit to outweigh, you know, the huge moral  
45 objection to that, to improve - and in fact what in most cases  
46 we're only talking about human - where this has been suggested,  
47 they're talking about improving the health of battery hens or  
48 factory farmed pigs which is so - living in such extreme conditions

1 and exhibiting so many diseases that, okay, let's use genetic  
2 engineering to remove the diseases and to improve their health, and  
3 I think that's actually been presented to the Commission.

4  
5 So, no, that is not the path that we would advocate, we would  
6 advocate, let's go back to more natural farming systems so these  
7 animals don't exhibit those sorts of diseases. And it's  
8 interesting I think this is the crux for us in many cases, there is  
9 a better pathway if we look for it, and it's our choice, and  
10 there's obviously two divergent roads we go down and we believe one  
11 is GE and another is much more healthier and ethical in the long  
12 run.

13  
14 MR FORMAN: Can I come back to the very first paragraph in your  
15 submission, where you say that "SAFE is New Zealand's national  
16 animal rights/welfare organisation". You use the word "rights" and  
17 "welfare" together. Don't they need to be distinguished?

18  
19 MR REESE: Well, we do use both those words, so obviously we've  
20 distinguished by using both of those.

21  
22 MR FORMAN: But New Zealand law is substantially developed on the idea  
23 of animal welfare protection, not on the basis of animal rights,  
24 which is your advocacy position.

25  
26 MR REESE: I would reject that completely. I think if you have a look  
27 at the animal - I don't know if it's called the Animal Welfare Act.  
28 What we're talking about here is subtleties and there is no, okay  
29 I'm going to draw a line between animal welfare and rights. So  
30 that is an established distinction and we have to communicate  
31 effectively and people understand that there's sort of a  
32 distinction between an animal welfare approach and animal rights  
33 approach, but they're certainly interlinked. But if you have a  
34 look at the Animal Welfare Act certainly, there's rights  
35 established in there for animals, it's not just, "let's look after  
36 animals", there's certainly an acknowledgment of the rights animals  
37 have not to suffer unduly, the rights of animals not to --

38  
39 MR FORMAN: Which is a right to welfare, I suggest, which again is the  
40 distinction between the issue of rights and welfare. And the  
41 reason I make that point --

42  
43 MR REESE: That's not my distinction, you use that, that's certainly not  
44 mine, not a SAFE distinction.

45  
46 MR FORMAN: Okay I'll put it as a distinction that I think is  
47 significant. Because you then go on in your statements, and you  
48 said then in earlier responses to questions, that it was - that we

1 should not use animals for our essential or non-essential purposes.  
2 Are you not in fact putting an advocacy position rather than an  
3 ethical argument?  
4

5 MR REESE: No, because I think I was - when I said that I was - it  
6 certainly is an ethical argument and we were talking about GE, not  
7 about the use of animals. We're talking about the genetic  
8 engineering of animals and whether or not we should take this huge  
9 step of - in allowing this, broad acceptance of this technology.

10  
11 MR FORMAN: Okay, the final point on which I will question is --  
12

13 MRS D'SILVA: Sorry, could I just come in there before you get to your  
14 final point?  
15

16 MR FORMAN: Yes.  
17

18 MRS D'SILVA: Just to add, I don't want to take away from anything  
19 Gary's just said, but I think perhaps the question to address is  
20 not, which you are addressing do animals have rights, but where do  
21 we get our right to do the things to animals that we do to them. I  
22 think that's a really interesting question to pursue. Is it  
23 because we've always done these things? Is it because we're a  
24 technologically advanced species in these particular areas? Is it  
25 simply because, you know, we can confront a tiger with a gun rather  
26 than with our bare hands? Because, if that's what it is, it really  
27 is only, you know, a kind of, a sort of fascist approach to the  
28 animal kingdom which I think Richard Ryder coined the term,  
29 "speciesism". Can I just ask you please, let's not just talk about  
30 animal rights, but where we get our rights, what makes us so  
31 wonderful that we have to always put ourselves first?  
32

33 MR FORMAN: The final point I want to question you about on is about  
34 some of the underlying philosophy of SAFE and the underpinning  
35 arguments. You are no doubt aware of the group, people for ethical  
36 treatment of animals, which I would presume you would see as a  
37 kindred organisation that operates in North America? Do you know  
38 them and their writings?  
39

40 MR REESE: Yes.  
41

42 MR FORMAN: And you would be no doubt familiar with the writing of Peter  
43 Singer?  
44

45 MR REESE: Yes.  
46

47 MR FORMAN: Do you broadly subscribe to the arguments that he puts  
48 forward?

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1

2 MR REESE: On what?

3

4 MR FORMAN: On the relative value of animals versus humans.

5

6 MR REESE: I certainly couldn't commit the organisation to subscribing  
7 to all of Peter Singer's writing, I haven't read them all myself.

8 So, it's too big a question, I'm sorry, to ask.

9

10 MR FORMAN: I just have one specific point, quoted as - I'll ask you to  
11 comment on, and I have to distribute --

12

13 [Document distributed to presenters and Commission]

14 PRODUCED AS EXHIBIT H 230

15

16 MR REESE: Maybe I can say that we do know some of his writings that the  
17 organisation certainly wouldn't subscribe to, and I don't - any  
18 linking one right on animal rights or his opinions to the  
19 organisation, to our organisation's philosophy would of course be  
20 quite wrong of you to try - if that is the intention.

