TRANSPORT AND THE ENVIRONMENT COMMITTEE

Wednesday 27 September 2000
(*Morning*)

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TRANSPORT AND THE ENVIRONMENT COMMITTEE
22nd Meeting 2000, Session 1

CONVENER

*Mr Andy Kerr (East Kilbride) (Lab)

DEPUTY CONVENER

*Nora Radcliffe (Gordon) LD)

COMMITTEE MEMBERS

*Helen Eadie (Dunfermline East) (Lab)
Linda Fabiani (Central Scotland) (SNP)
*Robin Harper (Lothians) (Green)
Janis Hughes (Glasgow Rutherglen) (Lab)
Cathy Jamieson (Carrick, Cumnock and Doon Valley) (Lab)
*Mr Kenny MacAskill (Lothians) (SNP)
*Des McNulty (Clydebank and Milngavie) (Lab)
Tavish Scott (Shetland) (LD)
*Mr Murray Tosh (South of Scotland) (Con)

*attended

WITNESSES

Ian Anderson (Scottish Executive Rural Affairs Department)
Derek Bearhop (Scottish Executive Rural Affairs Department)
Sarah Boyack (Minister for Transport and the Environment)
Dr Paul Burrows (Advisory Committee on Releases to the Environment)
Simon Cooper (Scottish Agricultural Science Agency)
Professor Malcolm Grant (Agriculture and Environment Biotechnology Commission)
Professor Alan Gray (Advisory Committee on Releases to the Environment)
Professor Jeff Maxwell (Agriculture and Environment Biotechnology Commission)

CLERK TO THE COMMITTEE

Shelagh McKinlay

SENIOR ASSISTANT CLERK

Richard Walsh

ASSISTANT CLERK

Alastair Macfie

LOCATION

The Hub

Scottish Parliament

Transport and the Environment Committee

Wednesday 27 September 2000

(*Morning*)

[THE CONVENER *opened the meeting in private at 09:56*]

10:06

Meeting continued in public.

The Convener (Mr Andy Kerr): I welcome the press and public to the 22nd meeting this year of the Transport and the Environment Committee. Apologies have been received from Tavish Scott and Linda Fabiani, who are attending a meeting of the Holyrood progress group, and from Cathy Jamieson and Janis Hughes.

Genetically Modified Organisms

The Convener: As members will be aware, the first item on our agenda is evidence taking on the issue of genetically modified organisms. At our previous meeting, we took evidence from Friends of the Earth Scotland, the RSPB Scotland and Dr Ulrich Loening, the retired director of the Centre for Human Ecology. Today we will hear from the Advisory Committee on Releases to the Environment, the Agriculture and Environment Biotechnology Commission, and the Minister for Transport and the Environment, Sarah Boyack, who is due to arrive around 11.30 am.

I welcome Alan Gray and Paul Burrows from ACRE to this morning's meeting. We try to keep these sessions as light and informal as we can, while seeking to get at the issues that we want to address. I invite the witnesses to make a short opening statement to the committee, if they deem that necessary. This is not an ideal room, and the sun may move around and cause us problems. However, we will have to live with that. I hope that it does not become too much of an inconvenience.

Professor Alan Gray (Advisory Committee on Releases to the Environment): Good morning. Paul Burrows would like to make an opening statement.

Dr Paul Burrows (Advisory Committee on Releases to the Environment): I hope that it will be useful to the committee if I begin by setting out briefly the post-devolution relationship between ACRE, its secretariat and Scotland in respect of releases of genetically modified organisms in general and genetically modified crops in particular.

I emphasise that ACRE is a Scottish committee—it is as much a committee of the Scottish Executive as it is a committee of the UK Government or of the Welsh and Northern Irish Administrations. Scottish ministers can call on ACRE to give advice at any time on any matter within ACRE's terms of reference, entirely independently of Whitehall and of any other Government machinery. ACRE appointments must be made with the agreement of the Scottish Executive. Two members of ACRE are from Scotland, although like all ACRE members they were appointed purely for their scientific expertise and not because they represent particular interest groups.

