HEALTH AND COMMUNITY CARE COMMITTEE

Wednesday 13 November 2002
(*Morning*)

Session 1

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HEALTH AND COMMUNITY CARE COMMITTEE
29th Meeting 2002, Session 1

CONVENER

*Mrs Margaret Smith (Edinburgh West) (LD)

DEPUTY CONVENER

*Margaret Jamieson (Kilmarnock and Loudoun) (Lab)

COMMITTEE MEMBERS

*Bill Butler (Glasgow Anniesland) (Lab)
*Dorothy-Grace Elder (Glasgow) (Ind)
*Janis Hughes (Glasgow Rutherglen) (Lab)
*Mr John McAllion (Dundee East) (Lab)
*Shona Robison (North-East Scotland) (SNP)
*Mary Scanlon (Highlands and Islands) (Con)
*Nicola Sturgeon (Glasgow) (SNP)

COMMITTEE SUBSTITUTES

Brian Adam (North-East Scotland) (SNP)
Ian Jenkins (Tweeddale, Ettrick and Lauderdale) (LD)
Mr Tom McCabe (Hamilton South) (Lab)
Ben Wallace (North-East Scotland) (Con)

*attended

WITNESSES

Anthony Jackson (Munlochy GM Vigil)
Linda Martin (Munlochy GM Vigil)

CLERK TO THE COMMITTEE

Jennifer Smart

SENIOR ASSISTANT CLERK

Peter McGrath

ASSISTANT CLERK

Graeme Elliot

LOCATION

The Chamber

Scottish Parliament

Health and Community Care Committee

Wednesday 13 November 2002

(*Morning*)

[THE CONVENER *opened the meeting at 09:31*]

Items in Private

The Convener (Mrs Margaret Smith): I welcome everyone to this morning's meeting of the Health and Community Care Committee. In the first agenda item, committee members are requested to consider whether to discuss in private item 4, which is our draft report on the budget, and item 5, which is our draft report on the Mental Health (Scotland) Bill. The usual practice is to discuss such items in private. Do members agree to do so?

Members *indicated agreement*.

GM Crops Inquiry

The Convener: The next item is our inquiry into the potential health risks of genetically modified crops. We are joined by witnesses from the Munlochy GM Vigil. We were also due to hear this morning from witnesses from Bayer CropScience Ltd; however, because of illness, we have had to reschedule them for our meeting on 27 November.

I ask the witnesses to make a short statement, after which my colleagues will ask questions.

Linda Martin (Munlochy GM Vigil): The framework for approval of GM crops and food is based on substantial equivalence. That has never been properly defined and there are no legally binding rules on how to establish it. It has been described as

"a pseudo scientific concept because it is a commercial and political judgement masquerading as if it were scientific. It is moreover inherently anti-scientific because it was created primarily to provide an excuse for not requiring biochemical or toxicological tests. It therefore serves to discourage and inhibit potentially informative scientific research".

Substantial equivalence asserts that plants whose fundamental genetic structure has been permanently altered are no different from naturally occurring varieties. In making that claim, manufacturers have to perform only cursory tests for nutrition, flavour and texture. Other concerns about the concept have been highlighted by, among others, the Medical Research Council, which said that substantial equivalence

"involves a somewhat subjective judgement".

The Royal Society of Canada has said that the concept is "scientifically unjustifiable" and even the Royal Society in the UK now seems to desire a more rigorous approach. Such an approach would involve legislators treating GM products in the same way as they treat novel chemical compounds such as pharmaceuticals, pesticides and food additives and to require companies to conduct a range of toxicological tests.

The lack of such rigorous assessment has led to a plethora of concerns surrounding GMOs' being released into the open environment. In the face of that concern, one would expect the applications themselves to contain results from tests that prove that all elements of the crops present no risk to human health. However, throughout the five-year period that Aventis refer to as proof that their product is safe, the only tests that were carried out were on the tolerance to, and efficacy of, glufosinate ammonium. Aventis's assertion that there is no risk to human health comes entirely from the fact that no risks were observed during the period. Further, in Aventis's initial submission to the Health and Community Care Committee, it explains the process by noting:

"many of their employees and contractors have been in contact with transgenic plants during greenhouse and or field activities but ... no indication of changed allergic reactions had been identified".

Many requests have been made by various bodies and individuals to access the health tests that have been carried out by the GM companies, but no research has been forthcoming; in fact, it is widely believed that no peer-reviewed publications of clinical studies on the effects on human health of GM exist.

Safety assessments seem to be based on theory and small-scale empirical observation. When there are fundamental widespread concerns and risks, surely there is a necessity for rigorous, independent, peer-reviewed scientific testing.

"No evidence of harm" is not equivalent to "there is evidence of no harm." The risk assessment procedure is once again predicated on substantial equivalence. It is based around expected events; that is its major failing. The procedure does not recognise unknown and unanticipated effects. Not only that, but the risk assessment is done by the companies and then assessed by the Advisory Committee on Releases to the Environment. In spite of numerous requests, the public still has no idea what scientific material has been assessed by ACRE and whether material that has been presented by scientists who are sceptical about the safety of GM crops has been adequately considered.