21

22 MR FORMAN: And that is why I asked your opinion on what he says. And I  
23 refer you in particular to page 11 of this article, not yet  
24 published but soon to be, by Adrian Morrison from the Department of  
25 Animal Biology, University of Pennsylvania. The last paragraph on  
26 page 11, and in it the writer says "I abhor Singer's idea "we  
27 cannot justifiably give more protection to the life of a human  
28 being than we give to a non-human animal if the human being, a  
29 brain damaged infant for example, clearly ranks lower on any  
30 possible scale of relevant characteristics". Do you agree with the  
31 philosophy that is behind that statement, behind Singer's  
32 statement?

33

34 BISHOP RANDERSON: What do you think he means by that Mr Forman, clearly  
35 ranks lower; lower than what?

36

37 MR FORMAN: If I could quote from - he is - Singer is suggesting there  
38 that it is not ethical to do research on an animal to try and find  
39 a solution for, for example, a brain damaged child. That a brain  
40 damaged child would rank lower on the scale of characteristics, to  
41 an animal. Do you understand the point I'm making?

42

43 BISHOP RANDERSON: I can't quite see why a human being would rank lower  
44 than an animal, but that's the context in which the statement comes  
45 I think I'm having trouble with.

46

47 MR FORMAN: The point Singer is making is that, this is how we should  
48 view our relationship with animals; that a brain damaged infant has

1 less intrinsic merit than an animal, than a non-human animal. Now,  
2 that is a writing from one of the, I guess, leading theoreticians  
3 of the Animal Rights Movement and I want to know if this group  
4 would adhere to or reject the arguments that Singer puts forward.

5  
6 MRS D'SILVA: In fact Peter Singer does not represent the ultimate  
7 Animal Rights Movement, Professor Tom Regan(?) does. Peter Singer  
8 is utilitarian and a lot of people in the Animal Rights Movement do  
9 not support all his theories. This comparison he makes, if I could  
10 just explain to the Commission, because he's saying many animals  
11 would be more intelligent than a severely brain damaged child, and  
12 I can't speak for SAFE, I can only speak for myself; that obviously  
13 both a non-human animal and brain damaged child deserve the best  
14 possible treatment from everyone.

15  
16 MR FORMAN: Are you then saying they are equal in your consideration?

17  
18 MRS D'SILVA: I would say they both should be given the best possible  
19 treatment and whatever they required, that one could do for them.  
20 It would be different.

21  
22 MR FORMAN: If research on an animal would find a solution to the health  
23 problem or disability on the child or others with similar health  
24 disabilities that may follow with the same condition, would you  
25 think it appropriate that the research on the animal continue?  
26 This is the essence, isn't it, of your ethical argument?

27  
28 MRS D'SILVA: Sorry, brain damage is usually irreversible, is it not?

29  
30 MR REESE: I think, you know, the length of his writings, which are very  
31 controversial to SAFE, is, you know, is untenable really, it's not  
32 - we don't subscribe to - as I said there are some of his writing  
33 that we certainly don't subscribe to. He's a philosopher and it's  
34 his job as a - and, certainly he doesn't represent SAFE in no way  
35 and SAFE would not subscribe to the - if he did say this, which you  
36 know, this doesn't necessarily mean he did, that we --

37  
38 MR FORMAN: It's quoted and it's referenced.

39  
40 MR REESE: We certainly would not subscribe to ranking an animal higher  
41 than a brain damaged infant if that's what you're trying to  
42 suggest.

43  
44 MR FORMAN: I'm not trying to suggest that, I'm asking you if you agreed  
45 with that statement.

46  
47 MR REESE: No. What I just said --  
48

1 MR FORMAN: So you do not agree with his statement. Would you also  
2 agree or disagree with his statement that, in the same article  
3 which is referred to, where Singer has written that parents with a  
4 deformed or mentally defective infant would be justified in  
5 rejecting this non-person.

6  
7 MR REESE: Yeah, this is totally outside of animal rights and I don't  
8 even feel a need, to be honest, to respond to these sorts of  
9 questions, and I can't on behalf of SAFE which is not active in  
10 these sort of ethical areas, and I can give you my personal  
11 opinion, but it seems a bit redundant to me, I'm sorry.

12  
13 MR FORMAN: Singer's book was entitled, Animal Liberation, so it is  
14 about the issue of animal rights.

15  
16 MR REESE: Well, one book; he's written many books. He wrote one book  
17 with which he uses as textbooks in philosophy classes, such as  
18 practical ethics, which is much broader than animal rights; that's  
19 only one of his areas, and I don't - so, I'm not sure again what  
20 your point is and what the relationship is.

21  
22 MR FORMAN: If I could clarify the point, it is then what you would see  
23 irrespective now of what Singer writes or thinks, what you would  
24 see as the relative value of animals against humans. Do you see  
25 them as inferior, equal or superior?

26  
27 MR REESE: SAFE's campaigns and SAFE's work is wholly to improve the  
28 welfare and the rights of animals, which is I think a really worthy  
29 cause, and one that certainly needs much more attention. We don't  
30 rank animals higher than humans at all, we don't, you know I'm not  
31 sure what sort of linkages you may want to try and make. We don't  
32 certainly support any violence towards humans in any way. In fact  
33 most of our work whether you go down the path of animal welfare  
34 animal rights, it's actually about helping facilitate ethical  
35 development in people, where actually a lot of our work is about  
36 actually building compassion in world farming and trying to get  
37 people to acknowledge compassion and a higher ethic and a deeper  
38 value system within people. We're very - I think the sort of  
39 ranking which some philosophers might, you know, try and do in  
40 these situations is not relevant to the organisation.