As the secretary of ACRE, I head a team of scientists who are civil servants but are all qualified at PhD level in a biological subject. Post devolution, we make up the joint regulatory authority. We are not a body of the Department of the Environment, Transport and the Regions body, although we are based in DETR. In addition to providing the ACRE secretariat, the joint regulatory authority operates the deliberate release process on behalf of England, Scotland, Wales and Northern Ireland. That means we receive and process all the applications to release genetically modified organisms into the environment in the United Kingdom. It makes regulatory sense to have that one-door policy.

If a company wishes to do a field release of GM crops in Scotland, it submits an application to Scottish ministers via the joint regulatory authority. We receive the application on behalf of the Scottish Executive and the scientists in my team check the dossier to ensure that it is compliant with the regulations and that it makes sense scientifically. We prepare the application to be put to ACRE for advice. That is a specialist task and we have several years' experience in it from before devolution. On receiving the application, we copy it to the Scottish Executive, which copies it further within the Executive and to Scottish experts in the Scottish Agricultural Science Agency, for example. Any comments received are fed back to us at the joint regulatory authority and fed into the general ACRE process. The application is also copied to English Nature, which in this capacity represents the Joint Nature Conservation Committee and has internal mechanisms to consult Scottish Natural Heritage.

The application is eventually put to ACRE for advice. SNH, via the JNCC, has a seat at the ACRE table, as does the Scottish Executive. ACRE offers advice to Scottish ministers on the risks to the environment and to human health. We

receive that advice on behalf of the Scottish Executive and communicate it to Scottish officials.

Once we have communicated ACRE's advice and all the other relevant paperwork, our job is finished. The decision as to whether consent is granted is an entirely Scottish matter, within the European regulatory framework that governs all our work. If consent is granted, it is issued from and for Scotland.

The Convener: Thank you. That was an interesting overview of ACRE's work. Thank you also for your written submission to the committee, which has been circulated to all members. I invite Helen Eadie to open the questioning.

Helen Eadie (Dunfermline East) (Lab): What do you consider to be the potential environmental benefits and risks associated with growing GM crops? In paragraph 12 of your submission you talk about "intrinsically low risk". How do you define that?

Professor Gray: That is an interesting question for us, because we do not deal with benefits. We work within a strict legal regulatory framework to address the potential risks of growing GM crops. First, we try to identify hazards or harm that might result from a release, whether it be small scale or for marketing purposes. We then assess the probability of those hazards being realised. The product of those two things is the risk, and that is what we focus on. We are not legally constituted to consider benefits. I do not know whether that is right or not, but benefits fall within the ambit of other committees and individuals who give advice to ministers. Usually I feel inhibited about discussing the potential benefits of growing GM crops, as I must not appear to be an advocate. Paul Burrows may want to address the question of benefits, but it is important to make it clear that we deal with risks. We seek to identify potential harm to the environment and to human health.

"Low", "moderately low" and "effectively zero" are expressions that have come into the risk assessment lexicon and with which we have become familiar by dealing with a range of traits and genes that have been presented to us in crops. Sometimes we can identify hazards. In the case of small-scale experiments, which may take place in an area about the size of this room, we might insist that as part of the trial the flower heads are removed, so that there is no risk of the modified gene getting into the environment, as we do not yet understand what harm it might cause. We are able to grade the various constructs and crops and to assess them on the basis of the risk that they pose to the environment.

Because risk assessment is a step-by-step process, we gradually deal with more and more familiar genes. Some of the genes in the current farm-scale evaluations, which I know the committee has been examining, are very familiar and have been in many trials here. There is, for example, a gene for tolerance to the herbicide glyphosate. About 20 million hectares of Roundup Ready crops—soya beans, as it happens—have been grown in the new world this year. People have been eating those products for five years. There is a gradual process of familiarisation with the potential risks.

The Convener: Would Paul Burrows like to add anything?

10:15

Dr Burrows: There are two things. First, I agree with Professor Gray that because the whole debate is so polarised, anyone involved in the regulatory process, including us, has to be careful about promulgating the potential benefits in case they appear to advocate the technology. However, as an expert in the field, I can inform the committee about benefits that I have read about or have heard about at conferences. Whether they come to fruition or not is not for me to say.

It is widely stated that the next generation of GM crops will be targeted specifically at achieving improved nutritional composition, for example, modified oil content, or improved industrial products, such as biodegradable plastics, where the raw input materials are sunlight and water. I have seen figures presented at a conference that demonstrate a significant reduction in the use of pesticides, particularly in north America, even in the current generation of GM crops, which tends to focus on pest resistance and herbicide tolerance. The reduction is not only in the crude number of pounds per acre—as the Americans say—of active ingredient of pesticide that is applied to crops, but in the petrochemicals used in packaging, transport and application of pesticides.