If GM crops are to be tested, testing their effects on human health must surely be paramount. History is littered with examples of early warnings of future effects being ignored; society faces the consequences of that today. Forestalling disasters requires that we act before there is strong proof of harm, particularly if that harm might be delayed and irreversible. That approach to scientific evidence and policy making is called the precautionary principle. We are currently in a position in which either we repeat history or we accept honestly that the present basis and regulations that allow genetically modified organisms to be grown in the open environment are woefully inadequate and potentially catastrophic. The time to reassess the situation is now, while GM crops are at an experimental stage. There is no short-term economic pressure and no public demand for them. If the situation is not resolved in the very near future, it will become increasingly difficult ever to do so. An opportunity is being presented to the committee to put public health above all other interests.

The effects of GM crops on health will be irreversible. GM DNA will remain in the environment, in its widest terms, long after the use of GM crops is discontinued. That will dramatically increase the risks that are associated with false diagnoses of potential hazards and with other detrimental effects of which science is still unaware. Surely the release of irreversible and persistent elements into the environment demands that a response be implemented on the sole basis of precaution, which should include systematic, comprehensive and thorough investigations of perceived negative effects. Should new information become available that associates any new negative effects to irreversible, persistent elements such as GM DNA, the financial and technological resources that will be required for remediation are likely to be out of reach. The current situation on GM crops demands a moratorium to enable more research to be carried out, in this case into GM crops' effects on human health. That research must be rigorous, independent and peer-reviewed. Without it there will never be any trust that GM food crops are safe in terms of their effects on human health.

Nicola Sturgeon (Glasgow) (SNP): The committee is considering four questions. First, should the trials be halted in line with the precautionary principle? Secondly, is the risk assessment procedure adequate? Thirdly, are the regulations to avoid cross-contamination adequate? Fourthly, should public health around GM sites be monitored?

Let us focus first on the regulations to prevent cross-contamination. I shall ask you later whether the current guidelines are adequate. In your evidence on petition PE470, you argue that the guidelines that have been set by the supply chain initiative on modified agricultural crops—SCIMAC—to minimise environmental damage and cross-contamination have been breached. What evidence do you have of that?

Anthony Jackson (Munlochy GM Vigil): The court case is on-going, and some of the evidence is still to be proved. The accusation, from what the public saw, is that when the last crop at Munlochy was sown, the tractor came off the field without being cleaned. That is a blatant breach of the regulations, because the seeds could have been scattered anywhere on the farm. When the previous crop—the one before last year's trial—was harvested, a winter wheat crop was sown three days later. The guidelines state that there should be a three-week gap between crops, so that the volunteers do not get into the food chain.

We approached SCIMAC in relation to the breach that I have just mentioned, and SCIMAC's response was that circumstances are different in Scotland— I presume that SCIMAC was referring to the climate. Nonetheless, if there are to be regulations, they should fit the climate in which the crops are being grown. The impression that is given is that the way in which the trials are being run is slipshod and that not enough attention is

paid to the potential risks. The companies that are involved either believe that there are no risks, because they have not looked for them, or are just not concerned about the risks. The same seems to be true of the farmers who are involved and the people who carry out the regulation.

Bill Butler (Glasgow Anniesland) (Lab): For the record, are there any circumstances in which you would support the use of GM crops?

Linda Martin: It is my personal view that we need more research. We have trawled and trawled to find information on the way in which decisions are made. The more we investigate the matter, the more it seems like a "Blue Peter" job in which something is being put together with sticky-backed plastic. We want more scientific research and we do not believe that GMOs should be grown in the open environment until we know that they are safe to human health.

Bill Butler: I accept that and I acknowledge your serious and legitimate concerns. However, if thorough research proved that GM crops were safe, would you agree with that finding?

Linda Martin: I cannot answer that hypothetical question. We are here primarily to ensure that there is some kind of health testing. My family lived beside the biggest field of experimental oil-seed rape that there has been in Britain. It was a 15-hectare field beside a small village of 400 people. There was no health monitoring or health testing. I cannot say whether I think that GM crops would be good until the testing is done.

I question seriously why we, as lay people, should have spent the past two years of our lives trying to ensure that a product that we do not believe is safe was ever grown in the environment. I have a problem with trusting most of the research that has been carried out because the more we have investigated it, the more it has fallen apart. At some point in the future, there might be GM crops. However, until I know that the basis on which the crops have been tested is correct, I cannot answer the question.

Anthony Jackson: The decision is not ours to make, which is part of the problem. Whether it involves crops, the inserting of pharmaceutical devices into crops, or animals, genetic modification is a fundamental shift on many levels. It has to be opened up to wide scientific scrutiny.

At the moment, there are two sets of scientists. Both should be represented on ACRE so that opinion is balanced. The scientists have to get together and thrash out what is going on. All of us here are lay people and we do not know the science, but there are scientific concerns. Until those concerns have been addressed, those crops should not be grown in the open environment because if anything goes wrong, the public will suffer the consequences.

The public has to get heavily involved. There is no way that GM ingredients should be in food without the public's being informed. It has been said that there is no problem in America, but that is nonsense. Fifty per cent of Americans think that GM food is unsafe and one of their biggest beefs about it is that they were not told that GM food was in the food chain.

It is vital that a decision is made on GM food, but there is plenty of time to make that decision. If it is the most wonderful creation, or the most wonderful science, we can afford to wait—decisions should not be driven by commercial interests, but by public concern, public involvement, and proper peer-reviewed independent science. Even if that takes 10 or 20 years, it will be better to do that, otherwise the repercussions or consequences could be catastrophic.

09:45

Bill Butler: That is clear and I thank you for your answer. Again, for the record, what is your response to Lord Hardie's ruling in the Highland Council GM court case that took place in 2000 that it is in the national interest for such trials to continue?

