COMMONWEALTH OF AUSTRALIA

Proof Committee Hansard

SENATE

RURAL AND REGIONAL AFFAIRS AND TRANSPORT LEGISLATION COMMITTEE

Reference: Import risk analysis for pig meat

MONDAY, 8 MARCH 2004

CANBERRA

CORRECTIONS TO PROOF ISSUE

This is a **PROOF ISSUE**. Suggested corrections for the Bound Volumes should be lodged **in writing** with the Committee Secretary (Facsimile (02) 6277 5811), **as soon as possible but no later than:**

Friday, 16 April 2004

BY AUTHORITY OF THE SENATE

[PROOF COPY]

INTERNET

The Proof and Official Hansard transcripts of Senate committee hearings, some House of Representatives committee hearings and some joint committee hearings are available on the Internet. Some House of Representatives committees and some joint committees make available only Official Hansard transcripts.

The Internet address is: **http://www.aph.gov.au/hansard**

To search the parliamentary database, go to:
http://parlinfoweb.aph.gov.au

SENATE

RURAL AND REGIONAL AFFAIRS AND TRANSPORT LEGISLATION COMMITTEE

Monday, 8 March 2004

Members: Senator Heffernan *(Chair)*, Senator Buckland *(Deputy Chair)*, Senators Cherry, Colbeck, Ferris and O'Brien

Participating members: Senators Abetz, Bishop, Boswell, Brown, Carr, Chapman, Coonan, Eggleston, Chris Evans, Faulkner, Ferguson, Harradine, Harris, Hutchins, Knowles, Lightfoot, Mackay, Mason, Sandy Macdonald, McGauran, McLucas, Murphy, Payne, Robert Ray, Santoro, Stephens, Tchen, Tierney and Watson

Senators in attendance: Senators Boswell, Buckland, Cherry, Colbeck, Ferris, Forshaw, Heffernan, McLucas, O'Brien and Stephens

Terms of reference for the inquiry:

To inquire into and report on:

The administration of Biosecurity Australia with particular reference to the assessment, methodology, conclusions and recommendations contained in the draft import risk assessment analysis report on the generic Import Risk Analysis for pig meat dated August 2003 and related matters.

WITNESSES

Committee met at 3.59 p.m.

MORRIS, Professor Roger, Director, Massey University EpiCentre

CHAIR—I declare open this public hearing of the Senate Rural and Regional Affairs and Transport Legislation Committee. The committee is inquiring into the import risk analysis for pig meat. I welcome you all here today, some from as far away as Kiwi land.

The committee has authorised the recording, broadcasting and rebroadcasting of these proceedings in accordance with the rules of the order of the Senate of 23 August 1990 concerning the broadcasting of committee proceedings. The committee authorises the publication of the submission from the CSIRO received today.

I place on record that all committee witnesses are protected by parliamentary privilege with respect to their submissions and evidence. Any act by any person which may disadvantage a witness on account of their evidence is a breach of privilege. While the committee prefers to hear evidence in public the committee may agree to take evidence confidentially. However, the committee may still publish or present confidential evidence to the Senate at a later date. The committee would consult the witness concerned before doing this. The Senate can also order publication of confidential evidence. I also ask everyone to turn off their mobile phones or make them inaudible.

Our first witness today is Professor Roger Morris via videoconferencing from New Zealand. Welcome. We have a written submission from you. Are there any alterations or changes that you would like to make to that statement?

Prof. Morris—No, that statement represented a brief statement of position. I have now had an opportunity to review the final import risk analysis and so I have quite a lot more comments on other matters if you wish to receive those.

CHAIR—Thank you. You may now proceed to an opening statement, if you wish, before we go to questions.

Prof. Morris—I have reviewed the import risk analysis and I have a number of comments to make on that. I can go through the individual specific items if you wish me to, but I just make the general comment that I have reviewed a number of areas. Firstly, I have reviewed the scale of the risk as it is assessed for the various parts of the pig industry in Australia and I believe that some elements of that risk are underrepresented.

For example, the number of farms at the small end of the scale is based on statistical data which we know for Australia, New Zealand and most countries seriously underestimates the number of pig farms in the lower end of the range. In the material that we have assembled for post-weaning multi-systemic wasting syndrome in New Zealand it is clear that many of these smaller farmers are not recorded in any of the statistical systems. So there are a number of elements of that preliminary process of defining the overall size of the risk to the industry measured by the number of farms at risk and a number of other elements of that that I consider to be underestimates of the true risk. I can go through that in detail if senators wish me to.

With respect to the specific issue of post-weaning multi-systemic wasting syndrome, this is a disease which I have followed with considerable interest for a number of years as it has spread around the world from its initial discovery in Canada in the early 1990s. It was reported from there in 1996 but was actually discovered several years earlier. From there it spread to most other countries in the world. Recently, New Zealand has diagnosed this disease so my interest has become very much sharpened.

We have been actively investigating this disease in New Zealand. We have found that it is associated with a small cluster of farms which are thieving by-products from the human food chain. It would appear that there was a period between 1999, when New Zealand removed restrictions on feeding of swill or waste products, and 2001, when it commenced cooking requirements, when without doubt infectious material could have entered the country.

That appears to have been the time the disease first occurred. There was a group of farmers in the Auckland area who had been feeding waste or by-products from the human food chain. This appears to have included pig meat, some of which was certainly cooked and some of which was probably uncooked. This appears to have introduced the disease to New Zealand. The disease is limited to a small cluster of farms in the Auckland area.

One of the important points in the import risk analysis that I have examined is that it makes the constant assumption that the only material which would get into the food chain is waste product from food processing establishments. I think it is important to note that the material that we believe was the risk material in New

Zealand was not waste product at all; it was simply product associated with bakery waste from companies that were producing baked products of various kinds, including pies, pork pies and ham sandwiches.

We obviously have no idea what the infectious material was but I had always believed that bakery waste was bread. As a result of this incident and examining some of this material, I have become well aware that bakery waste is a wide variety of material which can easily contain pig meat, although it is not material from food processing establishments in the classical sense that the import risk analysis assumes.

We now have a situation where close to 20 herds in New Zealand, in a very small cluster around Auckland—94 per cent of them feeding this type of product—have developed the disease. Fortunately, so far the disease has not spread further and we are hoping to be able to eradicate it. It is certainly a cautionary tale about the risks of the possibility of introducing such diseases which import risk analyses should take into account.

Finally, I cite two more relevant examples. The introduction of foot-and-mouth disease to the United Kingdom in 2001 was associated with the importation—not through official channels—of material to a small waste product feeding farm in the north of England. Apparently that material was not adequately processed, and it started that outbreak.

Another disease—porcine reproductive and respiratory syndrome, commonly known as PRRS—has been of concern in Australia for quite a few years. Until relatively recently it was believed that this disease could not be transmitted in meat, but Australia funded a project which was carried out in Europe which demonstrated that this virus can be carried in meat. Both Australia and New Zealand have introduced cooking requirements as a result of that.

That was another disease which had a lot of similarities, in the history of it, to PMWS. In the early years after its discovery in 1986 five or six different viruses were claimed to be the cause of it, all of which proved to be wrong. It was a new virus which was subsequently discovered. PMWS has been attributed to this agent, porcine circovirus type 2, but my analysis of the experience in Europe, and now the experience in New Zealand, shows that porcine circovirus type 2 cannot explain this disease alone and there must be an underlying agent causing the disease and causing this porcine circovirus to flood the body with that particular virus, for reasons we do not understand, and then produce the final form of the disease.

There seem to be two agents. The underlying agent is possibly a circovirus type 2 but it is not the circovirus that people have been examining or, alternatively, it is another new agent that has not yet been discovered and therefore we do not know the appropriate measures to take against it.

I believe this has been a well-conducted and careful import risk analysis, but it has some limitations. Its limitations with regard to porcine circovirus have become much more evident in recent months as the story has unfolded with respect to post-weaning multi-systemic wasting syndrome.

Senator O'BRIEN—Thank you for helping us with this inquiry. Would it be correct to say that PMWS has become a major problem for the pig industry almost worldwide?

Prof. Morris—Absolutely. It has gone from a new disease in the mid-nineties to having only a small number of countries—probably at most three to six countries, including Australia—that remain free of this disease. It has spread even faster than PRRS.

Senator O'BRIEN—How does its effect compare to other diseases around the world that the industry suffers from? What is the impact?

Prof. Morris—It is very troublesome. In terms of production and economic impact, it is certainly a very serious disease in most of the affected farms. It starts off causing quite spectacular loses. As many as 30 to 40 per cent of the weaned pigs die before they reach market age. After a while, like most diseases, it settles down to about 10 to 15 per cent of pigs dying and other pigs never growing as well as they should have done. So it is quite a significant disease.

Senator O'BRIEN—Would it be fair to say that the impact on industry has progressively increased since it was first identified?

Prof. Morris—I think that would be a reasonable statement. In the United States and Canada, where it first appeared, it has never reached the severity that it has in Europe or in the affected herds in New Zealand. We are not exactly sure why that is. In the United States it is not viewed as seriously as PRRS, whereas in Europe it is viewed as much more serious than PRRS. It would rank in the top 10 diseases in terms of production

impact, just varying according to country and to locality, and it has proved to be a very rapidly spreading disease.

Senator O'BRIEN—Thank you for that. I go to your note to the committee dated 25 February. You say that you have been closely following research reports and field experience in relation to PMWS for the last decade. What is the extent of that research?

Prof. Morris—It has been fairly extensively investigated. Most of the research that has been done has been laboratory research. One of the weaknesses of that is that it has not properly investigated the field manifestations of the disease. It has been a difficult disease to investigate in the field, and the results of the laboratory research, which have been quite voluminous, are fairly conflicting. It does depend on the position you take on the science as to what view you take of that laboratory research. But I do think an important issue is that the laboratory work that has been done has not always represented the disease as it occurs in the field.

Senator O'BRIEN—Given the significance of the disease, I would have presumed there would be a significant financial imperative in the research and, therefore, there would have been a significant amount of money available for research. Why do you think that research has been limited to the laboratory level?

Prof. Morris—For two reasons. One is that it is quite a difficult disease to investigate in the field, precisely because we do not know exactly what the causal agent is. When you do not know the causal agent of a disease, it makes it quite difficult to investigate and discourages people from doing field research. It is easier to work in a laboratory. The second thing is that this disease has spread so insidiously around the world that government control measures have not been put in place quickly enough and, therefore, the industry alone has handled the disease in most countries. By the time it has been diagnosed it has been widespread in most countries and, therefore, there has not been a substantial amount of government investment in research on this disease in comparison with other diseases, probably of lesser importance.

CHAIR—As you say, if we cannot be certain of the factors causing the disease, how can we, in your view, be sure that the risk management protocols—that is, the cooking—will work anyhow?

Prof. Morris—We cannot be sure of that. On the diseases that are better understood there are quite precise and scientifically based recommendations. One of the concerns I have in relation to the import risk analysis is that with regard to PMWS the data are simply not available so the recommendations in the import risk analysis are quite generic and tend to assume that the key factor to control is porcine circovirus type 2. A very high proportion of herds—maybe 99 to 99.9 per cent—are infected with this porcine circovirus so it is difficult to understand that it is an adequate cause of the disease. So we have this unknown agent X and porcine circovirus both required, and the import risk analysis really does not pay enough attention to the potential role of agent X. Moreover, there is not really enough data on porcine circovirus type 2. The conclusions that are drawn are, in my view, reasonable but not nearly as firmly based on science as they are in relation to the other diseases considered in this risk analysis.

Senator O'BRIEN—In the paper you delivered in 2002 you said that there is a need to apply epidemiological investigation methods to clarify the true field situation so that the causal factors involved in the disease can become clear. That was two years ago. Is anyone doing that work or planning to do that work?

Prof. Morris—There is some excellent work going on in Denmark. We brought out the leading Danish expert recently to advise us on this disease. They have some very important findings which strongly support the conclusion that this disease is spreading like an epidemic, much the same as the findings that we have. There is good work going on in Denmark to try to understand this disease better. There is some work going on in the UK and obviously we are investigating this disease quite actively now in New Zealand. The problem is that none of us has succeeded in finding the elusive agent X. That was true of PRRS in the past; it is true of most diseases. Eventually something clicks and you have the agent and then you can investigate the disease much more precisely.

Senator O'BRIEN—The import risk assessment panel, whether it is aware of that work or not, does not have final work to rely on?

Prof. Morris—It does not. It is working on the basis of the available evidence. I have no criticism of the way it has interpreted the published evidence, but this disease is unfolding very rapidly at the moment and I do think we have to at least weigh that consideration in drawing conclusions, much as Australia very wisely weighed the risk of PRRS a few years ago and funded some work to understand whether that disease could be spread in pig meat.

Senator O'BRIEN—If I understand you correctly, in terms of its work on PMWS you think the import risk assessment panel's findings are unsafe?

Prof. Morris—I believe they do not adequately reflect the current state of both knowledge and uncertainty. They reflect adequately the published literature, but the situation is unfolding faster than is fully represented in the published literature.

Senator O'BRIEN—So we should not rely on it?

Prof. Morris—We should be very cautious in considering that matter. We do not know whether the cooking protocol that is proposed will be adequate to prevent this agent entering Australia. I do, however, accept that because there is a swill feeding ban in Australia there is a lower risk of this disease establishing in Australia than there was in New Zealand at the time it appears to have established here.

CHAIR—There is a ban in Australia, but there is swill feeding.

Senator O'BRIEN—The risk led to the disease in New Zealand, so the risk was 100 per cent. Were you saying that, where swill feeding occurs and infected material arrives, the risk is potentially 100 per cent?

Prof. Morris—There is certainly a risk. This was not swill feeding and so I cannot say for sure whether the feeding practices that were used in New Zealand are also possible in Australia. In a sense, there is a loophole that we did not realise was there. It was not classic swill feeding. Certainly, the measures that are taken in Australia should adequately represent the experience that we have had in New Zealand of this disease getting in.

Senator O'BRIEN—With the work that is going on in Denmark, New Zealand and elsewhere, would it be possible to predict when we might have an answer from that work—is it months, years or decades?

Prof. Morris—I would hope we would have cracked the problem within one to two years. There is enough work going on now and we have strong enough leads that I would be very optimistic that we would have a much clearer picture of this disease within one to two years.

Senator O'BRIEN—Should we, in looking at this potential agent X, be setting quarantine arrangements to assume the worst from PMWS, but in the knowledge that in the near future we might have better knowledge to refine our import risk approach?

Prof. Morris—There is always a balancing act in risk analysis. In my view, there is new information emerging about PMWS that recommends caution but a balancing of the appropriate risks and the management strategies. I do not believe that what is in the recommendations concerning PMWS is as effective in protecting Australia against PMWS as are the measures that are in this import risk analysis for protecting against other diseases. I definitely believe it is the weak link in the import risk analysis.

Senator O'BRIEN—Given that we have porcine circovirus 2 in Australia but not PMWS, it suggests that there has to be another trigger, doesn't it?

Prof. Morris—It does and that is what I have been saying for some time, but it has taken a while before others have come around. Now there are relatively few people who still believe that porcine circovirus is the sole cause of this disease or even that other factors that are widespread are significantly involved. It is becoming pretty clear that there is another agent involved.