Even herbicide-tolerant crops have led to a substantial increase in north America of no-till or low-till agricultural systems, which is where the follow-on crop is sown into the stubble of the preceding crop. Farmers are confident that they will be able to control weeds in crops, so there is no need to plough. That preserves soil microstructure, helps to prevent erosion and keeps carbon locked up in the soil, so the release of carbon from the soil does not contribute to global warming. Those are just some of the benefits that I have read about.

Secondly, I want to pick up on the specific question about the meaning of low risk. Nothing that we do is entirely free from risk. That is as true for agricultural developments as it is for developments in medicine or in engineering. The ACRE chairman will correct me if I am wrong

when I say that, being a committee of scientists, ACRE will never say that there is no risk. The closest that the committee will get to saying that there is no risk is that there is a very low risk.

Helen Eadie: I think that you were moving on to the topic of my next question. When you assess the risk to the environment in relation to a release, what is included in the definition of environment? Are you aware of any evidence that the release of GMOs has a harmful impact on the environment?

Professor Gray: We consider the wider environment, although environment is a general term. We consider the agricultural environment—the risks to agriculture and to those involved in agriculture—through advice from assessors and members of the committee. We consider the wider environment of the field margins and the semi-natural countryside and vegetation of the UK. It is important to do that, because of the 13 most widely grown crops around the world, 12—the groundnut is the exception—have relatives with which they could hybridise. It is different in different countries. We do not have an issue with maize, but we do have an issue with beet and oil-seed rape. We therefore need to know where the wild relatives are and the implications of any transgenes from the crop being passed into the wild relative population by hybridisation or cross-pollination. The whole of the UK environment is within our remit.

The member will need to remind me of the second question.

Helen Eadie: Are you aware of any evidence that the release of GMOs has a harmful impact on the environment?

Professor Gray: I feel confident that, to date, we have no evidence that the GMOs that we have examined—the 180 small, part B releases that were carried out in contained conditions, where the risk was strictly managed, and the few instances of slightly larger-scale growing of herbicide-tolerant crops, which are being assessed at the moment—cause harm to the environment.

Helen Eadie: My final question is, what mechanisms are in place to continue to monitor the effects of GM releases? What mechanisms are there for withdrawing consent if doubts about safety arise at a future date?

Professor Gray: The regulations under which we work—EC directive 90/220/EEC—are being redrafted and monitoring has become an important issue. As members will be aware, these things take time, but we know something of the spirit of the redrafting. EU ministers have agreed that the redrafting should contain an assessment of monitoring of post-market releases. In the UK, we do not yet grow any crops commercially, but about 30,000 hectares of insect-resistant maize are grown in Spain, France and Italy, and this year, I think, in Portugal—that is all that is grown in Europe. Post-harvest monitoring—monitoring the impact on the environment—is now a condition laid down for companies that apply to release as part of the risk assessment process.

The risk assessment process is a continuing business. Under the regulations, if a company discovers something scientifically new during trials or due to some development, it is required to let us know. It must say, "Hang on a minute; here is something we did not realise." That happened quite recently with the familiar Roundup Ready gene. A few bits of DNA were discovered and Europe asked for a revised risk assessment, which meant that specialists in molecular biology re-examined carefully all the evidence and made a revised assessment. It is an on-going process. It is never an absolute.

Robin Harper (Lothians) (Green): I have a list of 10 supplementary questions for this section alone, which would keep us here for rather too long. Therefore, my first question is, given the time constraints, may I submit some of my questions to you for a response in writing?

Professor Gray: Of course.

Robin Harper: Before I tackle a couple of my own supplementary questions, I want to follow up Helen Eadie's question on post-trial monitoring. For how long will the local environment be monitored after completion of a three-year farm-scale trial?

Professor Gray: There are two issues. First, the farm-scale evaluations form a three-year experiment to establish what the impact of growing GM crops might be, principally regarding the use of the herbicide. They do not involve assessing environmental safety or risk to human health or the environment. They are about the impact on biodiversity, which is a UK-wide issue.