Anthony Jackson: Which trials? Do you mean full-scale evaluations?

Bill Butler: I am talking about the ruling in the Highland Council GM court case that such trials should continue. It was Lord Hardie's view that it is in the national interest that such trials should continue. For the record, could I have your view on that?

Anthony Jackson: It is not up to a judge to decide that. It is up to the public and, until scientific concerns have been addressed and public health testing has been done, it should not be up to a judge to decide what can be grown in the open environment. If there were a plebiscite tomorrow, I believe that the results would be quite clear that there should be no full-scale evaluations in the United Kingdom, let alone in Scotland.

Mr John McAllion (Dundee East) (Lab): I move on to another group that has talked about GM crops. The House of Lords European Communities Select Committee report "EC Regulation of Genetic Modification in Agriculture" claimed that the benefits of genetically manipulated crops outweigh the potential risks. Will you comment on that?

Because you have indicated that you believe that the UK Government advisory framework on GM crops is anti-scientific and is designed to exclude certain scientific tests, will you spell out the risks that you believe are not taken into account in that framework?

Linda Martin: I will answer the first part of the question if you could ask it again.

Mr McAllion: The House of Lords European Communities Select Committee report argues that the benefits outweigh the potential risks.

Linda Martin: Most of the stated benefits of GM crops are aspirational; nothing has been proved. The Soil Association's survey "Seeds of Doubt" considered what was happening in America and it shows that yields are falling and that farmers now have to use more rather than less pesticide.

Many new reports are stating what the benefits could be, but I could sit here and say what problems there could be and no one would be able to say whether I am right or those reports are right. As far as we are aware, the current field-scale evaluations are not considering or testing for yield. At the moment, there is a highly subsidised system that is putting oil-seed rape into the environment, but is not testing for yield. How therefore is GM going to be the be-all and end-all?

The other problem is that GM is supposed to be replacing what already exists. Genetically modified oil-seed rape would therefore replace normal oil-seed rape. However, genetic modification lasts only for a certain amount of time; nature—wonderful beast that it is—has a habit of catching up with it. There will be genetically modified oil-seed rape, for example, but in three or four years, we will have to use a different genetic modification because the environment will have caught up with the original modification. Scientists have told us that. Genetic modification will keep on rolling. It is not static. It is not as if we will create something today that will be with us for a very long time. I therefore have a problem with the claimed benefits of GM.

Many multinationals claim that GM will do this, that and the next thing, but what will the costs be? We do not have social or green accounting. We do not yet have an environmental tax. At the moment we are dealing with multinationals that are concerned only with their profits. No one is considering the environmental cost of GM crops or their cost to any Government that plants them. We are not considering the costs that the national health service might have to pick up in the future. None of the benefits of GM crops are yet quantifiable. If the truth were told, most scientists would make exactly the same point. The benefits of GM crops are aspirational and hypothetical. They do not yet exist and are nowhere set in tablets of stone.

Mr McAllion: What risks has the UK Government not taken fully into account in its advisory framework for GMOs?

Anthony Jackson: There is a long list of risks. We all know that oil-seed rape creates a great deal of pollen. One would expect some research to have been done into genetically modified pollen, because it is believed that oil-seed rape pollen is a cause of asthma and other respiratory problems. The head of the pollen research unit at University College Worcester, Dr Jean Emberlin, planned to give evidence to an air pollutants conference about the effects of GM pollen. She trawled through all the reports that she could find, but no testing has been done anywhere on the possible effects of GM pollen.

For about four years, there has been huge concern about genetic modification. Non-governmental organisations, local groups and scientists have requested any research that has been done into the effects on human health of GM crops and food. That research has not been done and if it has, it has been held back. If it has been held back, why has it not been placed in the public domain, given that there is such public concern about GM crops? Limited testing has been done on animals, but recently ACRE got into trouble for ignoring the fact that twice the number of chickens died after eating Chardon LL maize as died after eating normal maize. Even when there is limited evidence from animal testing, that is ignored. What is happening? We can find no specific testing on humans.

Mr McAllion: Will you respond to two arguments that are used in support of GM crops? The first is that genetic engineering is regulated more keenly and transparently than any previous technology. The second is that destroying crops that have been established to assess health and environmental impacts in field-scale evaluations is counterproductive.

Anthony Jackson: The first argument is just wrong. Pharmaceuticals are subject to a far more rigorous testing regime. Pharmaceuticals testing was tightened up only because of the thalidomide disaster. Must we have the same experience with genetically modified crops?

What was the second point?

Mr McAllion: The second argument was that destroying crops that have been planted in order to assess the health and environmental impacts of GM crops is counterproductive.

Anthony Jackson: The crops are not being planted to test their impact on health. Farm-scale evaluations are designed purely to test the efficiency of glufosinate ammonium. The argument has been turned round. We are being told that, because there are more weeds on the testing sites, the crops are not damaging the environment.

Mr McAllion: Are you saying that the farm-scale evaluations are not testing GM crops?

Anthony Jackson: They are not testing them at all.

Linda Martin: I will give members a classic example of what we found when we were seeking research into the health effects of GM crops. We wrote to the Food Standards Agency about the honey that, as members are probably aware, was contaminated at Newport. The agency referred us to the Advisory Committee on Novel Foods and Processes, which said that it had assessed the safety issues relating to the presence of honey and pollen in GM plants. It then supplied us with its conclusions from a 1991 annual report.