41  
42 MR FORMAN: Well, we're almost finished, I think it's taken some  
43 difficulty to get through this, but you have stated that you do not  
44 consider animals to be higher than humans, I accept that  
45 statement --

46  
47 MR REESE: Well --  
48

1 MR FORMAN: Well, you didn't respond about whether they are lower or  
2 equal, but I suggest to you what you've put forward as an ethical  
3 argument is an attempt to assert that they are equal to humans and,  
4 therefore, we should not be genetically engineering or researching  
5 or whatever as is your - some of the goals of your organisation.  
6

7 MR REESE: Our submission is, I think, and I think it stands on its  
8 arguments. I think that in any one reading our submission can  
9 clearly see we put forward very strong arguments and collected very  
10 good research and a broad range of ethical arguments about why  
11 genetic engineering animals is not ethically the right thing to do.  
12 This is not a discussion or a submission on animal rights, this is  
13 very specifically geared to the question of genetic engineering,  
14 and I think that we've taken - addressed this question very  
15 seriously, contributed a lot of our resources to doing that. And I  
16 don't think you can try and relate what our submission and the  
17 research and witnesses that we've provided, to some - to a broader  
18 philosophical position.  
19

20 MR FORMAN: I understand that, but aren't you effectively attempting to  
21 establish another right for animals which is the right not to be  
22 genetically modified.  
23

24 MR REESE: I think they already have that right. I think we need to  
25 acknowledge that. So, yes, in that way we are. But it's not just  
26 another right. I think personally that genetic engineering is the  
27 greatest threat to other sentient beings on this planet and I think  
28 it's the most serious issue that we face in terms of our  
29 relationship with other species. It's not just another right, it's  
30 very important in itself, it needs to be addressed as an issue in  
31 itself to understand the full scope of the technology and the  
32 impact, the potential impact and the current impact on animals.  
33

34 MR FORMAN: Thank you, I don't have any further questions.  
35

36  
37 \*\*\*

38  
39 [4.17pm]

40 BISHOP RANDERSON: I wonder if I could just take a check. Mr Reese, has  
41 one of your witnesses just arrived in the court?  
42

43 MR REESE: Yeah.  
44

45 BISHOP RANDERSON: Who is that?  
46

47 MR REESE: It's Dr Michael Morris.  
48

1 BISHOP RANDERSON: I think perhaps we could just check our timetable at  
2 this point. Maybe we could do two things, that we could with  
3 Mr Upton and perhaps the Commissioners, complete some  
4 cross-examination of yourself and Mrs D'Silva today, perhaps  
5 dealing more with some of the ethical issues that we've canvassed,  
6 and then we could start again tomorrow morning with Mr Morris and  
7 the video - you've got a person on video tomorrow?  
8

9 MR REESE: That's right, tomorrow morning at 9.30.

10

11 BISHOP RANDERSON: So, that would be first, and then Mr Upton and the  
12 Commissioners could ask questions collectively of all the witnesses  
13 at that point. Mr Upton is the Counsel Assisting the Commission.  
14 Do you feel that it might be better, with the questions you've got  
15 relating more to what we've heard this afternoon, it would be  
16 better to complete that and take the other two witnesses tomorrow?  
17

18 MR UPTON: Yeah, I think that does preserve the integrity of the process  
19 rather than breaking in and introducing another witness now.  
20

21 MR REESE: Yeah.

22

23 BISHOP RANDERSON: Mr Wevers, what would the Life Sciences Network --  
24

25 MR WEVERS: We'd agree with that position, sir.  
26

27 BISHOP RANDERSON: I think today if we could complete some of these more  
28 ethical metaphysical type debates and then tomorrow we could deal  
29 fresh with the new evidence and, given the fact that there's  
30 another major party to present tomorrow, then I think that we would  
31 want to be reasonably succinct in the way we go through the rest of  
32 the evidence so that the other presenting party has an opportunity  
33 for the rest of the day. I wouldn't put a time limit on that,  
34 obviously we take time to hear both the witnesses properly, but we  
35 might need to be selective in the way we do our cross-examining.  
36 And by selective I mean having drawn a demarcation line between the  
37 more ethical type issues and the ones that MRS D'SILVA has raised,  
38 if we can deal with those today is what I had in mind.  
39

40 So Mr Upton, he's the counsel assist the Commission and he has some  
41 questions for you.  
42

43

44

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45

[4.20pm]

47 MR UPTON: Thank you. I just want to get clear in my own mind to start  
48 with what we mean by an "animal" when we talk about animals in the