Senator O'BRIEN—In your document you stated:

Biosecurity measures within herds have provided valuable (though not perfect) protection against its introduction to herds ...

Does the word 'valuable' mean adequate protection from a quarantine perspective?

Prof. Morris—Those herds where effective biosecurity has been practised have had a much lower risk of becoming infected than herds where weak biosecurity has been practised. Nevertheless, some herds with top-class biosecurity have become infected with this disease in the United Kingdom and in Denmark.

Senator O'BRIEN—Is that a regional spread or is there some other factor that has been identified? You seem to indicate it is regional.

Prof. Morris—We think there is probably some degree of airborne spread, that this virus can move between farms on the wind over relatively short distances, but we are not sure about that. Certainly, there appears to be some mechanism which allows short distance spread, despite biosecurity, but it is less significant than moving, for example, weaner age pigs into a farm. That is a very high-risk practice.

Senator O'BRIEN—Your statement says:

Attempts to destroy PMWS in other parts of the world through slaughter of affected pig herds have failed—

perhaps you just explained why—

No country in the world is adopting either a regional or national program of depopulation of infected piggeries to either manage or control the disease, in fact options of depopulation have been looked at and rejected.

Is the ministry in New Zealand saying slaughter is not an option for managing PMWS?

Prof. Morris—You are reading from a statement that was written by the ministry some time ago, and their latest statement differs from that. They have come round to accepting more willingly the view that an agent X may be involved. The statement that no successful slaughter programs have been achieved is not true. In the case of the island of Zeeland, Denmark voluntarily slaughtered two herds. The farmers slaughtered them early in the outbreak, and Zeeland then went for 18 months to two years without another case, whereas the disease spread to over 300 herds in Jutland, which is the large part of Denmark. Only in January 2004 did a herd become infected in Zeeland, and in Denmark they had some slaughter of herds and repopulation with success. So there are some cases of success, and that statement from the New Zealand ministry does not accurately represent experience.

Senator O'BRIEN—Given your experience with this disease, can you comment on the work that has been done to block its transmission in meat through the cooking of that meat? We have a cooking regime for PRRS, which I understand took some years to develop, but, as far as I understand it, there has been no work which has established a cooking regime to manage the disease risk from meat that may contain PMWS.

Prof. Morris—I am unaware of any work. One paper has been published on the effect of heat treatment on PCV2 which shows that it is much more heat resistant than the PRRS virus. So the regime that has been worked out for PRRS is probably not adequate for PCV2. We simply do not know for agent X whether or not that cooking regime is adequate. I know of no work that has simply taken meat from PMWS affected pigs and cooked it at different temperatures to determine whether it was then capable of transmitting the disease. That would be quite a major and extensive study and a bit of a challenge while we do not have an agent.

Senator O'BRIEN—Dr Banks from Biosecurity Australia told us at an earlier hearing that there is limited knowledge on just what can kill the PMWS virus. The draft import risk assessment said the mode of transmission of PCV has not been properly investigated, and the mode of transmission is a critical factor in terms of developing a quarantine protocol. Is that a fair comment?

Prof. Morris—Yes, I would agree with that.

Senator O'BRIEN—The draft import risk assessment says:

There are few data on the between herd prevalence of PMWS in affected countries.

Is that correct?

Prof. Morris—I would put it differently. I would say we have estimates of herd prevalence of this disease in affected countries, but they are almost certainly an underestimate because of the difficulty of diagnosing the disease.

Senator O'BRIEN—Given the New Zealand experience and your knowledge of it, what lessons should Australia take from the New Zealand experience, given that we are free of PMWS at the moment? How, in your view, would Australia be best placed to avoid the incidence of PMWS in our pig herds?

Prof. Morris—In my view, Australia should take reasonable precautions, consistent with its trading obligations, to protect against pig meat being available by any means to pigs—particularly uncooked product. This is a severe disease that we need to keep out. There are obviously balancing requirements, and the rest of the import risk analysis I consider to be a very well done piece of work, but I do think we have a weak link with respect to PMWS which I hope will be resolved. If cooked pig meat is imported then the measures to prevent it getting to pigs by unusual means of the type that we have uncovered should be actively pursued.

CHAIR—Minimise the human error.

Senator FERRIS—I am interested to see that you say, on page 1 of the submission that you sent to us, that you found increasing difficulty reconciling the field epidemiological findings with the research reports attributing this wasting disease to the circovirus. Can you tell me what sparked your attention to this particular issue? How did you come to decide that it is in fact a separate agent that you now call agent X? Can you take us down the scientific pathway for that?

Prof. Morris—Between 1996, when the disease was first reported in the literature, and about 2001, I watched this disease spreading from country to country, jumping from North America to Europe and then spreading within Europe. I visit Britain regularly, because I advise on disease control issues in Britain, so I talked to people there about the way in which PMWS was spreading around Britain. Because of my involvement in the foot-and-mouth disease control efforts in Britain in 2001, I was very involved in issues of disease control in the pig industry then.

It just seemed harder and harder to reconcile PCV2 interacting with other known agents as the cause, for a couple of reasons. One is that PCV2 occurs in every country that we know of, and I only know of two herds in the world, I think, that are free of this virus. There may be more, but there are certainly not very many. The other agents that were being blamed for this disease are also what we call ubiquitous—pretty much widespread throughout the world—except for PRRS. New Zealand does not have PRRS. Australia does not have PRRS. They do not have the disease, but they do have PCV2. So we had a situation where the disease was spreading very rapidly but it did not show a close relationship with the distribution either of PCV2 or of any of the other agents which were being blamed as cofactors. Then the disease got into Denmark. Subsequently, from Denmark it has got into Norway and Sweden. It has got into a number of other countries subsequently.

So in 2002 when I presented the opening paper at the International Pig Veterinary Society Congress, I did, as I say my submission, challenge the audience of 2,000 people and say, 'Clearly the claims that this disease is due to PCV2 just don't reconcile with the field evidence, and the reason I think it is being wrongly blamed as the cause is that people have not looked adequately at the field situation.' I debated this with a number of my colleagues at the meeting.

Subsequently, I got more and more evidence of what was developing in Europe. Then we discovered the disease in New Zealand. We do not have PRRS here; we have all the other agents and have had for many years, yet the disease is not in the South Island and we have not discovered it elsewhere, but only in the small cluster of farms located around Auckland and all associated, in one way or another, with directly feeding feed materials from the human food chain that could include pig meat—or linked to the farms that were doing so. The evidence has become stronger and stronger.

I am someone who specialises in trying to study and understand the patterns of disease, whether it be BSE or avian influenza, and my level of assurance that there was something different about this disease from the early claims has become very strong. I now find it irreconcilable that this disease is just PCV2 interacting with widespread viruses. I simply cannot reconcile that with the evidence.

Senator FERRIS—When we have taken evidence previously from witnesses, one of the responses that have been made to this committee when the issue has arisen has been: 'In New Zealand they swill feed, and we do not swill feed here.' I found your answer particularly interesting because it seems from what you said that quite a long time ago you came to the conclusion that it was not about swill feeding at all but it was, as you said in answer to a question from my colleague Senator O'Brien, about something that appeared to be airborne spread despite biosecurity. If it is airborne, why has it not spread any further than that small cluster of farms in the Auckland area?

Prof. Morris—For a number of reasons. One is that airborne spread, on the evidence I have—because we do not have the agent, that creates quite a problem with this—is only a tiny fraction of the total spread. It is the movement of pigs, as I mentioned, that is by far the most important factor. Airborne spread appears to be small but possibly a contributor over quite short distances. Whereas the foot-and-mouth disease virus will spread tens of kilometres on the wind, this virus probably only spreads a kilometre or less, as do some other agents. In European countries pig farms are often less than a kilometre from each other, whereas in New Zealand that is quite uncommon. We have a much smaller number of pig farms and there are other types of farms mixed between them, so the chances of airborne spread in New Zealand are very low. There is also the factor that airborne spread only occurs under very specific weather conditions. Europe has much more favourable conditions for the airborne spread of viruses than does New Zealand or Australia, so I would expect airborne spread, given both the closeness of farms and the different weather conditions, to be somewhat more significant in Europe although I cannot rule out it occurring here. But it does not appear to have occurred in New Zealand from all the evidence so far available to us.

Senator FERRIS—You are still calling this likely agent agent X, yet you have been looking at it for some years. Do you have any idea how much longer it is going to be before you are able to come up with some evidence which may assist the pig industry in particular, Biosecurity Australia and the biosecurity people in

New Zealand to better understand this issue? Do you have any advice for the committee as to what our recommendations should be while you are still only able to identify this likely contagion as agent X?

Prof. Morris—In response to Senator O'Brien, I suggested in one to two years I hoped someone somewhere will have cracked this problem. The problem appears to be that this is a virus which is difficult to grow. I cited in my submission the example of rabbit haemorrhagic disease virus, which is a virus that has been investigated for 20 to 30 years and we still cannot grow it in a laboratory. It has to be grown in rabbits because no-one has cracked that particular problem. This may be another of these very-difficult-to-grow agents. The PRRS virus was very difficult to grow. The disease was first identified in 1986 and it was not until 1992 that the agent was first correctly identified, so it does take time to sort these things out. If we take the example of SARS, the wrong virus was identified there but in that case they were either extremely lucky or scientifically successful. Colleagues I work with in Hong Kong cracked this one and found the coronavirus. That was found within weeks.

That is quite rare with new diseases. It usually takes a few years to find a new virus if it is difficult to grow. You have to change the tissue culture or provide some different chemical to make it grow. We have to use many different tricks to find these viruses. If this were easy to find it would have been found by the British or the Danes by now. I still think we have enough information now that we are likely to find it within about one to two years. My advice to the committee in the meantime is to at least recognise that agent X is out there and take appropriate precautions to avoid introducing this disease to Australia by using an appropriate risk management strategy.

Senator FERRIS—Are you absolutely confident that this disease is not already in Australia and if you are what would be your advice to the committee in relation to making sure that it does not enter the country?

Prof. Morris—I cannot be absolutely sure that it is not in Australia. I have obviously been consulting regularly with my colleagues in Australia and I am, I should mention, Australian. I keep pretty close. I am a member of the Australian pig veterinary society. I keep in close contact with all my Australian colleagues. I have no evidence available to me that would suggest that the disease is present in Australia. I have to say that it caught us by surprise; it probably entered New Zealand in 1999 and we identified it in 2003 so I cannot rule out the possibility that it is in Australia. I know Australia has been looking actively and has not found it. I rely on that information.

Finally, I cannot give you a definitive answer as to what you should do in the meantime. I believe you should acknowledge the likely existence of agent X. It is possible that agent X is in fact a variant of porcine circovirus. We call it porcine circovirus 2A. It is present in a very low concentration and when laboratory work is done it only uncovers the ordinary porcine circovirus type 2, which is the predominant one, and another interacting one. There are other diseases where this is the case. That is my second most likely explanation. My most likely explanation is that it is a different virus entirely. In either case you should be taking adequate precautions to protect the Australian pig industry against the introduction of the agent but should not be going to extreme measures. We have all got to be balanced in our consideration. If we want to trade we have to act sensibly. We will be trying to eradicate this disease if possible and then maintain vigilance and surveillance to ensure that we remain free of it. Obviously it passed our surveillance measures for a period of time and we have learnt a lesson from that.

CHAIR—Are there symptoms that relate specifically to this disease in its early stages? Is there a possibility of misdiagnosis in its early stages?

Prof. Morris—There is certainly a possibility of misdiagnosis. We struggled for several months with the initial herd that was found with this disease because other diseases and groups of diseases that affect some farms, particularly ones that have low biosecurity and therefore have a mix of diseases, can mimic this disease. The veterinarian who works with me and who is investigating this was quite concerned over a period of time that it did not match normal disease patterns. I visited the farm with him ultimately, in September 2003, and for the first hour I was on the farm I felt that I was just dealing with a farm with a mix of different health problems. Then I began to see clinical signs that I had never seen before, and I became convinced that we had PMWS. It took a lot of careful investigation to confirm that disease. It is a disease that is quite difficult to distinguish not from any other single disease but from a mix of diseases. There are only a small number of clinical signs plus the pathology of the disease that tell you that this is PMWS. When it is satisfied, you can diagnose it.

CHAIR—So is there a specific test for PMWS now?

Prof. Morris—No. We rely on clinical signs, on pathology and on the severity of disease in the farm to tell us whether or not we have PMWS.

CHAIR—Thank you very much.

Senator CHERRY—I have two questions. One was on the issue of trimmings and the probability of trimmings ending up as feed. There has been the suggestion that the proposed protocol for Australia could include cooking of imported pig meat on shore, with the worry that waste could fall between the cracks in quarantine and turn into feed. Is that a real concern in your experience around the world?

Prof. Morris—It depends on the country. I would have said it was relatively low on my ranking of considerations, but the requirement as I understand it that Australia has imposed now since 1992 or 1993 is for cooking of all of the product, so the only product that could be trimmings is cooked product. The question that we do not know the answer to is whether the cooking process which is targeted at PRRS would be effective against either agent X or PCV2. It seems unlikely that that cooking will be fully effective against PCV2, but that probably is not the issue. The issue is whether it is effective against agent X, and I cannot answer that question yet.

CHAIR—You mentioned that PMWS has a fairly low incidence in the US. PRRS is fairly prevalent in the US, though, isn't it?

Prof. Morris—Yes, PRRS is a very severe disease in the US, much more severe than it is in Europe. There is some variation in the virus system of PRRS between the US and Europe. The disease has never become a disease of the same magnitude in Europe that it is in the US. It has changed the face of the US pig industry. In contrast, PMWS seems to be reasonably widespread in the US but has never become particularly severe, while in Europe it has been a very severe disease and has caused a lot of damage to the British industry and to most of the other industries of Europe. This is just a fact of life about diseases: they behave differently in different countries. Avian influenza is behaving differently in Thailand and Vietnam from the way it is behaving in Indonesia. If you are someone who studies diseases, like me, you just accept that as a fact of life. There can be differences in the virus; there can be differences in the management system—there are a number of different explanations, but diseases do behave differently. The US recently sent a delegation to Europe. They were really quite surprised at how serious the disease was in Europe and went back, changing their opinion of the nature, causation and severity of the disease.

Senator BUCKLAND—Is it the differences in the disease that are making it hard to detect the source—where the disease is coming from?

Prof. Morris—In terms of when it enters a country?

Senator BUCKLAND—I gather from you that you cannot isolate the disease or what causes the disease.

Prof. Morris—That is true. So when we suspect a farm of having the disease we have to look at the clinical picture on the farm. If the clinical picture is of an unusually high mortality in weaned pigs associated with the typical clinical signs—and there are two or three signs that mark this disease out from other diseases—then we go to pathology and we do certain checks. We kill some pigs and examine those pigs in detail. That confirms that they have the very characteristic pathology of this disease. Then we test for having a high amount of PCV2 in the cells of the pigs—that is the third leg of this stool that we use to confirm the disease. That is quite a lot of work for every farm, so we have to go through a process to do that. The problem is that if a farm has a mix of other diseases then they can look a bit like PMWS. Now that we have seen the disease in New Zealand we are much more skilled at differentiating it from the other diseases we normally see. When the disease gets into a high health status farm then it is easier to detect, because there are not these other diseases to confuse the situation.