When we received the report, we found that it had been produced by a work group—a few people had discussed what problems they thought might be associated with pollen from GM plants. Those people came up with potential problems, but they said, "No, no, no. It's okay. We can pass that as safe." No testing was conducted. A group of people like us sat down and decided that the pollen was okay.

That is what we find in relation to GM crops. The more we dig, the more we find that a grouping of people has just sat down to discuss something and made a pronouncement on it. I am sorry, but that is not good enough for human health. We must have formal scientific testing that is valid and reliable before we risk the health of our country's people.

Janis Hughes (Glasgow Rutherglen) (Lab): What guidelines would be appropriate to prevent conventional crops from being cross-contaminated?

Anthony Jackson: Basically, GM crops should not be grown in the open air.

Janis Hughes: The matter is as simple as that. Would you accept no other guidelines that might lay down a framework?

Anthony Jackson: Not until GM crops have been proved safe for human health. Why take the risk? What is the benefit of taking a major risk? A greenhouse is an enclosed environment, so that is fine. However, genetically modified DNA cannot be controlled when it is in the open environment. It is out there and the more of it that is out there, the greater the risk. Until peer-reviewed and independent scientific research that the public and qualified concerned scientists accept as proving that GM crops are safe, such crops should not be grown in the open environment.

Janis Hughes: If we accept that GM material might leak into non-GM crops, do you acknowledge that the central issue is whether that leakage is harmful? The last paragraph of your submission refers to

"comprehensive and thorough investigations of perceivable negative effects."

The debate is about whether that leakage is harmful. What evidence can you present to convince us that it is harmful?

Linda Martin: Can I ask you one question? Can you prove to me that GM crops are safe? That is what we are asking; that is what we are here for.

Janis Hughes: That is what I am saying. Is that your argument? You say that, because we cannot prove that GM crops are safe, we must accept that they might be harmful.

Anthony Jackson: What you are doing is introducing—

The Convener: I say with respect that what we are doing is asking you questions. We will ask other people questions, too. That is what we do.

Anthony Jackson: Sure—absolutely.

Linda Martin: This is—

The Convener: Excuse me. The committee has a track record of saying what has to be said, having asked the questions. I do not like people who are being asked genuine questions taking the attitude that the committee is anything other than open-minded about the questions and the answers that we receive. We are not doing anything. We simply suggest one matter about which we want to ask questions. We will ask questions of other people about the matter. I would like to hear your answers, rather than flippant comments.

Linda Martin: I am sorry—I did not make a flippant comment; rather, I asked a question.

The Convener: I would appreciate it if you answered the questions that we are putting.

Linda Martin: I apologise and ask Janis Hughes to ask her question again.

Janis Hughes: If we accept that GM material leaks into non-GM crops, do you acknowledge that the central issue is whether that leakage is harmful?

Anthony Jackson: Yes. However, no testing proves that such leakage is not harmful.

Janis Hughes: Thank you.

Linda Martin: That is the central issue, but another issue is the effect of GM crops on conventional farmers, as well as organic farmers. Conventional farmers will have to pick up increased costs, too. When labelling from the European Union is introduced, conventional farmers who farm close to a GM-crops farmer will, in the farming situation as it is today, have to incur the extra expense of proving that their crops have not been contaminated by GM material. A GM farmer will not have to incur that cost.

Margaret Jamieson (Kilmarnock and Loudoun) (Lab): Should it be incumbent on the Executive to monitor the health of populations that live around GM farm-scale evaluation sites?

Anthony Jackson: We start with the premise that such crops should not be grown in the open air, but if there are to be trials, given that most of the public concern is about the effects on public health, it is slightly ridiculous that no human health testing is taking place. If there are repercussions, no one will know whether they are associated with genetic modification. For example, if there is a rise in the incidence of asthma in Munlochy, no one will be able to put that down to the two field-scale evaluations that were done next to the village because there is no baseline data and therefore no idea where the effect might have come from. If there is to be GM crop testing, human health testing should be part of it.

10:00

Margaret Jamieson: Is the present risk assessment procedure for GM crops sufficiently robust from a public health perspective?

Anthony Jackson: No. The procedure is predicated on substantial equivalence, which assumes, for example, that a lemon that has had its genetic integrity altered completely and which has had bacteria or a virus introduced into it is exactly the same as a normal lemon. The risk assessment procedure does not take unknowns into account, such as scrambled genes. When a thing's genetic integrity is altered fundamentally, we do not know what the repercussions will be.

There is a huge difference between risk and true uncertainty. Risk can be taken into consideration. If one knows what might or might not happen, one can create a risk assessment procedure. However, because genetic modification of foods has been going on at the present level for only five or six years, we do not know what the uncertainties are. It might sound daft, but there are unknown unknowns, which cannot be dealt with through the normal regulatory framework.

Nicola Sturgeon: Do you hold the view, which others have expressed, that the toxicological tests that are applied to pharmaceutical products should also be applied to GM organisms?

Linda Martin: Yes. About a fortnight ago, I read a study on that, although I cannot recall who did it because I have read so much recently. The study was interesting because although GM organisms are supposedly examined on a case-by-case basis, individuals are very individual. In the study, a test was done on two types of people—one set had colostomy bags and the other set did not. The people were fed a milkshake and, I think, a burger and then tested. It was found that the people with colostomy bags had GM DNA in the bags, but that there was no GM DNA in the other people. Society is made up of many individuals. How can we test whether something will affect a particular individual, who may not be exactly the same as somebody else? What about older members of society, people who are on different types of drugs, and youngsters? In Canada, it was found that there are GM organisms in baby food, which caused a public outcry. Although we demand health testing, because we are all individuals, it is difficult to discover how GM food will affect the entire population.