1 present debate, and you've said it's a sentient being. Does it  
2 include, for example, fish.  
3  
4 MR REESE: Yes, certainly sentient beings.  
5  
6 MR UPTON: Does it include invertebrates? I'm just trying to --  
7  
8 MR REESE: Yes.  
9  
10 MR UPTON: See what we're talking about --  
11  
12 MR REESE: Yes, I think there is a range of definitions of animals, and  
13 it's, you know, not something that should I think should be  
14 expected to be, again, here is the line in the sand. I don't think  
15 life is like that, and there's a distinction of life on this planet  
16 which I don't think there are these lines. We have to use our  
17 wisdom, our practical wisdom and apply that in whatever situation  
18 we're talking about in terms of - so --  
19  
20 MR UPTON: But you see, in your submission in paragraph 44 you're  
21 talking about various things such as flies, blow flies, that sort  
22 of thing.  
23  
24 MR REESE: Yeah, and I use that because that's - in relation to this  
25 sort of technology, the sort of responsibilities of what GE  
26 technology can do. So, which I think is important, it's an example  
27 of the potential of the technology rather than that particular  
28 case, I'm not saying that flies, insects don't deserve some  
29 consideration, but certainly - and that wasn't what that intention  
30 of that example was.  
31  
32 MR UPTON: Can I take you to the submission to start with paragraph 31,  
33 and I'd like to just walk through some of the paragraphs in the  
34 submission. And you've already been asked some questions about  
35 that paragraph, in particular the sentence that says "there are  
36 no", and I'm quoting, "there are no convincing arguments to allow  
37 commercial applications of genetically engineered animals to go  
38 ahead".  
39  
40 MR REESE: Which paragraph?  
41  
42 MR UPTON: This is paragraph 31 in the submission. I'm quoting "to  
43 allow commercial applications of genetically engineered animals to  
44 go ahead when faced with the overriding ethical arguments regarding  
45 the welfare and rights of sentient beings". Just putting it quite  
46 bluntly, isn't that really putting animals on the same level as  
47 humans?  
48

1 MR REESE: That sentence doesn't necessarily do that, I don't know. I  
2 think it's a different question.  
3

4 MR UPTON: On one reading, it does though, doesn't it?  
5

6 MR REESE: I don't think, to accept that statement, that you have to put  
7 necessarily animals on the same footing as humans.  
8

9 MR UPTON: If we take a specific example such as someone who's suffering  
10 from lysosomal disease, and the opportunity of treatment derived  
11 from the genetic modification of animals, you would say they're not  
12 to have that opportunity, because of the value that is placed on  
13 animals?  
14

15 MR REESE: On other sentient beings. I think that you could still, you  
16 could have a range of positions, if you wanted to try and order  
17 animals and humans and still not think that we have a right, even  
18 if we put ourselves first, it doesn't necessarily translate to  
19 animals have no rights and I think you're trying to paint a black  
20 and white picture. I don't think anyone thinks like that. I think  
21 we all think and have a different opinion on the status of animals,  
22 but it's clear that they have significant status and that they have  
23 significant rights. And that, wherever you - you know, even in a  
24 reasonable continuum even that, we should rule out applying this  
25 technology, this technology, genetic engineering, to alter species.  
26

27 MR UPTON: Even if it could be shown that the use of animals to produce  
28 products which would assist in dealing with genetic disorders, you  
29 would still say that that should not go ahead, on your argument.  
30

31 MR REESE: Yes, we would. I think, you know, you need - these sort of  
32 questions - I think you're again trying to paint a black and white  
33 question. Society --  
34

35 MR UPTON: I'm putting a specific example so I can grasp what it is  
36 we're talking about.  
37

38 MR REESE: Yes, as you heard the discussion before so we would question  
39 whether there weren't other alternatives and the like as well.  
40

41 MR UPTON: Would you regard the taking of milk from an animal as  
42 manipulation? If I go and milk a cow, is that manipulation of a  
43 cow?  
44

45 MR REESE: SAFE is very concerned about --  
46

47 MR UPTON: Isn't there a yes or no answer?  
48

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1 MR REESE: No, I don't think it is; I don't think it would be possible  
2 to really adequately. You're asking boarder questions about  
3 another SAFE philosophy --

4  
5 MR UPTON: I'm doing it deliberately.

6  
7 MR REESE: -- which is another part of the submission. If the  
8 Commissioners would like to know about the SAFE philosophy in other  
9 areas of work that we do, yes, we're concerned about the way dairy  
10 cows have been bred and the fact that they're now bred with huge  
11 udders that make it difficult for them, that they're milked - that  
12 they're milked in that babies, veal calves, male calves are all  
13 slaughtered within days and taken away and often not fed so that  
14 their meat is whiter, and there are real problems with that sort of  
15 industry of course.

16  
17 MR UPTON: Can I come back to the milk example, with my eye on the  
18 clock; are we saying that in some circumstances the taking of milk  
19 from a cow could be regarded as manipulation?

20  
21 MR REESE: It certainly is today, yes. In New Zealand it is in the way  
22 that it's being applied.

23  
24 MRS D'SILVA: If I could just come in there.

25  
26 MR UPTON: Please do.

27  
28 MRS D'SILVA: The average modern dairy cow is yielding ten times as much  
29 milk as a calf feeding from the udder, had it been allowed to do  
30 so, which of course it isn't because it's being taken away as soon  
31 as it's a day or two old. So, we have manipulated the cow's system  
32 to make here vast quantities of milk so that we can drink it. It  
33 is in fact interesting that we're the only mammalian species  
34 unweaned, basically. Okay, we stopped drinking our own mother's  
35 milk, but we drink the milk of other mothers. It's just an  
36 interesting point I'd like to take in.

37  
38 MR UPTON: What about shearing the sheep; is that manipulation?