Secondly, a marketing release will be monitored for seven or 10 years, I think. A condition will be placed on the firm that markets the product—whatever it is—to monitor it for a time.

Robin Harper: Are you saying that commercial-scale plantings will have on-going monitoring, but that the immediate environment of farm-scale trials will not be monitored further when those trials are completed after three years?

Professor Gray: I am not aware of any—

Dr Burrows: I think that I can answer that question. Professor Gray is right. In Europe, there is a clear commitment that post-market monitoring should become part of any marketing consent that may be granted. When companies make an application, they will need to submit proposals on

what they will look for during post-market monitoring—we addressed that issue in the papers that we submitted for today's meeting.

I am sure that Robin Harper is aware that, broadly speaking, farm-scale trials involve three crops—maize, oil-seed rape and beet. The maize already has a part C marketing approval at European level, but is still not and cannot be grown commercially, because it has still to go over other regulatory hurdles. The maize releases will be intensively monitored, simply because they are part of the farm-scale evaluations. Scientists will be crawling all over those sites looking for many things.

Oil-seed rape and sugar beet fall under experimental permits—what we call part B releases—and as such carry post-release monitoring, which lasts for two years for each crop. Therefore, after the farm-scale evaluations have finished, the scientists have gone away and the sites have settled down, those sites will be monitored for a further two years. It is the responsibility of the consent holders to conduct that monitoring. To show that they have done that, they will have to submit monitoring reports to the regulatory authorities.

It is also in the gift of ministers to send along the statutory inspection and enforcement teams. In England, it is the job of the Central Science Laboratory, and in Scotland, I believe that it is the job of the Scottish Agricultural Science Agency, to check that the sites are being monitored. Therefore, the sites can be monitored independently.

Robin Harper: In your opinion, could a farmer market in the UK an oil-seed rape crop that was contaminated with GM?

Professor Gray: I do not think that my opinion counts. Legally, a farmer could not do that.

As a scientist and a purist, I must pick up on the word "contamination". That word is value-loaded. We tend to use it in relation to pesticides and it implies that harm may result from the contamination. If a crop contains genes that came originally from a transgenic plant, it is more neutral to describe the crop as admixed. The word "contamination" is now part of the lexicon of GM and we all use it freely, but for the record I must say that I do not like the word.

Robin Harper: You advised against part C notification for consent to market two cotton crops because of the presence of an intact antibiotic marker gene. Why was that principle not extended to the presence of kanamycin resistance genes in oil-seed rape?

Professor Gray: Different markers and different genes—spectinomycin and streptomycin resistance genes, which are important in clinical practice—were involved. As you know from the final advice from the UK, the Advisory Committee on Novel Foods and Processes—I do not know whether we call it our sister or brother advisory committee—advised that the crop with kanamycin resistance should not be released. In fact, that antibiotic marker has been removed from the current crops. ACNPF was worried because of the possibility—although it was extremely remote and hardly calculable, it was a theoretical possibility—of the transfer of kanamycin resistance to the microflora in the guts of animals.

ACRE's view was a wider one and an environmental one. Although it was not the committee that I was chairing at the time, I know that the view was taken that kanamycin-resistant bacteria are ubiquitous in the environment: 60 to 70 per cent of bacteria in the gut are kanamycin resistant. That resistance is widely found. Compared with the possibility of harm from the overuse of antibiotics in veterinary medicine, and indeed in general practice, we thought that there was a negligible to small risk. But when one takes the combined advice, the UK view was that we did not support the use of the kanamycin resistance marker gene.

10:30

Dr Burrows: On the case of the two GM cottons and spectinomycin resistance, ACRE received clear advice from clinical pathologists that spectinomycin is an extremely important antibiotic in their diminishing armoury in combating some diseases—in particular, it is a front-line antibiotic in combating gonorrhoea. ACRE took the extremely precautionary stance that the use of that antibiotic, no matter how small the chance that resistance could be transferred, should not be compromised.

Robin Harper: To what extent does ACRE regard herbicide tolerance as a trait that would confer a selective advantage to weeds or volunteer crops in areas where the herbicide is used? Are you concerned about recent research that shows the spread of herbicide multi-tolerance among weeds in oil-seed rape crops in Canada?