Dorothy-Grace Elder: Many of the committee's questions are devil's-advocate questions. You cite the parallel between GM crops and BSE and variant CJD. The argument from commerce is that the parallel is questionable because not only does BSE have nothing to do with genetic manipulation, but had animal feedstuffs been subjected to controls that were as stringent as those for transgenic foods, the BSE epidemic might have been avoided. How do you respond to that argument?

Anthony Jackson: Our submission states that the Phillips report into BSE pointed out problems with the regulatory framework that created the problem with BSE that led to CJD. Having looked into the regulatory framework surrounding GM crops, we see major parallels. Scientists who do not agree with the Government line have been excluded and there have been constant statements that genetically modified crops are safe, which could put ministers in a difficult position if further evidence should find otherwise, because they would be seen to be backtracking.

The public are not daft; they are aware that something has the potential for harm and that scientists do not know everything. Much more openness is needed so that the public can be involved and their concerns can be expressed. We cannot take the debate forward while GM crops are growing in the open environment, because it is perceived to be the case—it is true—that those experiments are being driven commercially.

Dorothy-Grace Elder: You are questioning the bodies that are saying that the experiments are safe. The commercial companies certainly make quite frequent reference to ACRE to back up their views. What is your opinion of ACRE? Your evidence refers to people who are linked with the biotechnology industry being on one of the committees.

Anthony Jackson: One of the initial problems with ACRE was that some of its members were connected with the biotechnology companies when the first consents went through. That was an obvious problem, which was noted, and those people were removed. However, ACRE never

went back over the consents that those people had passed to check them.

The problem with ACRE is that it is not really open. You cannot get hold of ACRE or see what science it has looked at, and you do not know whether it takes other science into account. There is an on-going scientific debate. There are scientists who say that there is no problem and others who say that there is a potential problem. It seems that concerns are not taken on board and that scientists who say that there is a problem do not have their views taken into account. We have seen what happened to Árpád Pusztai and to Chapela and Quist in America. Their views were just brushed under the carpet and they were, in effect, abused in scientific magazines. It is getting very nasty out there.

Dorothy-Grace Elder: You referred to Canada. The written evidence from Bayer says:

"this crop has been grown in Canada for many years without any public health issues, we do not believe therefore that it is incumbent on the Scottish Executive to monitor the health of people living around GM farm scale evaluation sites."

What is your view on that?

Anthony Jackson: There is no health testing in Canada, so Bayer could not know whether there are any effects on health. There could well be long-term effects on health. New viruses could be created, because viruses are used in the process.

Dorothy-Grace Elder: There are no health tests in Canada?

Anthony Jackson: We would love to see data that proves us wrong, but as far as we know there is no human health testing anywhere in the world on the effects of GM crops.

Dorothy-Grace Elder: Bayer says that crops have been grown

"without any public health issues".

You have to watch the language of such statements, have you not?

Anthony Jackson: Quite.

Dorothy-Grace Elder: Thank you.

Nicola Sturgeon: The Canadian example is sometimes used almost to assert that GM crop trials are safe because people are not dropping down dead around the sites. Do you accept that we need to monitor any potential health impact over a longer period of time? If there is an impact, it might manifest itself in very small changes in disease profile and it might do so over quite a long period of time. If we are not looking for those things, we will never find them.

Linda Martin: That was the situation with BSE. Nobody had looked for it jumping the species barrier, so many doctors were convinced that there was no such thing as vCJD. Let us also consider Thalidomide. If Thalidomide had not had such obvious consequences, would we have known about it? At the moment, we have no idea what GM technology will do, so we have no idea where to look. As we have said, there is no public health testing in the States or Canada, but a huge backlash is beginning out there.

In our own country, a huge number of our children and young people have respiratory disorders. Do we know why? That sort of thing needs to be examined. In a society as rich as ours supposedly is, I do not understand why we would introduce something that we cannot guarantee will not cost us a fortune in the future. We need to have long-term testing. As one of the villagers in Munlochy, which had two field-scale evaluations, I know that the pollen came straight into the village and our schoolchildren breathed it in. It lay on windowsills and cars. We could see it, feel it and touch it.

Nicola Sturgeon: Have we already missed the boat on this issue? After all, we are about to move into a different phase of GM technology and there have been many arguments around the issue of commercialisation. I have heard that one of the problems is that we do not have any baseline data, which means that it is impossible to assess the impact, if any, of the trials that have already taken place over any time period.

Anthony Jackson: Although you make an interesting point, that is not the position at all. It is always easier to deal with a small problem than a big one. In any case, the testing should be done in laboratories, not in the open environment. Obviously I am not an expert on this subject, but I know that the Medical Research Council has produced a paper that suggests projected ways of testing health effects. Just because there are some problems with carrying out tests, that does not mean that the trials are safe. The two issues are not connected. If tests cannot be carried out and evidence produced to prove that the trials are safe, the trials are still not safe. It might take a number of years to develop an accurate way of testing for health effects and, in the long term, there must be a moratorium until that test is available.