39  
40 MR REESE: You're using the word "manipulation", and I think we need to  
41 know where the questions are coming from, what it is that you're  
42 really asking so we can work out what you mean by "manipulation".  
43 These are very simple - but obviously these are important  
44 questions.

45  
46 MR UPTON: Let me be quite plain; I'm deliberately being provocative to  
47 try and establish the parameters of your thinking and what is the  
48 underlying philosophy.

1

2 MR REESE: Of the organisation?

3

4 MR UPTON: Of the organisation; in that your acronym uses the word  
5 "exploitation", and if you like I'll use the word "exploitation".  
6 Would you regard the shearing of a sheep as exploitation in terms  
7 of your organisation's philosophy?

8

9 MR REESE: Ahh, no, I don't think our organisation would regard - in the  
10 way that you put it, as a simple shearing of sheep necessarily as  
11 exploitation, but it's a much different issue, and you're  
12 presenting it in a --

13

14 MR UPTON: What about the killing of the animal for human consumption?

15

16 MR REESE: Are you wanting to compare the killing of animals with  
17 genetic engineering of animals, or are you - just a stand-alone  
18 question?

19

20 MR UPTON: I'm just having a general discussion with you about what the  
21 parameters are, that's all.

22

23 MR REESE: First of all, if the Commission is interested in other areas  
24 of policy of the organisation, or areas of work, I'd have to say -  
25 and I think, you know, I hope you can see that I don't think that  
26 it should be that our submission on genetic engineering, and the  
27 valuable research that we've done, and the witnesses that we've  
28 called, and the position we have on genetic engineering shouldn't  
29 necessarily be determined or should be influenced by the other work  
30 that we do. I'm not sure that you would have asked all the other  
31 organisations these sorts of questions. They do seem very  
32 provocative to me; I'm happy to answer.

33

34 BISHOP RANDERSON: I think we should try to keep it to the GM debate,  
35 but I think where counsel's coming from is to draw an implication  
36 from the debate, which I think maybe you're about to do, Mr Upton.

37

38 DR FLEMING: Maybe I could point out here that you, yourselves have  
39 pointed out how many animals die, are not necessarily experimented  
40 on but, for example, the lambs of - the sheep with the protein in  
41 their milk. So, I suspect we're just looking at limits to how you  
42 feel about the slaughter of animals for food as opposed to  
43 experimentation and so on. But, I'll let Mr Upton continue.

44

45 MR UPTON: Can we look then at paragraph 44 of your submission, and you  
46 mention there the use of fire flies by HortResearch. Are you able  
47 to tell us a little bit more about that?

48

1 MR REESE: No, not really. We're answering a question put to us by the  
2 Commission. We've attempted to answer the questions put forward by  
3 the Commission. Again I made a criticism of the fact that we're  
4 actually asked that to begin with, because I don't believe the  
5 Commission should be asking groups like us or should be undertaking  
6 important research and an establishment of what's going on - by  
7 asking us - because we've attempted to answer a question put  
8 forward --  
9

10 DR FLEMING: Can I clarify that? The question was part of the  
11 submission form, if you like, so that we could gain from those  
12 "interested persons" who were actually using the techniques in  
13 their research, what they were doing with it. So we weren't  
14 necessarily asking you to go out and find out what was going on.  
15

16 DR ALLAN: Mr Reese, many groups actually chose not to answer all the  
17 questions, it was your choice whether you answered that section or  
18 not.  
19

20 MR REESE: Sure. I don't have any other information on that research.  
21 We've listed it because we tried to list just some, and I don't  
22 think it's comprehensive, some of the work that's been done.  
23

24 MR UPTON: I was just intrigued because as I understood it fire flies  
25 were not native to New Zealand. So I assumed they must have come  
26 from outside New Zealand.  
27

28 Could we just move over the page to the other items that are listed  
29 in paragraph 44, presumably you can't help us with the work that is  
30 apparently being done on Tuatara or Kokako.  
31

32 MR REESE: Again, why are you asking?  
33

34 MR UPTON: Just because you mentioned it in your paper, that was all.  
35

36 MR REESE: Yeah, this was a list, we tried to find out some of the  
37 research that's going on in New Zealand. We've listed that.  
38

39 MR UPTON: Thank you. If we then go on to paragraph 76, and there's a  
40 mention there of cows being genetically engineered without horns.  
41 That's already going on at the moment, isn't it, by natural genetic  
42 modification?  
43

44 MRS D'SILVA: That's just been done by breeding. By breeding the cows  
45 that don't. It's not genetically modifying them not to have horns  
46 when they would have had them.  
47

48 MR UPTON: But you're not concerned about natural breeding that leads to

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1 cows being born without horns, are you?

2

3 MR REESE: Well, I'd say that the Commission is not concerned about  
4 that, so - but I think the --

5

6 MR UPTON: It's just you mentioned it in your paper, that's all.

7

8 MR REESE: I think this is important, Henk Verhoog suggesting that cows  
9 could be genetically engineered without horns, and chickens would  
10 be born blind so as to not peck each other. He specifically says  
11 genetically engineered - and this is the topic that we're concerned  
12 with, not traditional breeding. It's a completely different  
13 technology, and I think again you're suggesting that it's the same  
14 thing, if we can do the same thing with traditional breeding that  
15 we do with GE, then it makes it okay. We certainly wouldn't accept  
16 that. It's like saying again, we could blow up a country with  
17 conventional weapons, it's all right to blow it up with nuclear  
18 power; is there any deference? Yes, there's a difference, it's a  
19 different technology and we should not be using it. And we've  
20 provided the reasons why we specifically should not be using this  
21 technology for whatever reason.