Senator BUCKLAND—I see.

Prof. Morris—If that helps.

Senator BUCKLAND—Yes, it does; it helps immensely. Thank you very much.

Senator COLBECK—Professor Morris, you discussed earlier, in response to a question from Senator Ferris, the containment of the disease to a fairly finite area near Auckland. What were the factors in achieving that? Was it by virtue of the fact that that is where they were, or were some specific quarantine procedures put in place to manage it?

Prof. Morris—Only in the last few months were quarantine procedures put in place. This was an unusual group of pig farms. I know most of the pig farmers in New Zealand, and I only knew two or three of these

farmers. They are outside the commercial industry—the people I commonly come into contact with—and they are low-cost producers, mostly small-scale producers. They do not interact with the rest of the industry but they all knew each other; it was amazing. There was a lot of interaction between these people. They exchanged pigs, they exchanged equipment—they had a lot to do with each other. They sold breeding pigs and growing pigs to each other. They often exchanged feed; one of them would buy a particular kind of product that had been discarded from the human food chain and then sell it to all his mates. So, it was quite an unusual group that interacted only with each other and not with the rest of the industry. And so, fortunately for us, the disease appears to have been contained to that small group outside the main industry structure.

Senator COLBECK—Has there been any attempt to cut back or eradicate the disease within that group?

Prof. Morris—Yes. Those farms are now subject to quarantine restrictions, and we are formulating at this moment a control program to work with these farmers to eradicate the disease. A number of them have actually gone out of the pig business because of this disease. I think almost a third of the farms that we now believe had the disease are no longer in pig production; the rest we are hoping to work with to eradicate the disease. We are working on a control strategy right at this moment. I have a meeting with key industry people on Wednesday.

Senator COLBECK—You said that in Denmark, on the island of Zeeland I think it was, they had eradicated the disease in some locations. Is there a suggestion that once it is in a structure it can permeate the environment and then come back out through the animals?

Prof. Morris—No. That was one of the valuable findings from the Danish experience: you only needed to leave a farm empty for four weeks. You could then repopulate it and the disease did not recur, as long as you did not buy in new infected pigs. They have the experience now of a number of herds that says this disease does not survive in the environment, and it appears to be mainly spread in young pigs, not in breeding-age pigs. They moved breeding-age pigs onto the island of Zeeland throughout this period, and yet they did not get new introductions of the disease until this one in January 2004. The island of Zeeland, I should point out, is a very big place. It is not a small island; it probably holds a third of the Danish pig industry, or something of that order. It is a large area with a large number of pig farms.

CHAIR—Besides the feral pigs that run around in black jumpers with ferns on them, what sort of a feral pig population do you have and how does that interact with your controls? Kind regards from the Wallabies, by the way!

Prof. Morris—I will take that as a compliment on New Zealand's sporting prowess, even though I am Australian. We have a feral pig population. The area where the pig farms are located is not an area with significant numbers of feral pigs. They do not spread through the whole country, and we have not investigated the possibility that this disease is present in feral pigs. But we hope that, because these are periurban farmers, there is less likelihood that the disease will have got into feral pigs in New Zealand than if it had been in some other areas of the country.

CHAIR—But to be sure that you are going to have an effective eradication program you will surely have to test feral pigs.

Prof. Morris—We cannot at the moment, because we do not have a test for this disease as we do not have an agent. Our first step will be to eradicate it if possible from the small group of affected herds. They are mostly on very small farms, and the interaction between feral pigs and our commercial industry is nonexistent; our commercial people have very effective protection against feral pigs getting into their farms, because they have high bar security. So I would regard the commercial industry as being free of the disease. I really do not think there is a significant risk that this disease has crossed into feral pig populations at this stage.

CHAIR—Thank you very much for your valuable assistance to the committee and kind regards from us over this side of the water. We are very appreciative of your time and expertise.

[4.58 p.m.]

BARNES, Mrs Mary Bridget, Consultant Statistician, Commonwealth Scientific and Industrial Research Organisation Maths and Information Science, on behalf of Australian Pork Ltd

BRENNAN, Mr Thomas Joseph, Partner, Corrs Chambers Westgarth

HALL, Dr William , Research Manager, Research and Innovation Division, Australian Pork Ltd

HIGGINS, Dr Paul Anthony, Chairman, Australian Pork Ltd

PLOWMAN, Ms Kathleen Ann, General Manager Policy, Australian Pork Ltd

PULLAR, Mr David Murray, Consultant, Australian Pork Ltd

THORNTON, Dr Eric John, Veterinary Consultant, Australian Pork Ltd

CHAIR—Welcome. If you would like to update your written submission following the release of the final IRA and make an opening statement, you may.

Dr Higgins—I am the Chairman of Australian Pork Ltd. I would like to add to our previous statement to the committee. Australia is unique among pork-producing nations in that we are free from significant new pig diseases. This has been achieved by a combination of stringent quarantine laws, geographic isolation and some luck. The cause and method of transmission of this devastating disease, PMWS, is not known, and Biosecurity Australia agrees with that. It was first discovered in 1996, and in Europe alone it has killed eight million pigs and cost them $1½ billion in the previous few years. As we have just heard, it was found in New Zealand only last October; we do not know how it got there, although imported uncooked pig meat is suspected. We just do not know and, again, Biosecurity Australia agrees with that.

It is entirely possible that the cause of PMWS is carried within uncooked pig meat. Uncooked and deboned pork from Canada and Denmark is presently permitted into Australia but under quarantine protocols set before the discovery of PMWS. While it is comforting that Biosecurity Australia has advised the Senate committee that it is regularly reassessing the import requirements and that if there are significant changes they will make the necessary corrective action, APL was unable to address these significant disease risk issues except through this current IRA process.

I refer your attention to evidence given by the Australian Quarantine and Inspection Service to this committee on 26 February 1998 on this disease, when it rejected calls by the industry for a suspension of the protocol for the importation of pig meat from Canada until more is known about PMWS. At that time, the disease was limited to Canada, the US, Spain and France. According to AQIS, there was no evidence that the disease was spreading rapidly. There is now obviously plenty of evidence that the disease has been spreading rapidly and widely. There are as many hypotheses as to the cause of this disease today as there were in 1998. The final IRA report notes that we have successfully imported pork for a number of years without incurring an exotic disease outbreak, thereby suggesting the current protocols are adequate and, extrapolating this further, that there is evidence that this should be adequate for managing the risk posed by PMWS. This analysis is clearly flawed and shows a lack of understanding with regard to the nature of risk. As I said previously to the committee, it is like standing outside your house and saying, 'It hasn't burned down for the last five years, so you shouldn't worry about insuring it.'

According to the analysis of APL, the saving grace to the industry is that the volume of imports, until recently, has been relatively low. However, given the increasing volume and historical highs of recent years, the risk to the industry is very much higher than in the initial years. When we review the model with regard to trade volumes to date for New Zealand and Australia, we find that there is a moderate likelihood that an outbreak will occur. This suggests that we must review the quarantine arrangements that are in place today.

While Biosecurity Australia have publicly attacked the CSIRO analysis for pushing Biosecurity Australia's model too far, they have not yet answered the question: why does it push the model too far? It is the model of Biosecurity Australia that we are talking about, not that of the CSIRO. Is it robust enough to deal with volume of trade effects, or isn't it? If it can deal with the level of risk arising from a doubling or trebling of the volume of annual trade, it can deal with predicting the risk of trade staying the same over a two- or three-year period, because it is all about how much pork meat is introduced into the Australian environment. Once that is understood, the question Biosecurity Australia must answer is this: at what point in evaluation of the volume of trade does their model become unreliable? CSIRO modelling suggests that, within the recommended protocols, there is a 99 per cent chance of an outbreak of PMWS within 10 years. This would devastate the

industry, and we do not understand why anybody would take that risk. In its evidence to the Senate committee on 9 February, Biosecurity Australia correctly stated:

... we would be the only country in the world that would have import conditions for PMWS. No other country that I am aware of either does or in the past has had risk management measures for PMWS.

APL is concerned that our nation's conservative approach to quarantine is potentially being put at risk, and that perhaps there is a subtle shift occurring here due to fear of international retaliation. Regardless of whether we are the only country or one of 10 countries to put in place risk management measures for disease, it is science and Australia's sovereign right to determine its appropriate level of protection that is the issue here, not how many countries have these measures.

Further, since the New Zealand outbreak, we are one of very few countries in the world without the disease. The spread of the disease over the last seven years demonstrates how unwise quarantine authorities around the world have been to ignore this disease. There is also another fundamental issue. Some years ago, after extensive research, it was established that cooking pig meat for 11 minutes at a temperature of 70 degrees Celsius killed the virus of another serious disease, PRRS. The same cooking protocol for PMWS—11 minutes at 70 degrees Celsius or lower temperatures for longer periods—is proposed. However, Biosecurity Australia has cited research from 1994 that clearly demonstrates that these conditions will not kill the virus. As Roger Morris has just said, one of the hypotheses is that we have a variant of the PCV2 virus causing this disease. So to put a cooking a protocol in place that does not manage that risk is unwise. No research has been done to show at what temperatures cooking will kill the PCV2 virus. It may require a longer period, a higher temperature or a combination of both. We do know that the PCV2 virus is much more robust than the PRRS virus is. If PCV2, or a variant of PCV2, is the cause of PMWS, we know that a regime which is just sufficient to kill PRRS is very unlikely to kill PCV2.

APL believe that the health of Australia's pig industry demands that, at the very minimum, the risk minimisation protocol should be based on proper science, not guesswork or assumptions. There must be research on how to kill the PCV2 virus by cooking, and this must be incorporated into the protocol. APL cannot understand why, if the IRA process is based on transparency and minimal risk, the final report so blatantly undermines Australia's conservative approach to quarantine.

Senator CHERRY—I was trying to come to terms with the mathematics of your submission, which I will have to read about seven times before I understand it I think. This committee was very critical when we did the apples and pears inquiry two years ago of the mixture of qualitative and quantitative risk analyses done by Biosecurity Australia. I notice that you continue to be concerned about that in Biosecurity Australia's approach. What differences exist between the approach of Australia and Canada in respect of determining these sorts of quarantine risks?

Dr Higgins—I will have to refer that question to one of my colleagues.

Ms Plowman—That is an interesting question. We have often looked ourselves at the differences in how countries undertake their own risk assessments. I do know that Australia has a unique way of assessing these things. I actually think Biosecurity Australia is better placed to answer that question.

Senator CHERRY—I will ask them the same question.

Ms Plowman—As I understand it, we do have differences in the way we conduct our import risk assessments. I am not clear about how Canada does it—I have a little bit more information in regard to the US.

Senator CHERRY—Were there any aspects of the final IRA which surprised you vis-a-vis the draft IRA?

Ms Plowman—One of the most surprising aspects was that when we interpreted the draft IRA we believed that the protocols for the disease PMWS required the cooking to occur offshore. As we stated in our previous evidence to this committee, that was not cleared up until we attended the first round of public meetings. Biosecurity Australia, in their own evidence to this committee, said that there was some ambiguity in that draft IRA—which they have subsequently cleared up. I believe this to be an enormous ambiguity. It has misled the industry.

Senator CHERRY—Professor Morris, who we just heard from, put the issue of the cooking onshore or offshore as a fairly low-level issue but remained deeply concerned about the issue of cooking full stop. Does APL have a strong view on the science included in the report on the nature of cooking and whether it can in fact deal with the risks from PMWS and PWRS?

Dr Higgins—What happened last time was that research was done to clearly identify the cooking temperatures required to kill the PWRS virus. So the protocol previously in place was set up on that science. In these circumstances, that work has not been done and so it is clear that neither ourselves nor Biosecurity Australia know whether the cooking protocols will have any effect for PMWS on two counts. Firstly, if either PCV2 or a variant of PCV2 is a cause or partial cause of this disease, then it is clear that that virus is more heat resistant than PWRS. Secondly, as Roger Morris has said, if you are talking about agent X then clearly you cannot determine what cooking protocols or what temperature would be required to kill agent X if you do not know what it is. We do not have any argument—it is not possible to create a cooking protocol format for that. What we argue is that the risks you do know of, or suspect, should be dealt with and that, in the case of a rapidly emerging disease where the cause is not known, the issue of import protocols should err on the side of caution rather than of loosening.

Dr Thornton—I was interested in Professor Morris's comment on his interim identification of bakery waste as a factor in the transmission of this disease, at least post entry. It may not have had much to do with the entry of whatever pathogen it is, but he implied that it has had something to do with post-entry transmission. The items he specifically mentioned were ham sandwiches and pies. These are products that are cooked. I do not know what proportion is cooked and to what temperature, but it does imply that it may be plausible that the pathogen, whatever it is, is transmitted by cooked materials, not just uncooked material. It emphasises the importance of trying to find out first of all what the pathogen is and, in particular, what temperature regime will inactivate it.

Senator BUCKLAND—You have actually answered the question, but I want to stay with the cooking part of it. I have heard clearly what you have said with your answer about temperature: you are not sure what temperature could destroy the disease. Is there any evidence that cooking might only hibernate the disease?

Dr Higgins—I am not sure about hibernate but the evidence is that the PCV2 virus is more heat resistant than PWRS. I do not think that those temperatures would actually hibernate or preserve a virus but there is no evidence that the current cooking protocols would inactivate or kill the virus.

Senator BUCKLAND—Is there no research to see whether chilling or freezing affects it?

Dr Higgins—There is some work on that. I will refer that to Eric.

Dr Thornton—The PCV2 virus is fairly stable under conditions of chilling and freezing. I do not have the exact data with me but, from memory, it is a reasonably tolerant virus under conditions of heat or low temperature.

Senator BUCKLAND—Is there a point in the life cycle of an animal where it can be detected—is it at a very young age or is it passed on? This is really the answer that you do not have. Is there any evidence to suggest that it is noticeable in a pig of 12 months old? I do not know how long you keep a pig. Is it two years or six months?

Dr Higgins—In one trial, which is in the import risk assessment, it stated that circulating nucleic acid, which is representative of the virus, was found in 52.6 per cent of slaughter age animals—so those were animals that were being killed for meat.

Senator BUCKLAND—It really does not say when it was first contracted by the animal?

Dr Higgins—I do not think it does in that trial. I think that the general evidence is, as Professor Morris said, that the transmission is much more likely among younger animals than it is among older animals.

Senator BUCKLAND—I guess there is nothing to suggest that the pig has to ingest the food through swill or by its proper food source. Could it be contracted just by being in contact with other pigs?

Dr Thornton—I recall that it is postulated in the IRA that the most likely route of transmission is the oral route—that is, that the animal ingests the virus by mouth. Whether this ingestion comes through nosing another pig or nosing around in faeces, I do not think we really know. They would be two possibilities.

Senator BUCKLAND—The fear that is held by the industry is that we do not know.

Dr Thornton—That is right.