The Convener: Will you check with our clerks whether we have details of the MRC document that you referred to? If we do not have it, will you send us a copy?

Linda Martin: Certainly.

The Convener: That would be helpful.

Shona Robison (North-East Scotland) (SNP): What is your response to the industry's argument that genetic engineering is better for plant

development than the use of vast amounts of chemicals?

Linda Martin: The American experience does not show that. Instead, it shows that more chemicals are being used, not fewer.

Shona Robison: And that happens alongside the use of genetic engineering.

Linda Martin: Yes, they are used with genetically engineered products.

Anthony Jackson: Someone might produce a herbicide-resistant crop that ensures that only the weeds will be killed if that herbicide is sprayed. However, because the weeds become herbicide resistant as well, they will not be killed by the herbicide three or four years down the line. For example, the herbicide atrazine used to be sprayed on T25 maize, which is one of the crops that is grown heavily in America. However, three years after genetically modifying the crop to make it resistant to glufosinate, it was found that atrazine had to be added back into the glufosinate to kill resistant weeds. Now, between 75 and 90 per cent of the herbicide that is being used for GM maize is atrazine. That shows how fast the weeds become herbicide resistant. As a result, although there might be a short-term benefit in having one or two years in which less herbicide is used, we are soon back to the same situation.

Shona Robison: So it is wrong to assert that genetic engineering reduces reliance on chemicals, fertilisers, weedkillers and so on.

Anthony Jackson: Absolutely. Why would a company such as Monsanto, whose biggest profit-making product is the weedkiller Roundup, spend a fortune producing and patenting a crop that would reduce the amount of Roundup that would be needed?

Shona Robison: Indeed.

Anthony Jackson: I am not a shareholder.

Nicola Sturgeon: I want to play devil's advocate for a moment. Is there any contradiction between the extent of concern about GM trials and the use of GM in food, and the acceptance and use of GM technology in medicine and health care? Could anything about the latter aspect inform decisions that we make about the former?

Anthony Jackson: That is difficult to answer. We have concentrated our campaign on GM crops and food and I am certainly not an expert on GM medication. There is a fundamental difference in that an individual can choose whether to take GM medication; if they have a medical problem, that medication may solve their problem and they have a choice. However, nobody in Munlochy can choose whether or not to breathe in GM pollen and nobody can choose whether or not to eat GM food as it currently enters the food chain. That is the fundamental difference: one product is in the open air whereas the other might be in a needle.

10:15

Linda Martin: I do not know about the tests that are carried out. As Anthony Jackson said, we have considered crops and food only. Although I might be wrong, I presume that GM medicine has gone through pharmacological testing while GM crops have been released into the open air with no testing at all. I would be far happier if proper testing took place. Our friends the pharmacologists have described the stage-by-stage process that was gone through to pick up any problems and sort them out, as opposed to simply releasing something into the environment. Nobody knows what the effects will be in 20 years' time.

Mary Scanlon (Highlands and Islands) (Con): I have a question on antibiotic-resistant marker genes. Nicola Sturgeon's report to the committee mentions concern that antibiotic-resistant gene sequences may

"compromise the effectiveness of antibiotic treatment"

and that the horizontal transfer of GM DNA

"could also result in new viruses".

Linda Martin is an ex-colleague of mine and I know that she is not a medical expert. However, while it would be problematic for people to acquire resistance to antibiotics through food consumption, is the clinical use of antibiotics compromised by GM trials?

Anthony Jackson: There are certainly concerns about that. In the trials in Scotland, there are no antibiotic-resistant marker genes in the germ oil-seed rape. However, Aventis's inability to put the right seeds in the right bag meant that antibiotic-resistant marker genes have been needlessly released throughout the UK. Some 3 per cent of the seed contained antibiotic-resistant marker genes. That shows up another problem: how can a multinational that carries out scientific experiments, but cannot even put the right seed in the right bag, be trusted?

Mary Scanlon: I am certainly deeply concerned about the compromising of antibiotic resistance.

Anthony Jackson: It is a major concern if effects on the food chain are taken into account. You also mentioned new viruses. I emphasise that I am not a scientist, but concerns have been expressed about new viruses. Viruses and bacteria are used in the process of genetic modification and horizontal gene transfer happens, so there can be genetic leakages. Viruses and bacteria can then recombine—that is what viruses do and why they are effective in making people ill.

They recombine and change their dynamics and genetic make-up. The theory is that, because they are released into the open environment, new viruses could be created.

Mary Scanlon: That is certainly a concern.

My second question is on substantial equivalence, which Linda Martin mentioned. This takes us to the heart of the matter that we are concerned about. I understand that, according to the British Medical Association, the risk assessment procedure for the crop is based on the rule of substantial equivalence. In other words, if something similar happened previously and was okay, it is assumed that the same rule will apply. Bayer CropScience Ltd upholds that rule and says that

"the GM oil-seed rape is equivalent to its non-GM counterpart except for the introduced trait and the expression of the PAT protein."

That seems to be its defence. It is unfortunate that witnesses from the company are not here today.

In her opening statement, Linda Martin talked about the cursory tests for nutrition, flavour and texture. Following on from Nicola Sturgeon's question, I would like to ask whether you want GM crops to be tested to the same degree as pharmaceuticals, pesticides and food additives are tested. Is it right to assume that there could be an equivalent danger with GM food and that the testing should reflect that?