Professor Gray: There are two issues regarding herbicide tolerance: the control of volunteers—rape plants that appear the next year—and weeds. When we looked at the herbicide-tolerant rape—it is tolerant to glufosinate ammonium—that is being grown in the trials, one of the questions in the risk assessment was: how do we control that if it creates a volunteer problem in agriculture? It is an agronomic problem; it is not a safety issue.

Of course, other herbicides were and are available for control, one of which is glyphosate.

So when an application for glyphosate tolerance comes along, the risk assessment provided by the applicant has to include an assessment of the possibility of gene stacking. Gene stacking is genes giving tolerance to two herbicides, which is what happened in Canada. The applicant would have to tell us how they would control that, perhaps with another herbicide, or how they intend to minimise that happening.

On weeds that are not volunteers—that is, weeds that are relatives of the crop—we find six species in the UK to which, in theory, genes from oil-seed rape could be transferred and from which one could get a hybrid that persists. In practice, for some of those that we might worry about most, such as charlock, the chromosomes are so different from those of oil-seed rape that hybrids are rarely found. In fact, there is some argument about whether they are ever found.

There has been extensive work on that. Genes are unlikely to transfer to charlock from oil-seed rape. However, oil-seed rape is made from wild turnip and wild cabbage, and both of those potentially can receive genes from oil-seed rape, so the possibility of herbicide-tolerant weed turnip in fields is real, and it is one to which one can attach a quantitative probability. For example, gene transfer is of greater importance in Denmark, where wild turnip is a serious weed of agriculture, than in other areas such as the UK, where it is not a serious weed and occurs only occasionally.

However, there are many herbicide-tolerant weeds. Although the first one, which was resistant to symazine, was found only 30 years ago, the use of herbicides in agriculture has led to more than 120 species of weeds that have evolved herbicide tolerance. It is not a new problem in agriculture, but it is a problem to be taken into account in the risk assessment, and not one that one would want to add to.

Nora Radcliffe (Gordon) (LD): To what extent do you think that exclusion zones around GM crops can reduce the environmental risk associated with these crops? Are the exclusion zones around GM crops in Scotland adequate, given that evidence from other witnesses supported distances of 4,000 m or more? What are the exclusion distances in other countries?

Professor Gray: While ACRE feels that exclusion zones are an important principle, one can get in a lather about whether the distance should be 200 m or 100 m. The imposition of a separation distance in farm-scale trials, which is just one example of separation distances that ACRE has insisted upon during the years in which it has operated, is not to prevent gene flow and cross-pollination, but to minimise it and reduce it to extremely low levels under all conditions. It is more concerned with maintaining the propriety and product identification of crops, and separating the GM from the non-GM part of agriculture.

As far as we are concerned, that is not a risk problem, so in that sense, an exclusion zone would not be necessary, because the gene is not dangerous or serious. However, we want to minimise the amount of cross-pollination that comes from those trials. Much work has been done on how large exclusion zones should be. There is lots of theory, and lots of super work from Gavin Ramsay and Geoff Squire of the Scottish Crop Research Institute, who spoke to the committee a couple of weeks ago. They have done some good work on how far genes travel in a landscape where oil-seed rape is grown all over the place. Their conclusions are clear, that on a landscape scale, total separation of GM and non-GM components would be impossible. It is a question of what is practical.

With oil-seed rape, most plants—approximately 60 to 80 per cent—in the field pollinate themselves; oil-seed rape is self-pollinating. A proportion of plants pollinate their neighbours, and those at the edge of the field, for about 4 m or 5 m, will pollinate any plants on the edge. After that, it is difficult to calculate the difference between the pollination frequency at 20 m and that at 200 m because it is very low.

I am sure that members have heard that bees can catch trains, and if I had been able to put a sticky slide outside the aeroplane that I was on this morning, I probably could have caught some oil-seed rape pollen. However, what matters is how much hybridisation occurs and, at the business end, how many hybrid seeds are produced.

The evidence on which we must base our science is from the world of crop seed purity. There is no theory. Tried and tested methods have shown that if one separates maize by 200 m, one gets seeds that are hybrids between those two patches of the crop at a certain frequency. The distances in the farm-scale trials are based on experience of the production of seed of various qualities. For oil-seed rape, for example, the figures are 400 m for a maximum of 0.1 per cent hybrids, and 200 m for 0.3 per cent. There are various figures based on years and years of seed testing stations finding out how frequently it happens. Long-distance pollination can and does occur.