CHAIR—Professor Morris said that he did not think the feral pig was an issue, as it were. I cannot see how it is not. You made some mention, Mrs Barnes, in your earlier evidence about feral pigs. Australia has lots of feral pigs that find their way into sties and feed. They are probably tastier than the domestic pig, in fact. Wouldn't that be a big issue in dealing with this disease, were it to come here? It is a bit like foot-and-mouth

disease. We have had that exercise here recently, and my first question was: did you get rid of all the feral pigs out in the hills? If you do not get rid of the pigs, you do not get rid of foot-and-mouth disease, if you have it.

Dr Higgins—It might be better from a practical experience point of view if I answer that question. I do some work for a breeding company that supplies breeding stock in Queensland. The only way that we believed we could keep feral pigs out of contact with that herd—it was very important for them, and it is very important for me, because I certify their breeding stock for sales, so I take the risk in that process—was to double fence that property. The piggery itself has a ring cyclone fence around it about eight feet high, and it has another one outside of that in order to protect that farm from contact with feral pigs. As far as I know, that is probably the only farm in Australia that takes those precautions. They actually have found feral pigs in between those two fences—so they got through the first one and did not get through the second one. I cannot think of any other piggeries around the place—maybe Eric would know some—that have that degree of protection. There is a reasonable chance of contact with feral pigs getting into commercial farms, although I know that Eric would have other experience.

Dr Thornton—I have had one experience, going back a few years, of feral pigs coming in contact with domestic pigs. It was out in the Riverina in the plains. You would not call it the outback, but it is getting out there. So there are some experiences of that kind. You could argue that perhaps piggeries should have perimeter fences that stop this, and they can, if they are erected properly. But they are pretty persistent animals, and they can exploit any defects in your perimeter fences. We regard the transmission of the disease to and from feral pigs as a real possibility. I think, as a general rule, the general consensus in terms of exotic disease risk is that feral pigs are a major problem.

CHAIR—Talking about the Riverina, I have a place out there, in fact, which is a pig handler's haven—or it used to be until we used 1080 on it. You could go out there for a weekend and shoot 200 feral pigs in the sixties and seventies. One of the things that used to go on there was that people had the habit of taking them home to make salami out of them. That is a highly controversial thing to do, but it did go on. I am not saying it goes on specifically out there any more but, obviously, there is a certain risk in carting feral pigs about to eat them and to turn them into salami or whatever. I cannot see how we can exclude the feral pig population from any eradication program. In terms of analysing the risk and how you deal with the thing if you get it, it would be a nightmare. Up on the North West Cape in Western Australia, out from the Kimberleys, there are plenty of remote communities that live off feral pigs that are sty fed.

Dr Thornton—In the import risk assessment the transmission of the disease, once it is introduced into the feral pig population, is addressed as one of the outbreak scenarios. It is not being neglected.

Senator O'BRIEN—Mrs Barnes, do you resile from any of the evidence that you have given this committee?

Mrs Barnes—Before I answer that question—if the chair is happy with this suggestion—Dr Warren King from CSIRO was wanting to read out—

Senator O'BRIEN—We are going to hear from him later.

Mrs Barnes—Okay. I have not studied the evidence in detail—should I resile from it: at the moment, I don't.

Senator O'BRIEN—Thank you.

CHAIR—I have a few questions here that Senator Jeannie Ferris wanted to ask, and I will ask them on her behalf. Has Australian Pork Ltd done any modelling comparing the onshore risk with the offshore risk?

Ms Plowman—We have not been able to do any of that modelling, because the model that we have used is really a duplicate of Biosecurity Australia's model and until they undertake that analysis themselves we cannot make assumptions about what those kinds of risks would be. I believe that David Pullar might be better placed to provide further detail on that question.

CHAIR—Has Australian Pork Ltd at any time instructed CSIRO not to have direct correspondence with Biosecurity Australia?

Ms Plowman—Australian Pork Ltd at all times and in its submissions has encouraged Biosecurity Australia to make contact with CSIRO—or it has certainly been open for them to make contact with CSIRO. I had a phone discussion with a representative of Biosecurity Australia after the Senate committee's last meeting, clearly stating that I was very happy for Biosecurity Australia to contact the CSIRO people that we had contacted and to discuss the model and any issues that they might have with the model. I would like to

qualify that: I expected the contact that would be made would be made by the Biosecurity Australia people who undertook the import risk assessment—that is, in the IRA panel or representatives of it, and not others.

Mr Pullar—I would like to comment on both of those questions you asked. The first was the question on onshore versus offshore cooking. We analysed the two propositions and, as things stand, there is not sufficient information within the final IRA to build a model which allows a comparison of those two options. If it were required to do that we would need more information than is currently provided. Secondly, in respect of the question of contact, there are a number of import risk analyses being prepared for a number of different products. It has been interesting to note that as these risk analyses have proceeded there have been changes in the methodology. We have quipped that it has been a work in progress as we saw some of the comments that have been made in response to a call for submissions had been included and some had not. But at virtually every stage the question was raised that it seemed that CSIRO would be able to make useful input to Biosecurity Australia on a number of occasions. Effectively, the offer was made that, if there were a requirement for further information, opportunity was always offered.

Mr Brennan—I am a partner of Corrs Chambers Westgarth, lawyers who act for Australian Pork Ltd and, indeed, the Australian Banana Growers Council on the IRAs. Adding to Ms Plowman's answer, late on Friday evening I wrote to Terry Healy, the general counsel of CSIRO and, amongst other things, I said:

Clause 4 of the Contracts [between APL and CSIRO] makes clear that CSIRO is not entitled to rely on any requirement to brief Ministers or any other requirement of law to act inconsistently with your obligations of confidence without first notifying your clients. That has not occurred in this matter. Each of our clients objects to CSIRO disclosing any of the Consultancy material; and to CSIRO using any of that material for any purpose other than the provision of the Consultancy services.

Our clients require CSIRO to immediately cease any use or disclosures referred to in paragraph 6. Our clients remain willing to discuss with CSIRO how this matter may be handled going forward.

To an extent, from Friday evening there has been a direction to CSIRO to not disclose to Biosecurity Australia, but only in the context of 'without first notifying'—either Australian Pork Ltd or the Australian Banana Growers Council—that that conduct is occurring.

CHAIR—I just point out for the committee's purposes that you are giving advice that no-one else is privy to. Obviously we do not want to turn this into a lawyers' feast, as it were. I will ask a simple question: did anyone from Biosecurity contact CSIRO and, if so, who?

Mrs Barnes—I assume that I can answer that question. Certainly Ray Correll and I, who have been the consultant statisticians, were contacted—after Kathleen said that that was fine—by Robyn Martin and the statistician from Biosecurity Australia, whose name I have forgotten. We talked directly to them on the phone. Also, at management level, people have been talking to each other. When I asked another question about some other work that we were doing, Ray and I directly talked to Mary Harwood as well. So we have been in communication with Biosecurity Australia since the last Senate committee.

CHAIR—What further work does APL believe has to be undertaken to ensure the risk management measures meet Australia's appropriate level of protection?

Dr Higgins—Basically, we believe that research work needs to be carried out in relation to the temperatures and time which will inactivate or kill the PCV2 virus. Obviously, in relation to the discussions that Roger Morris has had with the committee, we would prefer that we got to the stage where we need causal agent X in the process as well. Also, we are happy to look at the issues that have been raised in the committee today about the risk differences between onshore and offshore cooking and are happy to cooperate in that process. As Mary and David said, if we are to do that work, we need access to the model or at least need Biosecurity Australia to model that for us.

CHAIR—In the opinion of APL, has Biosecurity Australia sufficiently addressed in the final IRA the concerns you have previously raised in your various submissions?

Dr Higgins—Clearly not, otherwise we would not be in this position.

CHAIR—Is there anything you would like to add on any standout issues?

Dr Higgins—The two main issues are, firstly, the onshore-offshore cooking risk and, secondly, doing the research to clearly identify the cooking temperatures required to kill the PCV2 virus. Those are the main objections we have in relation to the import risk assessment itself or the protocols.

Senator COLBECK—Just reading through the executive summary of your submission, you mentioned going from a low to a very low appropriate level of risk. How do you see that being achieved and what additional protocols, apart from the ones that you have just mentioned, would factor into that?

Dr Higgins—Those essentially are the two that would significantly reduce the risk further—to what we regard as an acceptable level.

Senator COLBECK—Essentially, you are saying that you do not consider a low risk to be satisfactory; you would prefer it to be categorised in the context of very low?

Dr Higgins—I will have to refer to Ms Plowman. I myself get confused about these definitions.

Ms Plowman—I will answer that. Australia has an appropriate level of protection that is conservative and has been categorised as a very low risk, not a low risk.

Senator COLBECK—So you are saying that the IRA that has been put out would not meet the very low classification; it would come in as a low classification?

Ms Plowman—We certainly have been stating that we believe that it does not meet Australia's appropriate level of protection, and we are concerned that it is a move away from our conservative approach.

Senator COLBECK—It is interesting that nearly everyone who comes before this committee debates the appropriate level of protection. It seems to be one of the real debatable points within the whole process.

Ms Plowman—Biosecurity Australia have done the modelling and said that this is a very low-risk approach. However, when we have duplicated this—and with our concerns regarding PMWS—we believe that it does not represent a very low risk.

CHAIR—Is there anything that you would like to add?

Mr Pullar—Yes. This is a corollary to an answer to Senator Colbeck. It really is a question of whether there are any factors that should be considered. The fact that was introduced by Professor Morris—this thought that the bakery trade might be a pathway—is interesting, and before any quarantine measures are really put in place or the IRA is concluded it would be interesting to revisit the whole model, because effectively the final IRA does not properly consider that pathway. If it were taken into account, there is the question of whether it would raise overall risk and whether therefore that would raise the level of quarantine measures that were required to reduce that risk to very low.

Dr Higgins—I want to add one thing before we finish that I should have said before. We are perfectly happy about the rigour and the processes put in place in terms of the work the CSIRO did—the risk modelling they have done for us. We are perfectly happy to have that independently reviewed in conjunction with Biosecurity Australia, because we have got into the situation of one side saying one thing and the other side saying something else. We are certainly convinced about the rigour in our work, so we are happy to have that independently looked at.

CHAIR—Thank you very much.

[5.32 p.m.]

BANKS, Dr David John Douglas, General Manager, Animal Biosecurity, Biosecurity Australia, Department of Agriculture, Fisheries and Forestry

HARWOOD, Ms Mary, Executive Manager, Biosecurity Australia, Department of Agriculture, Fisheries and Forestry

MARTIN, Dr Robyn Gail, Manager, Non Ruminants, Animal Biosecurity, Biosecurity Australia, Department of Agriculture, Fisheries and Forestry

MORRIS, Mr Paul Charles, Executive Manager, Market Access and Biosecurity, Department of Agriculture, Fisheries and Forestry

CHAIR—If you would like to make an opening statement, to refine anything that has been said, discuss allegations that have been made or whatever you like, get stuck right into it.

Ms Harwood—Thank you. I would like to make a brief opening statement and I would also like to ask my colleague David Banks to make a short statement in relation to post-weaning multisystemic wasting syndrome. Is it possible for the statement that CSIRO wishes to read to be made now, because it might save the committee a lot of time? There is some important information in that statement, as I understand it.

CHAIR—You have not been colluding with other witnesses, have you?

Ms Harwood—No, I have not, but CSIRO has—

Senator O'BRIEN—We have a copy of the statement. I do not know why we need to hear the witness before you make a statement: why would that be?

Ms Harwood—Okay. That is fine. I just thought I would ask. Thank you.

CHAIR—There is no harm in trying.

Ms Harwood—In this opening statement I will provide a brief description of the way Biosecurity Australia conducts import risk analyses and the national and international context within which new quarantine policies are developed. Biosecurity Australia is a group within the Australian Department of Agriculture, Fisheries and Forestry which is responsible for developing quarantine policies for agricultural imports to facilitate trade while at the same time protecting Australia's agricultural industries and natural environment from exotic pests and diseases.

Biosecurity Australia also helps to open new markets and maintain existing ones by negotiating market access conditions for Australian exports. The rules established by the World Trade Organisation's sanitary and phytosanitary agreement are central to this work because they provide clear disciplines to help ensure fair, science based market access conditions for Australia's agricultural exports. Since the WTO came into force in 1995, Australia has gained approval to access hundreds of new markets for animal, plant and food products. The WTO rules have also provided the basis for substantial improvements to existing market access for many Australian commodities.

On the import side, Australia is obliged to consider requests from trading partners to import animals, plants and their products into Australia. Development of import policies involves formal, science based processes undertaken by scientists who are specialists in animal, plant and aquatic pests and diseases. If there is no existing biosecurity policy for a requested import, or if the circumstances or scientific information relating to pests and diseases has changed, Biosecurity Australia may conduct an import risk analysis to develop an appropriate policy.

The formal procedures for import risk analysis are set out in my department's IRA handbook, which is publicly available in print and electronic form. Copies have been provided to this committee. Few countries document even part of their IRA process, let alone describe all the steps from the initiation of a market access request through to the determination of quarantine policy. The Australian IRA handbook is unusually comprehensive. The whole process, from the initiation of a market access request, right through to the determination of a quarantine policy that will be implemented at the border, is conducted within Biosecurity Australia.

Key features of Australia's import risk analysis process include: a clear, agreed administrative process; transparency throughout, with consultation opportunities at key milestones; regular progress reports for each IRA; the use of WTO-consistent methodology; high-calibre science, using recognised specialists and external

experts as members of IRA teams; and world-class methodology for risk assessments. IRAs are rigorous, science based assessments, involving extensive research and consultation. Scientists from Biosecurity Australia, working with external technical specialists, evaluate all available information on pests and diseases associated with the proposed import and its country of origin. They assess the risks and recommend quarantine measures to reduce those risks to meet Australia's appropriate level of quarantine protection. The process is consultative, with stakeholders both in Australia and overseas being given the opportunity to comment and provide input during the IRA process.

In 2003, we published a revised edition of the *Import Risk Analysis Handbook* which sets out the administrative steps for conducting an IRA. The 2003 handbook is the result of extensive consultation with stakeholders, including industry and state and territory governments. We reviewed and updated the original handbook, which was published by AQIS in 1998.

The model that Biosecurity Australia works with in assessing risk in a biological context is the formula that risk equals likelihood times consequence. In a biological setting, risk is a combination of the probability that the exotic pest or disease will enter, establish or spread and cause harm and the probable extent of that harm. In a nutshell, Australia takes a managed risk approach—not a zero risk approach—to quarantine, reducing the risk of entry, establishment or spread of exotic pests and diseases to a very low level.

Australia does not have the option of taking a zero risk approach to quarantine. Successive Australian governments have adopted a managed risk approach, applying a high standard of quarantine protection. A zero risk approach would mean no movement of people or goods could be permitted across our international borders: no tourism and no trade. A zero risk approach would deny Australian agricultural industries and scientists access to new material such as bud wood, semen and seeds. A zero risk approach would also have significant flow on effects for Australian exports in terms of our SPS relationships with trading partners. For Australia, the level of biosecurity risk associated with a proposed import is the basis of quarantine decision making and policy setting. Our task is to assess the level of risk and recommend actions to manage it if it is unacceptably high—that is, if it is above our appropriate level of protection.