22

23 MR UPTON: Well, I wasn't - I'm sorry if you thought I was suggesting  
24 something; I thought I was just asking questions. Could you come  
25 on please to paragraph 109, just a small paragraph where you say  
26 that all animals in New Zealand are owned, including wild animals.  
27 I can't resist asking you, who owns wild animals?

28

29 DR FLEMING: Who owns the possums?

30

31 MR UPTON: Yeah, who owns the possums?

32

33 MR REESE: I think the Queen still does under our legislation.

34

35 DR FLEMING: Who does?

36

37 MR REESE: The Queen.

38

39 DR ALLAN: Are you allowed to serve an eradication notice?

40

41 MR UPTON: I think we'll do that immediately. Thank you.

42

43 MR REESE: I'm not completely sure about that, but the legislation  
44 certainly suggests that all animals are --

45

46 MR UPTON: I think there's a question mark over that. Could we move on  
47 then --

48

1 MR REESE: That is - I'm 99% sure that is the case, if you're  
2 questioning that, that there is ownership, implied ownership even  
3 of wild animals, it's necessary in order that DOC can undertake the  
4 eradication.

5

6 MR UPTON: Right-o. Can we look at paragraph 152. Have you got that?  
7 Can you tell us were whether the committee has ever invoked that  
8 provision? Has it ever used it?

9

10 MR REESE: The legislation's just come into effect as of the 1st of  
11 January Year 2000.

12

13 MR UPTON: That's right.

14

15 MR REESE: And in order to provoke that they need the new codes to be  
16 drafted because it's been used as the code's being drafted and that  
17 process is still underway. In fact we haven't yet - I'm looking  
18 behind me because the Chairperson of one of the relevant committees  
19 is in the audience, but is not - the codes haven't actually been  
20 drafted yet, so there hasn't been an opportunity, we're waiting  
21 expectantly to see whether they will use that provision in the  
22 codes.

23

24 MR UPTON: Okay. Now, if we then move to the question of ethical  
25 issues. As I understand your paper, you've got real concerns about  
26 the ethical structures that are in place at the moment, in the  
27 context of animal rights or animal welfare. Would you like to just  
28 expand a little bit on that?

29

30 MR REESE: Yeah, well, there's a number of problems, I have mentioned.  
31 I won't try and repeat what I've already presented. I've mentioned  
32 the loopholes in the legislation, which are to do with work on -  
33 which allows genetic engineering work on embryos and the like in  
34 the second half of their gestation to bypass the ethical framework  
35 that's been put in place so it's a very strong weakness.

36

37 In the submission we also talk about the failings of Ethics  
38 Committee structure, which is an Ethics Committee attached to every  
39 institution and Dr Mike Morris will actually expand on that  
40 tomorrow I think certainly adequately.

41

42 MR UPTON: Have you got any particular concerns about the National  
43 Advisory Committee.

44

45 MR REESE: Yeah, I have, we've mentioned that certainly in the  
46 submission, that we - I'm disappointed as I said that both National  
47 Advisory, I'm sorry the Chair's in the room --

48

1 MR UPTON: Go on, say it anyway.

2

3 MR REESE: As I've already said, we're concerned that no application was  
4 made to be - to have interested party status both NAEAC and NAWAC,  
5 and that NAEAC didn't even know, when I spoke to them, that there  
6 was the deadline, so that's also a concern.

7

8 Also in their annual report, for example, there's one sentence at  
9 the end of the report, mention of the need to investigate or - to  
10 investigate implications of the genetic engineering on welfare,  
11 where I would have thought this was an issue that should - and I  
12 have said to them in a letter I think on more than one occasion,  
13 that it should be a very serious issue that needs to be addressed.  
14 Because, they fulfill a really important role in terms of advice on  
15 issues of animal welfare, and I think there should have definitely  
16 been more research being undertaken, and consideration.

17

18 I think the loophole was only investigated when we brought it up,  
19 we submitted to them and, I don't understand why, in the  
20 development of the Animal Welfare Act these sort of issues weren't  
21 contemplated. There's a huge amount of policy work and obviously  
22 analysis going on to develop the Animal Welfare Act; why those  
23 issues weren't addressed then, I don't know, and all the issues to  
24 do with genetic engineering.

25

26 MR UPTON: Did SAFE make submissions to Parliament at the time the Bill  
27 was being examined?

28

29 MR REESE: The fact that you've asked that question, I suspect you know  
30 the answer, is that --

31

32 MR UPTON: No, I'm just asking a question.

33

34 MR REESE: We didn't actually, it was something that we have been -  
35 there was surprised that we didn't make a submission, but we're the  
36 only national animal rights organisation, and we can't keep up with  
37 all the submissions we would like to cover, and the submissions  
38 take an awful amount of work.

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40 MR UPTON: That, to conclude the questioning, the Royal Commission has  
41 heard from the transgenic animal users group earlier this year.  
42 Did you give any thought about going down to Wellington to ask them  
43 questions?