Nora Radcliffe: Your submission explains that farm-scale trials are not designed to investigate the potential effects on the environment of GM crops themselves. That has already been done in the laboratory and in the small-scale field trials. Can you explain in simple terms the purpose of farm-scale trials? Can one adequately test possible effects on the environment in the closed

conditions of the lab or on a small-scale crop trial?

Dr Burrows: As the ACRE chairman said, the purpose of farm-scale trials, in a nutshell, is to evaluate the impact of the management practices of growing herbicide-tolerant crops. In many respects, it is irrelevant that the crops happen to be genetically modified. The key trait is that they are herbicide tolerant, and herbicide tolerance could come from any breeding method. What we are studying in farm-scale trials is the impact of herbicide regimes. We know that the theory goes that if farmers could produce fields with fewer weeds, there would be fewer seeds and therefore less food for birds and insects, with various knock-on effects for biodiversity. That is the purpose of the farm-scale evaluations.

What was your second question?

Nora Radcliffe: How adequately can one test possible effects on the environment in the closed conditions of a lab or a small-scale crop trial?

Dr Burrows: The regulatory process for seeds, under directive 90/220/EEC, ensures that GM crops are released in a step-by-step process. All GM crops that are released to the environment will, at some stage, have gone through laboratory and glass-house testing beforehand. When a crop first comes forward, it is always released on a small scale and with precautionary risk management. At that time, there is no evidence either way as to whether it is likely to harm the environment. However, as a precaution, there are usually large separation distances and pollen barriers.

When considering a GM crop for the first time, ACRE has often recommended that the flowers are removed so that the crop is not allowed to pollinate, or that the flowers are bagged so that pollen cannot be distributed. Based on monitoring reports and observations of the crop, if there appears to be no harm to the environment and the crop performs as expected, it will be allowed to be released on a slightly larger scale the next time. We follow that step-by-step process, which is an entirely proper precautionary measure.

The answer to your question is that one cannot adequately test for environmental impact in the laboratory. That is part of the process, but it cannot be the only story. One must be able to bring things out into the environment step by step. There have been one or two quite good laboratory studies that could indicate problems in the environment for some GM crops. I have in mind the studies that were done by Hillbeck et al, Swiss researchers who studied genetically modified Bacillus thuringiensis maize. Their studies showed that the maize could have an indirect effect on beneficial insects, such as lacewing larvae.

That was a laboratory study, which may be indicative of effects on the environment, but the true test is to look and test in the environment and monitor for such effects. The monarch butterfly research, published about a year ago, with a more recent follow-up paper, also shows that indicative laboratory studies need to be studied further in the environment.

Nora Radcliffe: Dr Loening's submission stated that farm-scale trials

"are clearly inadequate for the task"

and

"cannot contribute much to 'a rational debate.'"

Do you agree that there are important questions that farm-scale trials cannot answer? If so, what are they and how are they being addressed?

Professor Gray: I would contest Ulrich Loening's suggestion that the trials are inadequate. I think that they will tell us a lot. The important things about the herbicides that we are talking about are that they are broad spectrum, so they kill everything green, and that they are environmentally less persistent than many other herbicides that are used. For example, people use herbicides such as Roundup in their gardens.

10:45

We need to know the combined effects of those two features of the herbicides. As has been shown in north America, herbicide-tolerant crops give the farmer more control over when he puts on the herbicide. In this country, we grow maize principally for fodder. Corn and maize farmers in the USA put on a really persistent and penetrating herbicide called Atrazine, which goes into the soil and kills weed seeds in the soil before they germinate. That herbicide is put on pre-emergence, before the little maize plants come up, because they are terribly poor at living in our environment on their own.

Having a herbicide that will kill the weeds but not the crop gives the farmer the option of greater control. One of the things that will emerge from the farm-scale trials is whether that option, when used appropriately, gives cleaner fields or allows more weeds to grow. That is an important question. Trials that are designed with sufficient rigour and statistical power, with paired crops, half of which are conventional in the use of herbicides and half of which are herbicide-tolerant, will tell us an awful lot in a relatively short time about the ecological impact.