The IRAs we conduct are based solely on science. We use formal teams selected on the basis of expertise, including experts from state agencies, research and academic institutions, consultants and others drawn from wherever the expertise is that is needed for a particular analysis. We also make use of expert peer review. Australia's IRA process is unusually transparent. The stakeholder register of over 2,000 people and organisations receives regular communication during import risk analyses, including copies of draft documents, which are open for technical input and comment. We have Web based information and a public file for each of our IRAs, to enable everyone to see the main documents as soon as they are produced. Stakeholders include domestic industry, domestic interest groups and our trading partners. Whoever wishes to stay informed and be connected can be through our consultative processes.

We also have a documented technical methodology. Import risk analysis is an evolving science, but we have a WTO consistent set of draft technical guidelines, which set out the sequence of scientific steps for conducting an import risk analysis. Over the last three years we have substantially increased our efforts to engage early with stakeholders who are interested in each IRA. There is formal consultation at each milestone of the IRA process to enable people to see where the analysis is up to, comment on the science done so far and provide technical input and additional information. Also, we engage early in the IRA process with the states and territories, which have a key role in the partnership approach to developing biosecurity policy. We look in particular at regional issues in risk and pest status as well as engaging relevant scientific expertise from the state and territory agencies. Through a memorandum of understanding between Biosecurity Australia and the Department of the Environment and Heritage, we have built closer cooperation in looking at the environmental aspects of IRAs.

We recognise the importance of communicating clear accounts of the science underpinning recommended quarantine measures. Australia enjoys a favourable pest and disease status, so for many IRAs we have a large number of exotic pests and diseases to consider. The scale of the technical analysis we conduct is considerable because we want, legitimately, to preserve that favourable pest and disease status. The challenges that face all scientists are especially real for those working on IRAs. For some IRAs there is diverse scientific opinion as to the risks associated with a particular pest or disease or the means for reducing that risk, and the IRA teams must deal transparently with how they resolve such scientific issues.

Also, emerging disciplines in terms of jurisprudence from SPS cases in the WTO are influencing how countries are expected to conduct and document their risk assessments. This includes the standards for

scientific analysis and the way arguments must be presented. We have to do comprehensive biological risk analyses dealing with all quarantine pests and diseases, but in a time frame that trading partners and others consider reasonable. All of the factors above mean that Biosecurity Australia is conducting complex biological risk analyses under a legal, political and community spotlight.

The Australian IRA process gives a framework for dealing with these challenges and addressing quarantine risk in a consistent way. As I mentioned above, the core elements are: a clear administrative process; transparency; consultation at key milestones; WTO consistent methodology; high-calibre science, using recognised specialists and external experts; and world-class methodology for risk assessment. The recently released final IRA report for pig meat and the revised draft IRA reports for bananas from the Philippines and apples from New Zealand are rigorous, science based assessments, which have involved extensive research.

Scientists from Biosecurity Australia, working closely with recognised external technical specialists, have evaluated all available scientific information on pests and diseases associated with the proposed imports. They have assessed the risks and recommended quarantine measures to reduce those risks to meet Australia's appropriate level of quarantine protection. The process has been consultative, with stakeholders—both Australian and overseas—being given the opportunity to comment and provide technical input. I would like to emphasise that each of the recently released IRA documents is consistent with Australia's internationally recognised, very conservative, appropriate level of quarantine protection. They reflect Australia's commitment to ensuring a consistent, conservative approach to quarantine policy, based on high-calibre science.

CHAIR—Is your statement going to be as long as the last statement, Dr Banks? You can just table it if you like. That is what I call a bureaucratic statement.

Dr Banks—It is nowhere near as long as that. There have been a lot of statements in the media of late, many of them wrong. I felt that it might help the committee if I gave a brief account of how the panel addressed the problem of PMWS, because it is quite clear from what we have heard today, both on the television and elsewhere, that there is a lot of misconception and a lack of knowledge about how we did that. PMWS is an emerging disease. There are a number of features about it that are not known. It was first identified in Canada in 1996 but it is quite clear now that it was here in 1991 and probably before that. Since then, it has been identified—not spread but identified—in a number of other countries—in fact, in most pig producing countries—but it is not known if it spread there. It could have been there all along. I would like to point out Spain as an example.

Senator BUCKLAND—That means that it could have been here.

CHAIR—He is making an opening statement. Calm down, Senator Buckland.

Dr Banks—I would like to refer you to the case of Spain where the problem was detected in the late nineties after it was identified in Canada, but in fact it had been there since 1986. PMWS is a disease of young pigs that is seen soon after weaning. It has a variable impact on production. In some cases—for example, in the United Kingdom—it does cause substantial losses. However, it is a disease of production. Unlike many others in this report, it is not listed by the OIE, the World Animal Health Organisation, as a disease requiring any country to report. Similarly, it is not listed by Animal Health Australia as a disease which is involved in any cost-sharing agreement between industry and government. We are not aware of any application that has been made to have it listed. I am not trying to underplay the significance of PMWS; I am merely trying to put it in perspective compared to some of these other diseases that have been considered in the report.

The panel does not believe that PMWS is present in Australia, and we agree with industry on that. However, some of our trading partners disagree and say that we have not done enough surveillance. They believe that all countries will find it if they look hard enough—so far, everyone has—because they believe that all pig populations have porcine circovirus type 2 and that that is what is required for the disease to develop. Australia has been importing pig meat from Canada since 1990, with small amounts from the south island of New Zealand, and also, since 1997, from Denmark. Since the discovery of Porcine Reproductive and Respiratory Syndrome, PRRS, it has been cooked. We applied those conditions in 1992. So 13 years of importing from Canada, a country which for 12 of those years has had PMWD, has not resulted in the transmission of this disease to this country—or any other disease for that matter. When carrying out the import risk analysis, the panel took a very—

CHAIR—You are not getting a swagger up there, are you? I think you have a swagger up there. Are you on a roll, are you?

Dr Banks—I want to inject a few facts into this debate, Senator.

CHAIR—The bigger you blow the balloon, the more it deflates, you know.

Dr Banks—I will be prepared for that. When carrying out the IRA the panel took a very conservative approach to this disease. Firstly, we assumed that PMWS was triggered by an infectious agent. As we have heard today, that is not proven. Secondly, we assumed that the trigger for PMWS could be transmitted in pig meat. There is no definitive evidence of that at all. Thirdly, if pig meat is infective, then it could either be through the presence of an as yet unknown agent, such as agent X, which Roger Morris was talking about, or it could be due to a variant, more pathogenic, strain of porcine circovirus type 2 that we already have in this country, which is another thing that Roger Morris mentioned. There is not any conjecture between us on that.

The panel again took a conservative approach and assumed that it was the PCV2 pathogenic variant that would cause the disease, because that is more difficult to control than an agent X. The large majority of viruses—and I accept not all, and that has been made clear today—are inactivated by commercial cooking, but a few groups of viruses are not, and included among those are circoviruses, which we have been talking about. So you can see that we took an extremely cautious approach and did not assume that porcine circovirus type 2 would be reduced by heat. We will come to that in a minute, but there has been a lot of misinformation put out about that. We did not make that assumption at all.

To reduce the risks, the panel, assisted by a technical working group of specialists, first required the removal of all parts of the carcass where the virus—and a lot of other viruses—was concentrated. So, wherever the virus concentrates, you remove those bits. We believed that the removal of the head and neck, the bones and the superficial lymph nodes would significantly reduce risk. In addition the panel required cooking, not to inactivate PCV2 but to reduce the waste products coming out of households, restaurants et cetera. Once a product is cooked it generally has to be preserved, and it is less likely to be discarded than fresh meat, which, as we all know, goes off after a while even if you keep it in the refrigerator. So the amount of waste that was produced from those cooked preserved products was less than from the raw product, which is why cooking was required—not to inactivate the PCV2. The panel concluded that those two together—the removal of areas of the carcass where the virus was concentrated and also the cooking—would provide a high level of quarantine security.

As I mentioned before, we do not know if there is an agent X, and I accept that it may or may not have occurred. But a large majority of viruses are inactivated by commercial cooking, so that is how we handled it. If of course the other explanations for PMWS—such as management practices, vaccination practices or the genetics of the pigs being the trigger—turn out to be correct then obviously imported pig meat represents no risk of introducing PMWS at all. So I would like the committee to accept that the panel have taken a very conservative and responsible worst-case approach to evaluating the risk of this disease. The panel recommended risk management measures based on that worst-case scenario and we believe we came up with very comprehensive, conservative and—most of all—safe import requirements.

CHAIR—Thanks very much for that; that was a grand performance. If I were to FOI all correspondence between Biosecurity Australia and the CSIRO in the last month, would I find evidence of collusion, coaxing and coaching on the statement that is to be offered here later in the day?

Ms Harwood—What you would find is correspondence exchanges relating to me expressing concern that statements attributed to CSIRO were being used in an unbalanced way and querying whether those were CSIRO's views.

CHAIR—Would I find that you coached colleagues in the form of words that they use?

Ms Harwood—I would not agree about that term, no, Senator.

CHAIR—Have you had input into CSIRO's statement? Did you get a proof of it and say, 'Yes, that's all right; no, leave that bit out,' and that sort of thing?

Ms Harwood—I was shown a draft of the statement, as was APL, as I understand it.

CHAIR—Thanks very much. We might get a copy of that later. You say the main reason for cooking is to reduce waste. Does that mean you do not know whether or not cooking kills the virus? You are putting the emphasis on getting rid of the waste. I would have thought you would like to know whether cooking was getting rid of the virus.

Dr Banks—If the virus is in the waste that is removed before the meat comes to this country, that would achieve that objective.

CHAIR—But are you then saying that, if it is in the meat, whether the cooking kills the virus is unknown?

Dr Banks—That is correct, yes.

CHAIR—So that is an unknown?

Dr Banks—If you do not know what the trigger is, you cannot say whether the cooking—

CHAIR—Given our world image of clean and green food, how can you assert that what you are proposing is safe?

Dr Banks—Because, as I said, this—

CHAIR—Not on the balance of probability, I hope.

Dr Banks—This import risk analysis goes into a great deal of detail, as you well know. It starts off right at the very beginning on the farm and works all the way through to the possibility of an outbreak. There are a lot of different things that would have to happen before an outbreak would occur in this country. The risk management measures are only part of that, to reduce that risk, and we have taken all of that into consideration when assessing the overall risk. I think it would be wrong for this committee to put all the emphasis just on the cooking bit.

CHAIR—But it is fair to say, though, if meat comes in diseased and it is cooked, that we do not really know whether the cooking will do the job.

Dr Banks—We do not know that cooking will do the job of inactivating the virus—you are quite right—but the cooking will certainly reduce the amount of waste and therefore reduce the risk involved overall.

CHAIR—If it came in, how would we get it out of the feral pig population?

Dr Banks—First of all, if there is an infectious agent, we do not know whether it would establish in the pig population, but it might well get involved in feral pigs.

CHAIR—Have you modelled the wider implications of the risk out there in Wee Jasper land?

Dr Banks—I do not understand your question.

CHAIR—I go to feral pigs. In your modelling, have you had a look at how the virus might enter Australia through an Aboriginal community, through a bunch of hunters or through feeding something to feral pigs?

Dr Banks—Of course.

CHAIR—What conclusions did you come to, as compared to the case of a domestic sty?

Dr Banks—We have so-called exposure groups—and we have been criticised for not including the large commercial piggeries in that. We accept that the biosecurity on those is such that it is the least likely place to get in at the first port of call, as it were. Certainly, as has been mentioned before, feral pigs are one of the most likely ways that it could initially get established in this country. But we have certainly taken into consideration the consequences of an outbreak in large commercial herds. It has been stated on many occasions that we have not. That is wrong; we have.

CHAIR—We have a demonstration of that at Corowa now, haven't we—the human failure aspect of a secure environment? Something has gone wrong and we do not know—

Dr Banks—I think there is too much conjecture there. I do not think we know.

CHAIR—We do not know. That is my point.

Dr Banks—No, but I really feel that there is no evidence that it is due to human failing.

CHAIR—I am not saying there is, but there could be.

Dr Banks—There might not be.

CHAIR—Nothing is perfect.

Senator O'BRIEN—Ms Harwood, has Biosecurity Australia always got it right with its approach to import risk assessments?

Ms Harwood—What you mean by that?

Senator O'BRIEN—Does Biosecurity Australia ever make mistakes?

Ms Harwood—We adjust our import risk analysis documents in the light of comments received and new scientific evidence. So, yes, our process can take on board new information or additional technical viewpoints. We have a sort of iterative process that welcomes scientific input throughout, and our aim is to prepare at each point the document that best reflects the scientific evidence available to us at that time.

Senator O'BRIEN—Why did Biosecurity Australia recommence the New Zealand apple import risk assessment process?

Ms Harwood—In simple terms, the reason was that the original New Zealand request was whether New Zealand could send apples to Australia as delivered from their commercial practices, without quarantine? The simple answer to that was no. When they got that no, my understanding is that they then said, 'Okay, what would be the least restrictive trade regime that would be acceptable to Australia and deal with quarantine risks to meet Australia's appropriate level of protection?', and that is the IRA that commenced in 1999.

Senator O'BRIEN—Isn't that the one that was subject to scrutiny by this committee and was ultimately recommenced?

Ms Harwood—It was considered by this committee following the release of a draft in 2000. In the light of the concerns expressed and the issues raised, a risk analysis panel was formed to see that IRA through to completion. They have recently released a revised draft import risk analysis report.

Senator O'BRIEN—They recommenced the process, in other words?

Ms Harwood—They did not recommence it; they took up from the point that the analysis had reached. They reviewed all the evidence provided in submissions and then moved forward from that point.

Senator O'BRIEN—So there were no mistakes in the earlier approach—is that what you are saying?

Ms Harwood—The analysis that is presented in the 2004 revised draft is based on an additional 3½ years of scientific evidence and also further development of our import risk assessment methodology. Both documents were fully in line with Australia's conservative approach to quarantine.

Senator O'BRIEN—Did Biosecurity Australia's predecessor, AQIS, get the importation of uncooked chicken meat protocols wrong?

Ms Harwood—Again, I do not quite know how to answer your questions. Those policies would have been developed on the basis of the best available evidence of the day and would have proposed quarantine measures to deal with those risks.

CHAIR—What he really means is that you are not infallible.

Ms Harwood—We are certainly always open to scientific input and comment from people who wish to make comment on any aspect of our import risk analyses. We have a very transparent way of dealing with those comments.

CHAIR—So are all of those New Zealand comments included in this present import risk analysis?

Ms Harwood—All of the submissions that were made on the original draft IRA report have been taken into account.

CHAIR—But is there more recent evidence that is not?

Ms Harwood—Are we on apples or chicken meat?

CHAIR—No—

Senator O'BRIEN—We have jumped over a few import risk assessments. I thought you were following the questions, Chair!

CHAIR—This is allegedly about chicken—bugger the apples.

Senator O'BRIEN—Should I commence again?