Linda Martin: Most definitely. As I said to Janis Hughes, it is down to our Government to prove to consumers that the food on our table is safe and that the crops that it comes from are safe as well. We should not be sitting here as lay people asking you to prove that something is safe when it has not gone through rigorous testing.

Oil-seed rape and genetically modified oil-seed rape are extremely different organisms. Oil-seed rape was arrived at as the result of a process of hybridisation with other crops. However, genetic modification involves taking DNA from species that would not normally mate and using a vector in order to cross the species barrier. The vectors are based on viruses and the one that we had in Munlochy was based on E coli. DNA is introduced into the host plant in ways that can be totally unpredictable, depending on how the transfer is done.

To compare GM oil-seed rape with oil-seed rape is to compare a plant that underwent the live transfer of DNA with something that was hybridised. How can they be seen as substantially equivalent to each other?

Mary Scanlon: Bayer CropScience said in its submission:

"there is no evidence whatsoever of a significant risk to humans or livestock following ingestion of this GM crop and … it is as safe as its non-GM counterparts".

The company says that that claim is based on evidence that was provided by independent regulatory bodies. Would you like to see that evidence?

Linda Martin: I would like to read that research, if there is any. However, having read many documents, I keep picking up on the fact that nobody has produced any evidence. Monsanto was supposed to produce evidence in time for a meeting but did not. There have been no dossiers of information for anyone to read.

As I said, the Food Standards Agency said that the honey was safe, although it had GM pollen in it. However, when one reads the report, one sees that that is based on what a work group said. That work group consists of people, who might or might not be like-minded, sitting round a table discussing something. That is not good enough; there has to be proper testing.

I do not see why I should pay taxes to enable the Government to run GM trials when there is no market for GM food in Britain. Supermarkets have spent a fortune sourcing non-GM produce. The "Which?" magazine report stated that consumers do not want GM food. Ninety-two per cent of the people in my village did not want a crop trial anywhere near them. My question is, given that we live in a democratic society, why are genetically modified organisms being thrust on us with little testing?

Mary Scanlon: With regard to the lack of evidence to which you refer, we will have the opportunity to ask about that in two weeks' time.

Shona Robison: In your evidence, you discuss GM crops in general terms, but you have just talked about a specific GM crop—oil-seed rape—and its connection to E coli. Do you have any other concerns about the oil-seed rape trials?

Anthony Jackson: Concerns have been expressed by Professor Malcolm Hooper about some side effects from the phosphinothricin acetyl transferase—or PAT—gene. Professor Hooper's paper is extremely scientific and I do not want to go into it here, but it is included in the submission that we sent to the Public Petitions Committee. I recommend that members read that.

Dorothy-Grace Elder: You answered questions on honey very eloquently. What would be an acceptable separation distance to you?

Linda Martin: The separation distance has to ensure that those who produce honey and sell it can ensure that their crop has not been GM contaminated. Whatever the distance may be, it should probably be more than 2 miles, because in the Newport case, the distance was 2 miles. The

Scottish Beekeepers Association recommended a 6-mile separation distance.

The letters that we have received from people with whom we raised the honey issue have all said that it is not a problem, because the levels of GM pollen in the honey are so low. However, as a consumer with choice, I believe that it is up to anybody who sells the honey to label it as containing GM pollen. Otherwise, how does an individual know what is in it? As a consumer, I am entitled to choose what I buy. When a child has a sore throat, most grannies take a big spoonful of honey and wallop it down the kid's throat. People who do that would want to know that the product that they were using was pure, rather than thinking that they were doing something to a child that, at some point in the future, could be detrimental to the child's health.

Dorothy-Grace Elder: Bayer CropScience states in its written evidence that there are

"No indications that indirect food use would induce a human health concern".

That statement was made specifically in relation to the presence of GM oil-seed rape pollen in honey. Bayer considers that that would be

"degraded either during the honey processing, in storage or in the human gut under digestive conditions."

Do you agree with that?

Anthony Jackson: I disagree fundamentally. The testing has not been done. We have done a lot of work with beekeepers. People trot out the point all the time about degrading during processing and come up with a number of temperatures. To start with, most amateur beekeepers do not use the kind of temperatures that are mentioned. One of our local beekeepers has been passed research that says that the DNA would not be degraded even at the temperatures at which Aventis or ACRE claimed it would be degraded. I can dig out that research for the committee; I do not know exactly where it is.

Dorothy-Grace Elder: You are saying that there is no proof.

Anthony Jackson: There is no specific proof. Linda Martin just said that people have claimed that there is not enough GM DNA in the honey to cause any problem, but there is no testing of the DNA levels. GM pollen was found at Newport only because *The Sunday Times* paid for the testing. At Munlochy, 24 beehives were placed right next to—within 10m—of the GM oil-seed rape. How much of that honey would be made up with GM oil-seed rape pollen? No one ever tested it. When we contacted the press, the honey was removed overnight, so the pollen has possibly entered the food chain.

Dorothy-Grace Elder: Bayer has tried to make claims about the public good that could come from its experiments. It says that GM introduction means that

"the same amount of oil can be produced on 9% less land.

It also states:

"Some see this as a purely economic argument and that it will result in greater food mountains, however the counter argument is that in the UK it could result in a freeing up of land for non-agricultural uses such as recreation and environmental."

That raises the question of set-aside. Have you quite a lot of set-aside in your area?

Linda Martin: Yes, there is a lot of set-aside in the Highlands. Can I just finish off the point about the honey?