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45 MR REESE: Huge amount of thought. I would have loved to have gone down  
46 to cross-examine. I planned to cross-examine. If the hearings  
47 were in Auckland I certainly would have. I couldn't get to  
48 Wellington.

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MR UPTON: Was that a time problem or a cost problem.

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MR REESE: Both for the organisation. This has really stretched us, having this contribution, has stretched us to the limit, as other organisations we worked through the night on a number of occasions; and we have certainly don't have the sort of money that we would like to have that many other organisations have to contribute and to have lawyers at the Commission cross-examining. You know, it is a real concern that I couldn't - that no-one from our organisation could do any cross-examining, and I think there isn't a level playing field in the Commission process.

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MR UPTON: You would have been entitled to cross-examine.

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MR REESE: If I could get the resources definitely to get there, and often in this sort of forum it's about resources and who has the most resources.

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MR UPTON: Right. Well, thank you for the answers and that completes my cross-examination.

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BISHOP RANDERSON: Finally this afternoon some of the Commissioners may have some comments.

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[4.40pm]

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DR FLEMING: I have one question which you may consider to be outside your brief. But given the discussion that we've had about the use of animals to produce proteins that may or may not affect human health, does SAFE, or do you individually, have opinions on the use of the technology to select human embryos that do not carry a genetic defect? Would you like to comment on that aspect of it?

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MRS D'SILVA: Sorry, are you suggesting that you abort some embryos and keep the others? Because that's simply a different question.

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DR FLEMING: No, not that you abort them. It is now possible, for example, to detect.

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MRS D'SILVA: Or not just allow them to develop.

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DR FLEMING: Some, not all; a genetic disease. Let's think of an example. A simple example is down syndrome where there's an extra chromosome. It is possible to create in vitro human embryos and there is a lot of discussion of this going on in - all around the

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1 world at the moment, and to select them, to select the ones that do  
2 not carry the defect which are then reimplanted in the mother so  
3 that the resulting children do not carry the genetic defect. I am  
4 in no way advocating this, I'm just asking if you would like to  
5 comment on whether, as an alternative if you like to a therapy  
6 produced in a GM animal, you might consider this to be an  
7 alternative.

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9 MRS D'SILVA: I wouldn't want to make a moral comment on that, no.

10  
11 MR REESE: Yeah, it is outside the organisation. I mean it's  
12 interesting most of our work because there's a lot of organisations  
13 that are already concerned with human issues; we mostly restrict  
14 ourselves to non-human animals, and I think that's a single  
15 question outside of our organisation.

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17 DR FLEMING: Fair enough.

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19 DR ALLAN: I don't have any questions.

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21 BISHOP RANDERSON: I just wanted to ask about the Dutch experience where  
22 they have this policy which one of your witnesses, Elmar Theune is  
23 it, has described as "no unless", which means no use of animals for  
24 genetic engineering unless it is not reasonable to think that the  
25 relevant ethical values are violated. And, do they list what those  
26 ethical values are? I mean, just one or two examples of what those  
27 values are.

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29 MR REESE: I don't really - I don't really have the answer for you. I  
30 mean, I think it's something that I really hope the Commission  
31 might investigate themselves. We ran out of time to get more  
32 legislation. It was something that we would like to present. We  
33 only came across some of that sort of halfway through our - it was  
34 very late.

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36 BISHOP RANDERSON: Sure, that's all right. I took it though from Elmar  
37 Theune's submission, that the adoption of the "no unless" policy  
38 was based really more on the philosophical concept of the intrinsic  
39 value. That once the Netherlands adopted that concept of intrinsic  
40 value of animals, then a somewhat tougher standard like the "no  
41 unless" one came into play rather than the "yes if" one which  
42 perhaps preceded it.

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44 MR REESE: Yes, that's been one.

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46 BISHOP RANDERSON: And that's been in place for the best part of a  
47 decade?  
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1 MR REESE: No, I don't think it's been in place for a decade.

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3 BISHOP RANDERSON: It's just, the debate has been going on for a decade?

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5 MR REESE: Yes, it's - the debate has been going on for a decade.

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7 BISHOP RANDERSON: Do I take it from your, you said, from the adoption  
8 of the policy there has not been genetic engineering of animals in  
9 the Netherlands?

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11 MR REESE: We believe that to be the case and we recently got  
12 information from Henk Verhoog who was on the National Committee.  
13 To be honest, I'm going from what he said, we don't have the  
14 papers, but he said in effect there has proven to be a ban and no  
15 experiments on animals or live animals has been approved.

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17 BISHOP RANDERSON: And although it says "unless", yet de facto so far as  
18 it's come to be pretty much the same as a ban.

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20 MR REESE: Yeah, I certainly think the National Committee would  
21 seriously be looking at the applications and weighing up all the  
22 factors and that's the result of them weighing up the factors and  
23 the relevant benefits versus the moral objections, it has been that  
24 nothing's gotten through.

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26 BISHOP RANDERSON: So far.

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28 MR REESE: So far, yeah.

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30 BISHOP RANDERSON: Hypothetically or the way it's written it could.

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32 MR REESE: Yeah definitely, I don't think it was set up to be a ban  
33 necessarily.

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35 BISHOP RANDERSON: Just to lay much stricter condition, look for  
36 alternatives first before you go down this track and that sort of  
37 thing.

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39 MR REESE: Yeah.

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41 BISHOP RANDERSON: Plus other welfare type considerations. I understand  
42 that.