CHAIR—Yes.

Senator O'BRIEN—I think we have made the point. I want some clarification on evidence at the last hearing on 9 February in relation to quantitative versus qualitative assessment. That is one of your favourite subjects, Ms Harwood, I am sure. You confirmed that, where the data is lacking and quantitative assessments are not possible, a qualitative approach is taken. I said then that, without adequate data and therefore a quantitative assessment of risk, a less accurate standard would result. You responded:

Not necessarily, but you are not in a position to use a quantitative approach in the assessment.

I am trying to put all of that together. Is it fair to say that a proper quantitative assessment based on good data is the best way of assuring that an appropriate quarantine standard is developed?

Ms Harwood—In an ideal world, yes.

Senator O'BRIEN—But it is not always possible, because the data is not always available?

Ms Harwood—In biological risk assessment on the scale and complexity that we are talking about in import risk analyses, it is unrealistic to expect that you would have perfect quantitative information on every aspect that you would need to estimate likelihoods for et cetera on the way through the pathway and as far as the behaviour of the pests and diseases are concerned. Given these are analyses that have to be done within a reasonable period of time, the approach is to bring all the evidence available to bear and use quantitative methods where that is feasible, given the data that we are using.

Senator O'BRIEN—I guess that seems logical. I just wanted to confirm that that is your view. Can I go to a letter from Ms Cathy Parsons, the then Assistant Secretary of the Environment Assessment and Approvals Branch in Environment Australia. It was to Dr Singh, who was the Acting Senior Manager of Plant Biosecurity in Biosecurity Australia at the time. It was in response to an invitation to comment on issues papers for banana imports dated 12 July 2001. She says:

This Department does not support the use of qualitative measures of risk assessment where feasible quantitative or semi-quantitative methods are available ...

She goes on:

When calculating the risks at each stage of the exposure pathway(s) for a given pest, the calculation of risk(s) should be statistically valid and reflect best practice. By way of example, the risks of establishment and spread should not be treated as independent events with the probabilities multiplied together resulting in a lowering of the estimated risk, unless the independence of the variables can be scientifically demonstrated.

Has Biosecurity Australia taken that approach in relation to the pork import risk assessment?

Ms Harwood—Yes. In each of the risk assessments we do, the import pathway steps are modelled in a way such that they are independent and the relational syntax between them in the modelling is very transparent and clearly defined. Essentially, those concerns are fully addressed in the way we approached the pig meat import risk analysis in particular and other IRAs in general.

Senator O'BRIEN—So the independence of each of the variables can be scientifically demonstrated?

Ms Harwood—You are looking at the sequence of steps in the import pathway by which a pathogen or pest might move through that pathway and you are looking at the natural sequence of events that would need to occur for the pest to enter Australia, with those steps being independent and sequential.

Senator O'BRIEN—And that could be scientifically demonstrated?

Ms Harwood—Yes, in practical terms.

Senator O'BRIEN—For each of the steps in the pig meat import risk assessment?

Ms Harwood—We make very clear the judgments we have made on partitioning the pathway and we present a lucid description of that partitioning.

Senator O'BRIEN—So Biosecurity Australia has accepted that approach and applied it to the pig meat import risk assessment?

Ms Harwood—Yes, but those comments were made on the banana IRA.

Senator O'BRIEN—Yes, but they were about methodology, I would have thought. They are not about bananas or pigs; they are about methodology.

Ms Harwood—Our methodology deals with the issues that are raised in that letter.

CHAIR—Do know how PMWS spreads?

Ms Harwood—Do you mean me personally?

CHAIR—Yes.

Ms Harwood—I rely on the expert panel to advise me.

CHAIR—Well, then Biosecurity Australia.

Ms Harwood—I will ask Dr Banks to comment on that.

Dr Banks—I thought we had been through all that, Chair. We do not know whether—

CHAIR—How can you have a safeguard in this import risk analysis if you do not really know what you are talking about?

Dr Banks—Would you like me to go through it again?

CHAIR—No.

Dr Banks—There is a whole load of safeguards.

CHAIR—But this methodology seems a bit whacko.

Ms Harwood—If there is a range of theories as to the way PMWS might be transmitted and as to the way the disease might occur, and if we model for the riskiest of those in quarantine terms—that is, we take the worst-case scenario for the actual epidemiology of that disease—then we are dealing with it in a truly conservative and cautious way.

CHAIR—But earlier you said that cooking had something to do with reducing the risk, but it is about reducing the waste.

Ms Harwood—It does reduce the risk but by virtue of host reduction.

CHAIR—But you do not really know, because you do not know how it spreads. You do not know whether cooking it is going to do it. How do you know? You are guessing.

Ms Harwood—The point that Dr Banks was making is that cooking is not the means for reducing risk, so it is done by removing risk material—that is, making sure that bones, lymph nodes et cetera are removed. It is a combination of measures but taken together.

CHAIR—It is to the best of your knowledge.

Ms Harwood—It is dealing with the worst-case scenario for transmissibility of that disease.

CHAIR—But it is to the best of your knowledge.

Ms Harwood—Yes, to the best of available scientific evidence.

CHAIR—But that statement still says there is a risk, but you say it is a risk that is not worth considering.

Ms Harwood—No, it is worth considering and we have considered it in great detail.

CHAIR—But it is a low enough risk so as to go ahead though?

Ms Harwood—We have reduced the risk to a safe level by the quarantining.

CHAIR—Given that we have not got it, why would we take any risk?

Ms Harwood—The comments I was making were in terms of zero risk. We do not have the option of applying zero risk.

CHAIR—We do have an option on zero risk, which is that we do not play the game at all; but, obviously, that is not for those here.

Ms Harwood—We need to be consistent in our approach to quarantine. As I was saying before, if we applied a zero risk it would mean no tourism, no trade and no access to new genetic material for our industries. We cannot do zero risk, but we can do very high standard quarantine managed to a very conservative level of quarantine protection, and that is what we do.

Senator O'BRIEN—Can I getting back to the question I was asking. In the context of that exchange, where you do not necessarily know what the vector is or whether a particular process will or will not have an impact on the vector if it is in the meat, how can you say that the independence of variables can be scientifically demonstrated when you are multiplying these variables together?

Ms Harwood—You were asking me about the scientific justification for having the sequence of steps in the pathway that is—

Senator O'BRIEN—Multiplied together.

Ms Harwood—the sequential series of likelihood estimates that are constructed in the risk analysis. Those are still valid. So, yes, they are a valid partitioning of the pathway.

Senator O'BRIEN—I am struggling to understand how, when you do not have a complete understanding of the vectors for the disease, you can demonstrate scientifically that the variables are independent.

Ms Harwood—I think we are mixing two concepts here.

Senator O'BRIEN—I am not mixing two. I completely understand what you said. I am struggling to marry the things together. Perhaps you will want to respond to us after the hearing when you look at the *Hansard*, because it is pretty clear from what you have said that you have accepted the scientific approach as set out in

Ms Parsons's letter, but I cannot see how you will have applied that to this import risk assessment to the extent that you can demonstrate scientifically the independence of the variables.

CHAIR—We will give you a few minutes to ponder that. We have to go to a division.

Proceedings suspended from 6.12 p.m. to 6.23 p.m.

Senator O'BRIEN—In 2001, Ms Parsons said:

Wherever probabilities are multiplied as a method for determining the risk associated with a given exposure pathway, the measures of uncertainty associated with these risks should also be multiplied and the resulting estimation of the margin of confidence presented with the estimation of risk.

Has that approach been taken in relation to pig meat importation?

Ms Harwood—At each of the steps in the import pathway, when inputting the range of likelihoods for that particular point, the uncertainty or variation for entry at that point in the import pathway is modelled and it is modelled conservatively—that is, we use the range which fully expresses the potential variation in the likelihood being entered at that point.

Senator O'BRIEN—And that is specifically presented with the estimation of risk?

Ms Harwood—Yes, it is. In fact, in the distribution model we used that variation is also specified, so the values that we are ascribing to judging the likelihood at each point in the pathway are very clear.

Senator O'BRIEN—So that is specified in the import risk analysis?

Ms Harwood—Yes.

Senator O'BRIEN—At the last hearing I asked some questions about the possible impact of PMWS on the environment—animals in the environment, particularly. Dr Martin, I think you told us that evidence from overseas suggested that it was a disease of pigs and therefore you concluded it would not be a problem here. Is that a correct representation of your evidence?

Dr Martin—Yes, we did say that it was generally a disease of pigs. No-one has looked at native animals, but they have looked at other animals overseas.

Senator O'BRIEN—Can you tell me whether or not Environment Australia had any role in this assessment process?

Dr Martin—Environment Australia were consulted.

Senator O'BRIEN—Were they consulted about the direct risk of PMWS to the environment, as well as the indirect consequences of an outbreak of the disease, and management of that disease, on native fauna?

Dr Banks—Every disease in this IRA has gone through a consequence analysis, and the consequence analysis is triple bottom line—economic, social and environmental impacts. The environmental impacts that you mentioned are the direct ones on native fauna but also the indirect ones, such as the effect on biodiversity and damage to ecosystems et cetera. That was considered for each disease in this IRA. I think I am right in saying that at the end there is a summary in the appendices which—

Dr Martin—Brings it together.

Dr Banks—Yes. There is an annex at page 231 which summarises the direct effects—the potential effects—on Australian wildlife.

Senator O'BRIEN—I take it there is no actual research on the effect on fauna native to Australia?

Dr Banks—No, not unless you consider feral pigs to be native fauna.

CHAIR—I consider them a bloody nuisance!

Senator O'BRIEN—That is probably a fair categorisation in almost every circumstance. Just enlighten me: you are saying that in overseas research there is no evidence of a spread to native animals in other countries, other than to pigs?

Dr Martin—They have looked serologically. They have tested for antibodies for porcine circovirus in quite a wide range of animals, and they have not found evidence of seroconversion in those animals. A much earlier study—and one other study; I would have to have a look—did find, I think, in humans maybe a circovirus like agent, but more recent studies have found no evidence of infection of different animals.

Senator O'BRIEN—We have got PCV2 here but no evidence of PMWS?

Dr Martin—That is true.

Senator O'BRIEN—We have already got circovirus; is it fair to say it is not conclusive that PCV2 is the vector?

Dr Martin—In the IRA we have considered that that is one possible explanation—that porcine circovirus 2 may be a more virulent strain—but another possible explanation is that there is an unknown disease agent that may trigger the infection. But we do know that porcine circovirus seems to be necessary for the expression of clinical signs of the disease.

Senator O'BRIEN—So there is no evidence emerging from the work that has been done that suggests there is a problem?

Dr Martin—With other animals?

Senator O'BRIEN—Yes.

Dr Martin—No.

Senator O'BRIEN—Ms Harwood, going back to the SPS agreement that all this work is based on and to which Australia is obliged to comply, article 5.7 of that agreement provides for the use of precaution when information is insufficient. In particular, that section states:

In cases where relevant scientific evidence is insufficient, a Member may adopt sanitary or phytosanitary measures on the basis of available pertinent information ...

Article 5.7 goes on to state that, in such circumstances, members shall:

... seek to obtain the additional information necessary for a more objective assessment of risk and review the sanitary or phytosanitary measure accordingly within a reasonable period of time.

If that article is relied upon, the country is obviously obliged to identify the additional information required for a more objective test and to seek information in a timely fashion. Do I understand that correctly?

Ms Harwood—Yes. If article 5.7 is invoked, there is an expectation that the member will seek to obtain the information necessary to move from an interim measure to a more permanent measure.

Senator O'BRIEN—In a timely fashion.

Ms Harwood—Yes, in a timely fashion. The point I make in relation to pig meat is that we currently have an import policy for pig meat—that is, the current quarantine conditions. In the final IRA report, we are proposing new measures for pig meat. They are actually more stringent than the existing measures and are based on a very conservative treatment of the scientific evidence surrounding the diseases of concern including, as Dr Banks has outlined, a very conservative treatment on PMWS assuming a worst-case scenario for that disease.

Senator O'BRIEN—Have we ever sought to use article 5.7?

Ms Harwood—I would have to take on notice whether we have ever expressly notified for it. I am sure there would be many examples of where we have undertaken pre-emptive quarantine action in the light of developments overseas—say, in an emergency situation or for an emerging disease overseas whereby you need to very quickly change the measures and then sort out later whether you can soften them, or whatever.

Senator O'BRIEN—So using article 5.7, we could, for example, impose a ban on the importation of a product whilst we went about assessing a particular risk. Is that a fair understanding?

Ms Harwood—Theoretically, yes, although there is a body of scientific evidence surrounding the diseases of concern.

Senator O'BRIEN—But we have also heard some evidence—and I think you are backing it up to an extent—that there is not yet enough knowledge to clearly identify the vector for the disease.

Ms Harwood—Yes, but it is arguable whether a ban is the least trade restrictive way of dealing with that quarantine risk, even in that circumstance.

Senator O'BRIEN—But article 5.7 does not require the least trade restrictive measure, does it?

Ms Harwood—It is subject to the disciplines of the SPS agreement overall.

CHAIR—But it most definitely would be the safest one.

Ms Harwood—It does not ask for a ban. It is just saying that measures would be introduced essentially on an interim basis and then refined in the light of additional scientific information.

Senator O'BRIEN—It just seems that that provision would appear to present an alternative to the shift from a quantitative approach to a subjective qualitative approach, wouldn't it?

Ms Harwood—I do not believe that we have shifted our approach. I think that the methodology being applied to pig meat is the most rigorous that we have applied yet. We have brought to bear an exhaustive review of the science surrounding all pig diseases of concern, and the measures are based on an approach which is cautious and conservative in its treatment of PMWS and takes fully into account the uncertainties and unknowns surrounding that disease.

CHAIR—Part of what I heard earlier was that this is not considered by you to be a most serious disease. Did I hear Dr Banks say that it was not such a bad disease?

Dr Banks—No. I specifically said I was not trying to underplay the effect on production, but it needs to be taken into consideration with some of the diseases such as foot-and-mouth and classical swine fever that are also considered in this report.

CHAIR—That is your judgment. I am sure that, if I was the pig owner and I got it in my flock, I would have a different view to you about whether it was as bad as some other disease. You say it cost $1.9 billion or something in lost production in Europe. If you change the category to a more serious disease category, would you still have the same protocol? If we were talking about foot-and-mouth, would your approach and methodology be any different?

Ms Harwood—We have applied the same methodology that we applied to foot-and-mouth.

CHAIR—Earlier, David Pullar suggested that the methodology varies between pig meat, bananas and apples. Is that true?

Ms Harwood—The basic methodology is the same for all three. The risk assessments obviously have to be placed in the biological context of the actual traded commodity. But the fundamentals in terms of a sequential assessment of risk, partitioning of the pathway and transparent assignment of likelihoods et cetera—the actual construction of the way we assess risk—is the same.

CHAIR—What bothers me about this is that we do not really know what we are dealing with in PMWS; we do not really know how it spreads. If it was a foot-and-mouth type disease, or something that was considered a more serious disease according to your list, why would Australia take any risk at all? I had a very strong view on bringing those sheep home on the *Cormo Express*—I know it is annoying to bring it up again. My view on that was that it would be done over my dead body: why would we want to risk our quarantine by bringing those sheep home? God knows what might be brought home with them. Why are we taking a risk here?