Dorothy-Grace Elder: Do you get Bayer's point that more land could be freed up for recreational purposes? We all know that many thousands of acres in Scotland are already lying empty because of set-aside and they have not been turned over to recreational purposes.

Linda Martin: Yes.

When people write to us about the honey, nobody picks up on the point that oil-seed rape has only a part B—not a part C—licence under the relevant European directive, which means that no genetically modified oil-seed rape should be sold in Britain. Again, we have a situation in which regulations state that something should not happen but we hear that the levels are so low that it does not matter. I am afraid that it does matter. The directive states that such oil-seed is not for sale and must not enter the food chain because it has only a part B licence. That has been run over roughshod by everybody, and nobody is picking up on that fact. What is the point of having regulations and directives if, when they are ignored, there is no contingency plan? We must bear that in mind. Why do we have the directives if nobody thinks that it is a problem when someone breaches them?

10:30

Dorothy-Grace Elder asked about set-aside. Companies will sell something only if they have a market for it. No matter how much they produce, if people do not want to buy the product, the companies are stuck with it. In Britain, the consumer has spoken. Supermarkets are businesses, which look at profits, and they are not selling GM goods because consumers have demanded that GM food be taken off the shelves. As many people as possible can say that it will increase yields, but as a taxpayer, I do not want to see any more set-aside. I keep on hearing the argument that GM food will feed the world and that if we keep on growing it, there will be so much food that so many people can eat. However,

African countries are turning round and saying that they do not want GM food. Some of the people are starving and they still say that they do not want it. In Britain we have no market for GM food, so does it matter that we will free up fields? We will not free up fields because consumers will not buy the product, unless we can prove that it is safe.

Dorothy-Grace Elder: Why do you think that the companies are pushing ahead regardless?

Anthony Jackson: They are doing so because the product is patentable, which takes us back to the idea of substantial equivalence. Genetically modified oil-seed rape is supposedly pretty much the same as oil-seed rape, but GM oil-seed rape can be patented. It is substantially equivalent, but different enough to be patented. A patented seed gives a lot of commercial power in profit margins. It is also made to be resistant to the particular herbicides that are made by the same company. As such, farmers are tied into both buying patented seed, which they cannot use the next year without buying another one because they do not own and cannot save the seed, and using the herbicide that is produced by the corporation.

Dorothy-Grace Elder: So, despite people not wanting GM products in the supermarkets, you think that genetic modification is still big business with a huge profit potential?

Anthony Jackson: If people started buying the products, it would be.

Dorothy-Grace Elder: They are not.

Anthony Jackson: Indeed, and if you consider Monsanto's economic history, so far it is not big business. Monsanto is in a degree of trouble. Bayer CropScience is turning up; it was Aventis CropScience until a few years ago when a fiasco in the United States of America caused the StarLink case. Food that was not licensed to get into the human food chain got into the human food chain, causing a huge amount of allergic reactions.

Dorothy-Grace Elder: It happened here as well. There was an accidental illegal harvest in 1999.

Anthony Jackson: Absolutely. It happened over here when GM seed was sown throughout Scotland and the rest of the UK even though it should not have been. That seed was grown in Canada at an 800m separation difference, but 23 per cent of it was more than 1 per cent GM. Despite that, the Scottish Executive will not test crops that are 50m away from GM crop trials and says instead that such crops are fine to go into the food chain because it presumes that the proportion of GM content will be less than 1 per cent.

The Convener: We have no further questions. Do the witnesses want to make any points that have not been covered in either their statement or our questions?

Anthony Jackson: Yes. One point that sums up the argument is that no insurance company will provide liability insurance for GM crop trials or GM crops. Insurance companies are like any other business, and they obviously see that there is a risk. If they are not prepared to insure the farmers, the Executive or Aventis, why should the public have to face GM crops in their open environment?

Linda Martin: What would happen if an individual suffered as a result of GM food? Who would pay the compensation? The Scottish Executive recently did not have the money to compensate hepatitis C sufferers, which was a specific problem. Everybody eats food, so this could be a huge problem in the future. Have we got the money to compensate individuals if something happens to them? That could happen over a 20 or 40-year period. We just do not know.

The Convener: Thank you for your evidence this morning and for your written submission. As you heard, we will take further evidence from Bayer and various other people including the ministers.

Hepatitis C (Compensation)

The Convener: Agenda item 3 is hepatitis C, and we can pat ourselves on the back for any movement made by the Executive and say thanks very much to us all for helping it on its way.

Last week, we met the minister for a private briefing during which we discussed the fact that we would want to hear from the minister in public when the expert group report had been published and we had all had a chance to read it. The suggestion is that the minister come to our meeting on 11 December to tell us exactly what the Executive will do in response to the report. We will also hear from Lord Ross, the chair of the expert group, and Philip Dolan, who is a member of both the expert group and the Haemophilia Society. It is, of course, open to members to suggest anyone else that they might want to hear from.

The minister cannot make it on 4 December, and the deputy convener and I felt that having that meeting on 11 December would give the Executive enough time to produce a substantive report on its action. The message to the Executive from the committee is that we expect answers at that meeting. We do not want the issue to drag on into next year, and we hope that waiting until 11 December will give the minister enough time to respond with an idea of what action will be taken.

Is that acceptable to members?

Members *indicated agreement*.

The Convener: That brings to an end the public part of this morning's business.

10:37

Meeting suspended until 10:47 and thereafter continued in private until 12:24.

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