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44 I think that was bringing me to my point then that when, in 16, you  
45 are recommending, or SAFE is recommending that the New Zealand  
46 Government as your first option adopt a permanent ban on all  
47 genetic engineering of animals, that would be a different kind of  
48 situation than the Dutch one.

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MR REESE: Definitely. The Dutch one I think is - we connected with option 3 which we expanded on that. We certainly listed I think in option 3 as part of our recommendation, but option 1, we foresee legislation which would completely ban genetic engineering of animals. That is certainly --

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BISHOP RANDERSON: Option 3 is a ban on all commercial applications of genetic engineering of animals. You are not referring there to, you know, just production of meat and --

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MR REESE: No.

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BISHOP RANDERSON: Some of those things.

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MR REESE: These are suggestions and we put forward a number of options to, which I think you know, just - we didn't presume that the Commission's going to agree with our first option and to put, you know, our opinion on, if there were - we were going or other options of how some of that could be formulated. And that option, option 3, that's where we suggested the Dutch system as well to be part of that for non-commercial applications of GE, the Dutch model could be used for those to consider which, if any, of those non-commercial applications really did have enough benefit to go the way of the moral objections.

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BISHOP RANDERSON: Option 1, as you've got it here, a permanent ban, that would be a much more stringent restriction, in fact it would be a total restriction as compared with the Dutch "no, unless" one.

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MR REESE: Yes. The Dutch model was different to that.

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BISHOP RANDERSON: Thank you. That's all that I wanted to ask, and that completes the questioning for this afternoon. But, I wonder if we could just take a couple of minutes to establish the programme for tomorrow.

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Could you tell us, Mr Reese, the basic areas that Dr Morris and

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Professor Atfield will be presenting on?

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MR REESE: Professor Atfield's a Professor of Ethics - sorry. Did you

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just - sorry. Alan Holland is tomorrow.

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BISHOP RANDERSON: He's the person on video link?

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MR REESE: Yeah, Professor Atfield is not appearing as a witness.

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BISHOP RANDERSON: Who will we be seeing on video?

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MR REESE: Tomorrow is Professor Alan Holland on video.

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BISHOP RANDERSON: What's his area?

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MR REESE: You should have his CV, I just wanted to get his entitlement right. It's ethics. I'm not sure if it's ethics or applied philosophy. But his area is ethics --

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DR FLEMING: Applied philosophy.

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MR REESE: He will be presenting on --

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BISHOP RANDERSON: And, Dr Morris will be speaking on - perhaps Dr Morris could tell us himself.

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DR MORRIS: May I answer? I'll be looking at loopholes on Animal Ethics Committees, and especially over 100 experiments that have got past Animal Ethics Committees over the past four years in spite of the supposed safeguards that are supposed to be there.

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BISHOP RANDERSON: So, that's really not so much the discussion of the more philosophical things we've been having today, it's actually how the systems work in practice to see that the ethical things are done?

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DR MORRIS: Yes, so I'd like to bring some philosophy into it as well.

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BISHOP RANDERSON: And I wouldn't want to restrict you in any way in the doing of that. We like witnesses to feel free to present. I'm just going back to what I said a little while ago about our time restrictions tomorrow, that I'd like as far as possible - talking to counsel as well - that we kept off areas as much as possible that we've dealt with today because I think we've had a good go today at some of the more philosophical debate, if we could look at the add-ons tomorrow as much as possible without removing them from the context. But I think that would help us to focus and conserve time tomorrow.

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MR UPTON: There's one question there, Bishop, about the video link tomorrow, and that is how long they've got the link booked for?

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BISHOP RANDERSON: Yes, do you have an answer to that

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MR PEAR: It's open-ended at the moment. He should be available to speak until 11 o'clock, so an hour and a half at least.

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BISHOP RANDERSON: My hunch, given the fact that we have a large input

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1 tomorrow from Greenpeace, is that I would like to feel that we've  
2 completed the SAFE submission by the morning tea break.

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4 MR REESE: Which is at what time?

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6 BISHOP RANDERSON: We normally take that at about 11 or 11.15. We were  
7 delayed this morning because of the technological hitches. Does  
8 that seem a reasonable time for counsel and the Commissioners to do  
9 that in that time frame?

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11 [All parties agree with Bishop Randerson's comments]

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13 BISHOP RANDERSON: We could be flexible about that, but I think having  
14 had this afternoon, we need to be comparatively brief tomorrow.  
15 And, could I just check then on the technology. Who is responsible  
16 for setting the technology up for the video link?

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18 MR REESE: The Commission.

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20 CLERK: It's all ready today.

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22 BISHOP RANDERSON: Can we be sure to start here at 9.30am morning?

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24 CLERK: Yep, because he's going to be here at 7.30 tomorrow.

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26 BISHOP RANDERSON: Thank you. So, I think if we could start promptly at  
27 9.30 tomorrow and not lose time, that would be helpful.

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29 MR FORMAN: I don't plan to ask any further questions tomorrow unless  
30 there's something new that completely surprises me which I wish to  
31 refer to.

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33 BISHOP RANDERSON: Certainly and in no way would we wish to restrict the  
34 cross-examination, but just to focus it, as I said, that would be  
35 helpful. That concludes our session for today, we stand adjourned  
36 and will reconvene tomorrow at 9.30. Thank you very much.

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40 Hearing adjourned at 4.53pm

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