Ms Harwood—The actual consequences of PMWS are assessed and addressed in the report, as is the likelihood of entry establishment and spread. It is assessed in a very open and rigorous way and the measures reflect in a conservative way what is known about the disease. As I said before, and as Dr Banks has explained, it is done on the basis of the worst-case scenario for this disease. There are many other scenarios for PMWS where it does not present a risk with meat, but we are modelling as if it does—and for the worst-case scenario of transmissibility, for want of a better word. We have treated it with all the caution that we would treat any other quarantine risk, and to the same standard.

CHAIR—You have not convinced me. If cooking it is all about reducing the waste, what are the differences between offshore and onshore?

Dr Banks—There is a change between the draft IRA and the final IRA. Would it be of any benefit to go through that with the committee? Are you all aware of the changes that have been made between the draft and the final?

CHAIR—A very brief run-through would be of benefit.

Dr Banks—There have been four major changes made, in response to stakeholder comment, both domestically and overseas. The first is in response to APL's suggestion that the volumes of trade had increased since the draft IRA went out and certainly the minimum and most likely should be increased, and we have done that.

Senator BOSWELL—Are you involving trade in your decision?

Ms Harwood—When we model risk we make a realistic estimate of the likely volume of trade, because that affects the quantum of quarantine risk crossing our border.

Senator BOSWELL—I would have thought that trade had nothing whatsoever to do with the risk. Trade is in a separate box. Whether you are going to get moko disease or swine disease has nothing to do with what the trade balance is.

CHAIR—No, it is the volume. You are just busting to deal with bananas!

Senator BOSWELL—No, I am not. I was at the back of the room and I thought I misheard you.

Ms Harwood—It is the volume. We need to make a sensible judgment of the potential volume of imports to make good judgments of the quantum of quarantine risk. What Dr Banks is saying is that APL had said that, in our draft IRA report, the amount of pig meat that we had modelled for essentially did not reflect current import and rising import levels. In the final IRA report, we have increased the assumed volume of trade so that the quantum of quarantine risk is represented in a conservative way assuming a greater volume of trade.

CHAIR—Are there more things that you have to add to that?

Dr Banks—Not on the volume of trade.

CHAIR—What other countries in the world do not have this disease?

Dr Martin—There are a few countries that do not have this disease. Finland does not have it and neither does the South Island of New Zealand, as you heard from Roger Morris. It has not been reported for Chile but we have not sought to confirm—

CHAIR—Do they have pigs in Finland?

Dr Martin—They do.

CHAIR—What restrictions do the countries that do not have it place on the importation of pigs? What does Finland do, for instance?

Dr Martin—Finland is part of the EU, so it uses EU legislation for trade in meat, semen and live pigs. It would have those EU requirements and it does not have restrictions on PMWS in its legislation.

CHAIR—Do we know why they do not have it, given that every other country has it? Is there something peculiar about their landscape?

Dr Martin—We do not know why. It certainly is an area that I know people overseas are looking at, and they are looking at why Australia is free from PMWS yet, say, the United Kingdom is not. They are looking at the differences, particularly when they are looking for this unknown disease agent.

Dr Banks—You asked a question about onshore and offshore. The second change was clarification of the risk management for PMWS with regard to onshore and offshore. There was confusion—we have accepted that—in the early stages and we have tried to correct it. The panel looked again at the equivalence between onshore and offshore. You may recall that at the last hearing we discussed the equivalence that the small extra risk posed by bringing fresh pig meat under tighter controls than currently exist for processing and cooking. It was offset by the fact that it was done here under AQIS audit—three audits a year—so they were equivalent.

The argument was put, though, that if we had the deboning and lymph node removal in this country as well, that would certainly increase the amount of waste that needed to be got rid of. The panel thought that that was a fair argument with regard to the equivalence argument. The difference in the final report says that the head off, neck off, deboning and lymph node removal has to occur offshore and it is only basically the flesh that can arrive onshore for cooking. That is the second change in answer to your question.

There are two other changes. We modified the likelihood that a slaughter age pig would be infected with porcine reproduction and respiratory syndrome. This was in response to some evidence provided by Canada which did demonstrate that the risk was not quite as high as we had made it. However, when we reworked the analysis, PRRS still needed managing, so it has made no difference to the outcome of the IRA.

Finally, in response to a question from the European Union, the panel was a little bit concerned about the amount of evidence that swine vesicular disease is inactivated in parma hams from Italy, and particularly that some cases of swine vesicular disease in Italy are almost silent—that is, they are difficult to detect. Therefore we have required that the herds from which the parma hams are derived would be serologically tested and proved negative for that disease before and after production. They are the four areas from which we have taken stakeholder comments into consideration.

Senator O'BRIEN—I would like to follow up on a couple of things that were raised before the break. Dr Martin, I think you said that earlier studies found a link between PMWS and humans. What was that work? What was the nature of the link?

Dr Martin—A serological study was done by Dr Tischer quite a long time ago. Initially it was thought there was just one porcine circovirus; now there is porcine circovirus type 1 and porcine circovirus type 2, and they are quite different. Porcine circovirus 1 was considered to be a contaminant of a cell line that is used for, say, producing vaccines or in laboratory work, and then they discovered porcine circovirus 2. They did some initial testing. I will have to check, but in one serological study they found evidence of what they called a circovirus-like agent, because it detected antibodies and it may cross-react.

Senator O'BRIEN—So it was a PCV rather than a PMWS?

Dr Martin—Yes, definitely.

Senator O'BRIEN—Would you say that was refuted by subsequent studies?

Dr Martin—Yes, later studies found no serological evidence in humans, cattle, rabbits and various other species. If you could wait for a minute, I will look to see exactly which species were tested.

Senator O'BRIEN—Yes. I am interested to know why you would rely on the second study and not the first.

Dr Martin—There have been several studies. They have looked at cattle, horses, sheep, cats, dogs, mice, rabbits, ducks and humans, and they were unable to detect antibodies to porcine circovirus 1 or 2. One study reported antibodies in humans, mice and cattle, and they suggested that these species may have been exposed to a porcine circovirus-like virus. We are not discounting the other study, but certainly PMWS is a disease of pigs and certainly the more recent serological surveys have not found evidence of circovirus.

Senator O'BRIEN—How far apart were the two studies?

Dr Martin—Several studies were done in 2001 and 2002. The study by Dr Tischer was published in 1995.

Senator O'BRIEN—Ms Harwood suggested that, in terms of this import risk assessment, you have applied the worst-case scenarios to PMWS. I understand that in L2, which is the likelihood of an infective dose in meat, you found there is a moderate risk for PMWS, but for PRRS it is high. It does not seem to say that you have adopted the worst case scenario for PMWS. Do I understand that correctly?

Dr Martin—We have assigned a moderate likelihood for L2, which is like the oral infectious dose. For PRRS the panel assigned a high likelihood. That was based on the available scientific evidence that for circovirus it would appear that you need a high dose of virus to cause infection—and, certainly, expression of the disease—whereas PRRS virus is highly infectious and a very small dose seems to be capable of causing infection. So the panel and also the technical working group—we have a PMWS technical working group with virologists and epidemiologists—considered that a moderate likelihood was appropriate for PMWS. We have a PRRS working group as well, which has several of the same members. They considered a high likelihood was appropriate for PRRS.

Senator O'BRIEN—So it is based on the amount of flesh or whatever it is that is consumed?

Dr Martin—Yes, it is. It is based on the quantity of meat and how much virus would be in the meat. Some viruses are highly infectious. For some of the diseases, like classical swine fever and African swine fever, a pig would only need to eat a very small quantity to get infected. For other viruses, they would need to eat a much larger amount to get infected.

Senator O'BRIEN—Is that based on published studies?

Dr Martin—For PRRS, it was based on a study that Biosecurity Australia commissioned—and, more recently, work that Canada is in the process of publishing. For PMWS there is no work on meat transmission available. There is information on the amount of virus that is found in tissues and the amount of virus that seems to need to be present to cause the expression of the disease.

Senator O'BRIEN—But there is no scientific study that establishes that as a fact?

Dr Martin—No.

Senator O'BRIEN—Thank you. Ms Harwood, was part of the brief given to the import risk assessment team in relation to the generic pig meat import risk assessment to produce a protocol that would not attract any action through the World Trade Organisation?

Ms Harwood—No. The risk assessment is entirely conducted on the basis of a scientific assessment of biological risk.

Senator O'BRIEN—That is not a common request for import risk assessments, is it?

Ms Harwood—I do not understand what you mean.

Senator O'BRIEN—You would not make that of every request—for example, when you were asking a panel to look at an import risk assessment you would not say to them, 'We want something that is not going to attract any action through the World Trade Organisation'?

Ms Harwood—We are obliged to handle import access requests under the rules of the SPS agreement. When we recommend or look at alternative options for quarantine measures, there is an obligation to, basically, recommend the least trade restrictive way of dealing with quarantine risk to meet Australia's level of protection. So that basic discipline applies to every IRA in the same way.

Senator BOSWELL—But that was not the question, was it?

Senator O'BRIEN—No.

Senator BOSWELL—The question was: did you tell the panel that you wanted a decision that would go through the process without affecting imports? That was your question, wasn't it?

Senator O'BRIEN—Not quite.

Ms Harwood—The answer to that question is no, I did not.

Senator O'BRIEN—What I am asking is: do you tell the import risk assessment panel that you are required under WTO protocols to produce the least trade restrictive outcome based on science and is that a common request?

Ms Harwood—When each risk analysis panel forms and commences in its work, we give them a briefing—basically information about the context in which the risk assessment is being done. That includes a description of the basic disciplines applying over the WTO SPS agreement. We would do that for all teams so they understand the framework within which we operate and the disciplines applying to the assessment of quarantining risk and the determination of quarantine measures for recommendation.

Senator O'BRIEN—So there is a common form of words that is used, I take it?

Ms Harwood—Yes. Essentially we would just take them through the basic elements of the SPS agreement. We would present a description to them of the basic provisions of the SPS agreement.

Senator O'BRIEN—So it is not a written brief; it is an oral brief.

Ms Harwood—It is set out in the handbook, but we provide a description of the basics of the SPS agreement to the panel. Sometimes when people join us as experts on the panel they have not had exposure to the SPS agreement before, so we help them to be informed about that. Of course, they all get a copy of the *IRA handbook*, which sets out in a very clear way how we pursue import risk assessment in accordance with SPS disciplines.

Senator O'BRIEN—But, in the case of this import risk assessment, you are able to tell us that there was no suggestion of a requirement to produce a protocol that did not attract any action through the WTO.

Ms Harwood—I did not give any such instruction.

Senator O'BRIEN—Would anyone else have?

Ms Harwood—Not to my knowledge, no.

Senator O'BRIEN—Can you check that and let us know?

Ms Harwood—I can.

Senator O'BRIEN—Thank you.

Ms Harwood—David Banks is the chair of the risk analysis panel, so if anyone has given him an instruction of that sort he can comment on it.

Dr Banks—We were instructed to follow the SPS rules.

Senator O'BRIEN—So you are not aware of any such comment being made in an oral presentation?

Dr Banks—I would have to take that on notice and go through all the oral presentations.

Senator O'BRIEN—I am happy for you to do that. Everyone can; Mr Morris, if you want to take it on notice too, I am happy.

Dr Banks—I cannot recall it.

Senator CHERRY—Following on from that, how does the panel deal with the definition 'least trade restrictive'? Do you seek guidance on that from Biosecurity or the trade department?

Dr Banks—'Least trade restrictive' is based on the risk management measures—the least trade restrictive ones being those that will do the job to achieve that, and that is how we do it. The trade department does not come into it. This is purely the risk management measures used to be least trade restrictive in a biosecurity sense; it has nothing to do with commercial trade.

Senator CHERRY—But, in terms of the determining risk management process you would have to go through, the panel would obviously need to have an understanding of what the term 'least trade restrictive' means. Is that simply in the original briefing from Biosecurity Australia? Wouldn't the panel seek further clarification on what it means?

Dr Banks—I am missing the point here, clearly. As I said, we look at the risk management measures that are available to us and then choose those that will achieve the appropriate level of risk and the appropriate level of protection. We choose those that will do that and no more, as we are obliged to do under the SPS agreement.

Senator CHERRY—Could you provide the committee with the full membership of the panel and their backgrounds and institutions?

Dr Banks—It comprises Professor Colin Wilks, a professor of veterinary medicine at the University of Melbourne; Dr Ross Cutler, who is a prominent pig disease veterinarian; Dr Kevin Doyle, who is the national technical adviser to the Australian Veterinary Association; Dr Robyn Martin; and me. We were also assisted by some technical working groups on PMWS and PRRS—additional people with expertise in various areas.

CHAIR—Would you like to take this on notice?

Dr Banks—We have it here. Would you like me to read them out?

Senator CHERRY—No, if you provide a copy to the committee that will be fine.

Senator BOSWELL—Was it a unanimous decision?

Dr Banks—Yes.

Senator CHERRY—How often did you consult the technical working groups in the process of coming up with the final report?

Dr Martin—I do not know that I can give you a specific number.

Senator CHERRY—You can take that on notice too.

Dr Martin—Thank you, I will. Certainly as new evidence became available—for example, with PMWS—several teleconferences were held, particularly in the latter stages of these last couple of months, with information from New Zealand. They had the last teleconference on 11 February.

Senator CHERRY—I am still mystified. I want to deal with one of the mathematical issues. My maths is 19 years old—it has been that long since I last studied maths—so I am a bit rusty on it. The likelihood distribution model is one of the issues which has leapt out at me. I understand that, in your draft methods paper, you indicated that you would be using a concerted 95th percentile as the basis for your likely distribution model. But subsequently this was changed to the 50th percentile, with no particular explanation provided as to why that very significant rise in risk was being contemplated. How is that consistent with Ms Harwood's argument that we are running a consistently conservative approach to quarantine?

Dr Banks—I might answer that one. The reason that we changed from the 95th to the 50th was in the light of experience of running diseases through the model. There was, as I mentioned before, intense conservatism in the data and the information that was put into the model in the first place. Take PMWS, as we have done before. We did not know whether it was an infectious agent that triggered it—we assumed it was. We did not know whether a piglet could transmit it—we assumed it could. We did not know which agent it might be—whether it was agent X—and we took the worst-case scenario. If you take that level of biological conservatism, then add an intense level of mathematical conservatism and take it right out on a wing, essentially it ends up that it would be impossible to control any disease from that point of view—and we know

from long experience in quarantine that you can control disease. As we mentioned before, it lost touch with reality.

Senator CHERRY—So essentially you can put conservative data in, but, as long as the assumptions in your model are fixed to reduce the conservatism, it does not matter what data you put in. I have a lot of experience of cooked government models over the years. It mystifies me. You are arguing that, if you are going to run a conservative model, in the process of it, because you are saying you ran the most conservative variables and data you could find, you then fix it at the other end by undoing the assumptions.

Dr Banks—That is not what I said at all.

Senator CHERRY—It is.

Dr Banks—What I said is that we had already put extremely conservative biological data into the model.

Senator CHERRY—Yes.

Senator BOSWELL—That is exactly what he did say. So, at the other end, you have a problem. That is why, assuming that you would not have a five per cent risk—you would have a 50 per cent risk—heads you win, tails you lose. I think that is going a bit far. It is going a long way too far. If you went out to 10 per cent, I would have thought that would be reasonable, and 15 per cent would be excessive. But 50 per cent—gee, that is just right over the top.

Senator CHERRY—I can only agree with Senator Boswell. I would appreciate it if you could provide a more detailed technical response as to why that was done, because it does strike me that both in this inquiry and in the bananas inquiry, which we will hopefully do very soon, there has been some fudging of the figures and the assumptions in the model. This one seems to stick out to me.

Dr Banks—Senator, I resent the term 'fudging of the figures'. There has been no fudging here. We have done the very best job we could.

Ms Harwood—I would just like to make the point that the 50th percentile or quartile in the final outcome—the final modelling output—for the risk is not analogous to a 50 per cent risk. It is quite a different thing statistically. We are happy to take on notice presenting a clear account for you to allay your concerns, but it is actually a reasonable, fair representation of the actual level of risk as modelled.

Senator CHERRY—But it is not a consistent, conservative approach to quarantine, which is what you said this system is based on. It is taking a reasonable approach of risk out to a much higher level. That is essentially what it is doing.

Ms Harwood—No, it is not. The model is extremely conservative in the way it operates and the inputs at each step in the importation pathway and beyond. The actual estimation of risk—and the determination of measures to manage it—is done in an extremely conservative way that is consistent with Australia's high standard of quarantine. It is genuinely consistent with a conservative approach to quarantine.

Senator BOSWELL—Why did you go to 95 per cent last time and you are out to 50 per cent this time? How did you get to that? Previously there was a five per cent risk, although you say those are not the terms. But I do say this: we are a group of people that have to make some assessments on this and it seems to me, as it seems to Senator Cherry, that you have gone from five per cent to 50 per cent. The people out there that really do not have the option of sitting down in front of you and understanding this certainly believe it has gone from five per cent to 50 per cent. Maybe there is a better way you can express these things.

Ms Harwood—As I said, we will be happy to present you with a more detailed statistical account of why the 50th percentile is a reasonable and still conservative picture of risk as produced in the final model output.

Senator CHERRY—In your earlier presentation, Ms Harwood, with you opening statement, you talked about some significant things which have had an impact on the IRA process over the last few years. You mentioned SPS jurisprudence. What are the most significant things that have come out of SPS jurisprudence which you have needed to put into the input risk assessment and your assumptions and processes in, say, the last three or four years?

Ms Harwood—I think the main area would be in the requirement for explicit science based judgment of risk: that is a risk assessment conducted in accordance with the disciplines of the SPS agreement, where the evidence is clearly brought to bear on the judgment of actual biological risk and a justification for the measures as being necessary but not more than necessary to address that risk.

Senator CHERRY—I am trying to think how to phrase this so it does not sound offensive—it is very hard at this time of the day. Has Biosecurity Australia sought to ensure that its panels produce reports which cannot be appealed in a WTO arbitration?

Ms Harwood—I believe that is a similar question to the ones Senator O'Brien was asking, and the answer is no. Australia does its own science based risk assessments according to our standards of quarantine and our high-calibre scientific input. We do that to the disciplines set by the SPS agreement, but it is Australia's sovereign right to choose the standard of quarantine protection that we apply, and we do Australian risk assessments to that standard.

Senator COLBECK—How has the evidence that we heard earlier from Professor Morris been taken into account in respect of the change from the draft to the final IRA—what process; what input? It appears to me from the evidence that he gave this morning that he is obviously someone who is working very closely with the issue and with people who are involved with the industry in New Zealand. What impact has he had on the process and what input has he had into the process?

Dr Banks—I have had several conversations with Professor Morris on this issue. He has a hypothesis which may well be correct, but we do not know whether or not it is correct. The agent X theory has been around for a long time and, as I think I mentioned at the last hearing, people have been looking for it for a very long time. I sincerely hope that he does succeed in finding it in the next one to two years. Others have failed, but perhaps in a situation like New Zealand, which does not have a lot of the other complicating disease issues, they may be more successful. But there is nothing in his evidence that we were not aware of in terms of the potential triggers for PMWS.

Senator COLBECK—So you are saying that he is bringing nothing new to the table?

Dr Banks—I did not say that.

Senator COLBECK—You said there was nothing in his evidence that you were not aware of.

Dr Banks—I said that he has brought some New Zealand evidence. The New Zealand MAF is nowhere near as convinced as Roger about his agent X theory, or certainly about the linkage with any imported pig meat. There is considerable doubt about that particular aspect of Roger's hypothesis. I am not going to argue about who is right and who is wrong here.

CHAIR—But just the fact that there is contention means there is some variation, which means there is some risk.

Dr Banks—No: just because someone has a hypothesis does not make that a risk.

CHAIR—The science disagrees. You say that he disagrees with MAF or MAF disagrees with him. I take it that he thinks he is a sound, professional person who has sound, professional integrity and is putting the facts here for us to gain from some of his knowledge and experience in the field—and he has been on the world stage. Just to cast it aside because MAF disagrees—and I do not know who MAF is: they might be a bunch of worn-out bureaucrats for all I know, or they might be alert, young and energetic—

Dr Banks—They are our equivalent.

CHAIR—I would have thought that just the fact that there is this unknown quantity and there is disagreement is enough: trying to understand why we are taking the risk still befuddles me.

Senator COLBECK—Professor Morris was quite clear in his evidence that there is a very strong view around the world now that either a factor X or a variant of PCV2 is a significant factor in PMWS. It appears that you are essentially downplaying that, by virtue of the fact that MAF does not necessarily agree.

Dr Banks—No, not at all.

Senator COLBECK—Again, there is a conflict in what is being said. He was quite clear in his view that a very strong body of scientific opinion around the world is saying that either a factor X or a variant of PCV2 is the triggering factor in PMWS.

Dr Banks—Yes, and that is exactly how we have handled it in this risk analysis. There is no deviation there.

CHAIR—Do not let them bluff you, Senator Colbeck.

Senator COLBECK—No, I will take my time, do not worry. How has the approach of the New Zealanders to the disease since they have discovered it in New Zealand influenced or impacted on the approach that we have taken? What elements of the New Zealand experience have been taken on board as part of our process?

Dr Banks—As I mentioned before, the hypotheses that are being put forward in New Zealand were considered in the IRA. Certainly, the New Zealand experience may provide more detail on that. We hope that it will. Eventually, we hope that it may provide a solution. But I get the impression that you are suggesting that there is something that has happened in New Zealand that was not considered in the IRA. I do not think that is correct.

Senator COLBECK—When you started your evidence and made your statement this morning, you said that PMWS might have existed all along. You said that it was not discovered in Spain until some time during the 1990s. You then went on to say that it was actually present in Spain in 1986. Where did it come from in 1986, for example? What has been the process or time frame of this disease revealing itself?

Dr Banks—Are you talking about New Zealand now?

Senator COLBECK—No, I am talking about Spain, for example. You said it was not discovered in Spain until the 1990s, but it was in fact present in 1986. Where did it come from then?

Dr Banks—I do not know. It may have got there from overseas or it may have been there all along. We do not know.

CHAIR—So how do you work out, after the discovery, that it was there four years before?

Dr Banks—You can go back retrospectively through pathological specimens and look for the signs in them.

CHAIR—Blood samples and things?

Dr Banks—Not so much blood samples; they are more fixed tissue samples.

Senator O'BRIEN—Presumably there are no tissue samples going back past 1986 to see whether it was there before then?

Dr Banks—I do not know in that particular case, but as you go further back there are fewer retained specimens to check it against.

Senator O'BRIEN—So it may or may not have been there.

Senator COLBECK—I just have a final question on the mathematics. When we discussed this last time the argument essentially related to factors—whether you went to 10 years or whether you decided to make a calculation over one year for the risk factor. Obviously, the further you go out, you can get to the stage where the risk is extremely high based on the number of years that you go over and the elements that come in. What is the process of deciding the time frames that we use in our process?

Ms Harwood—Essentially, we have to define the appropriate level of protection—ALOP—in a way which allows us to measure against it, and that is that the quarantine risk is reduced to a very low level in a year of imports. As I said, the modelling is extremely conservative, but that is essentially the bar we use as the reference point—if the risk is reduced to that level by means of quarantine measures then the quarantine risk is below ALOP.

CHAIR—But if it rises dramatically over a period of years does that say that there is a certain inevitability about us getting this if we keep going? It does to me, but I am only an old, worn-out farmer.

Ms Harwood—It is a statistical fact in that it is a probability multiplied through time. But the fact is that the actual import policies are extremely conservative. They are adjusted through time in the light of emerging information and conditions and developments overseas. It is not a static situation, so it does not make sense to multiply it out into—

CHAIR—What is your version of the 10-year risk in percentage terms?

Ms Harwood—As I said, we use a reference point for ALOP of a very low risk of the pest or disease entering Australia within a year or during a year.

CHAIR—But what is your 10-year prediction?

Ms Harwood—We are not giving a 10-year prediction. The discipline that we are working with is to measure against a declared reference point for ALOP. That is what we are doing.

CHAIR—Is that because the news is too bad if you go out too far?

Senator COLBECK—It depends on the science, I think. What is the regularity of reassessment of the science that might come up against these sorts of things? If you are talking about a regular process of dealing with that, that militates against what the chair is talking about. You cannot give a 10-year assessment because the science might change in three—therefore the assessment does not relate anymore. So what is the regularity of reassessing the issues? Is it done when new information becomes available or is there a regular review process?

Ms Harwood—Essentially, yes. It can be done very quickly. Something that could trigger it is new scientific information. It can also be done to respond to a change in the disease status for one of our trading partners. We may need to instantaneously change our import policy to deal with an outbreak of a disease or whatever. It is responsive to both new science and to new quarantine developments overseas.

CHAIR—There you go, that was pretty painless, was it not? Thank you very much.

Ms Harwood—Thank you.

CHAIR—Could we get that question on notice pretty soon? We have an early expectation of a reporting date.

Ms Harwood—Yes.

CHAIR—Thank you.

[7.21 p.m.]

KING, Dr Warren, Group Chair IT, Manufacturing and Services Group, Commonwealth Scientific and Industrial Research Organisation

CHAIR—Welcome. If you want to make an opening statement, you may and then we will move to questions.

Dr King—Thank you for the opportunity to address the committee this evening. I appreciate the opportunity. The purpose of my comments is to clarify the position of CSIRO in this inquiry. CSIRO believes it is an important inquiry and is happy to assist the committee by providing inputs which fall within its knowledge and its statutory charter—the Science and Industry Research Act 1949. CSIRO is not an advocate for any particular point of view on quarantine policy, including import restrictions. In 2002, CSIRO was engaged to provide Australian Pork Ltd, APL, with an independent assessment of the statistical aspects of the methodology used by Biosecurity Australia in the generic import risk assessment entitled import risk analysis—that is the IRA for pig meat. CSIRO also provided comments on later versions of this IRA.

The relevant expertise of CSIRO in the APL engagement is confined to the computation and interpretation of risk probabilities. CSIRO has not provided any expertise on the scientific facts which underlie various inputs to the assessment of risks such as likelihood of diseases occurring in certain countries, the transmissibility of diseases through various routes or the impact of various diseases on animal health or industry economics. The models used by CSIRO in its work with APL replicate the methodology developed by Biosecurity Australia. Data relating to individual likelihoods or consequences are fed into the relevant models and the models produced the integrated risk estimates. Various parameters can be adjusted within the models, including time periods over which probabilities are aggregated. The use of any particular time period is a matter of judgment which must be based on relevant inputs and forms only one aspect of risk management methodology, which includes the regulatory framework and disease output mitigation strategies inter alia.

For this reason, CSIRO does not advocate the use of any particular time period in the IRA before this committee. CSIRO's role is to assist the committee if required to understand the statistical implications of various assumptions on the results which the model would produce. CSIRO believes that the recent media discussion on CSIRO's findings presents a distorted picture which does not reflect CSIRO's position or the quality of Biosecurity Australia's import risk assessment methodology. CSIRO acknowledges that the risk assessment methodology developed by Biosecurity Australia is world-class. Furthermore, Biosecurity Australia's published IRA has gone through a transparent process, inviting comments at various stages, which means the methodology has been subject to national and international scrutiny.

CHAIR—How much coaxing did it take for Biosecurity Australia, the pork industry and CSIRO to put that statement together?

Dr King—Nil. If I could give you some background, CSIRO initiated the desire to make this statement on the basis of media comments which seemed to imply that CSIRO had a policy position, which patently we were not qualified to give. We were providing statistical input and we did not have a position on the policy. Our concern was that we were being painted as having that position and sought to make this statement. As a matter of courtesy, we consulted with both APL and Biosecurity Australia in the drafting.

CHAIR—When you consulted, did it get changed?

Dr King—There were some minor changes suggested by both parties. Some of them we took on board; some of them we did not.

Senator O'BRIEN—Should we understand this letter to in any way reflect on the evidence given to us by the CSIRO witnesses who were part of the APL submission at either of the hearings so far?

Dr King—Not at all. We are just making the point that we are not in a position to be able to make comments on policy.

Senator O'BRIEN—So the submission is in response to the suggestion that you have somehow done that, and I can be happy with the evidence we have heard today that CSIRO stands by the evidence it has given insofar as it has been relevant to its expertise?

Dr King—Indeed. That is what I understand.

Senator COLBECK—So essentially what you are saying is that you provided information on the math, not the science.

Dr King—On statistics, that is exactly right. The statistics are part of the science, but we cannot comment on the disease knowledge or any of those assumptions in any way whatsoever.

CHAIR—What does 97 per cent over 10 years really mean?

Senator O'BRIEN—It means 97 chances out of 100 over 10 years.

Dr King—Basically it was a piece of data that was given to our clients, APL, on the basis of what they asked us to do.

CHAIR—Correct me if I am wrong, but I think it had something to do with a 97 per cent chance over 10 years. Is that right or wrong? It might have been 95 per cent.

Dr King—That is presumably on the assumption that over the 10 years each year is independent. You have to make a lot of other assumptions which go to how you would interpret that.

CHAIR—That is what I am trying to—

Dr King—We are saying, 'We can do the sums: how you interpret that—how you take that into policy—is not something that we are qualified to help you with.'

CHAIR—Are you saying that there is a 95 per cent chance over 10 years that we will get the disease?

Dr King—That is on the basis of a whole bunch of assumptions which are also transparent in there. But again we are not really qualified to say whether they are realistic assumptions.

CHAIR—For an old, worn-out farmer it sounds a bit scary to me.

Senator O'BRIEN—Dr King, I took it that you were here to talk about policy, not the actual research work.

Dr King—That is correct.

Senator O'BRIEN—Wrong witness I think, Chair.

CHAIR—Sorry if it was unfair, Dr King. Thanks very much for that.

Committee adjourned at 7.28 p.m.