There are longer-term things that the trials will not tell us, but that is true of any change in agriculture. If I had to bet, I would bet that, if Scotland moved to winter-sown rather than spring-sown crops, that would have an enormous impact on the geese that overwinter on the stubble in the

fields. It is the way in which farms are managed and what is available for birds and other wildlife to eat that are critical. The use of herbicides is part of that picture. We did not know what the longer-term effects of moving to winter-sown crops in a big way—which we do with cereals and oil-seed rape—would be on birds. The ecologists in my organisation suspect that that simple change has made an enormous impact. Such long-term effects are less easy to establish, but I reiterate that they are effects, not safety issues. That is our threshold.

Robin Harper: I have a list of 12 questions.

The Convener: Of which you can ask one.

Robin Harper: I shall be selective. We learned from the Scottish Crop Research Institute that virtually no subsoil research is taking place into the possible effects of gene flow of any kind into subsoil fungi, viruses or bacteria. Are you happy about that, or do you feel that Government money should be made available to support such research?

Professor Gray: I can say something about the science, but Paul Burrows may want to say something about whether it should be funded.

Dr Burrows: Subsoil effects are an extremely difficult issue, which goes to the heart of the risk assessment process. In that process, one identifies a hazard and evaluates the likelihood of that hazard coming about. There needs to be some sort of connection, some conceivable mechanism, whereby that hazard could materialise.

The hazard that is suggested for subsoil effects is that genes from GM crops might transfer into soil bacteria or soil fungi. ACRE has wrestled with that issue on the assumption that it will happen. As far as I am aware, there is no evidence in the real world that such horizontal gene flow can happen. There is laboratory evidence under high selective pressure that genes will go across into soil bacteria and fungi. The question that is being asked is not whether it will happen, but what the consequences would be if it did. It is difficult to think of a hazard that would arise if a bacterium in the soil picked up a herbicide-tolerance gene.

We must remember that we know very little about soil micro-communities; it is difficult to monitor them effectively. There is a great deal of gene flow naturally in soil micro-communities, which are very promiscuous—genes are swapped all over the place. When conventional crops decompose in the soil, bacteria pick up fragments of DNA. What are the implications of that and how is it different from them picking up DNA from a GM crop?

We are investigating other issues. Some recent research on the Bt crops has shown that the Bt toxin appears in root exudates—that means that it sweats, essentially, from the root's surface. That might affect soil invertebrate communities. As ACRE has advised, before those crops can be grown widely in the UK, that issue needs to be examined in greater detail. The Department of the Environment, Transport and the Regions hopes to fund some research into the possible effects of that.

Mr Kenny MacAskill (Lothians) (SNP): In your statement, you said that you report directly to English Nature but indirectly to Scottish Natural Heritage. Why is that?

Dr Burrows: I understand that the nature conservancy bodies—English Nature, Scottish Natural Heritage and the Countryside Council for Wales—have agreed that there should be one door for information on GM issues. They have elected a representative, who happens to be an employee of English Nature. We copy the application to English Nature, which has internal mechanisms by which it consults the other nature conservation bodies.

Mr MacAskill: Does that mean that Scottish Natural Heritage is demitting responsibility, in the first instance, for crop trials in Scotland to English Nature?

Dr Burrows: I do not think that that is the case, although that is clearly a question for Scottish Natural Heritage to answer. I understand that there is an internal consultation mechanism and that, via the single door of English Nature, Scottish Natural Heritage has the opportunity to comment on all applications that come to Scotland.

Professor Gray: The organisation was devolved before we were. All the organisations are in touch with each other through the umbrella organisation, the JNCC. We have a lot of contact with conservation agencies. I know of Scottish Natural Heritage's debate about GM crops and have talked to its chief scientists.

Mr MacAskill: Who would be your principal port of call?

Professor Gray: The formal reporting procedure is conducted via the advisory committee. On that committee are people from English Nature, the Scottish Agricultural Science Agency and the Scottish Executive.

Mr MacAskill: How do Scottish ministers access the advice of organisations such as yours? What is their involvement in the issue of individual release consents? What contribution do public and non-departmental bodies make to decision making?

Dr Burrows: That question would best be answered by the minister and the other witnesses

to whom you will speak this morning.

In England—as I know from my interactions with the ministers to whom I usually answer as part of the regulatory process—there is much concern about the need for the public to have greater input to the regulatory process. It is recognised that that is difficult at the moment. The European regulatory framework is based on safety, science and risk assessment and does not accommodate someone who believes that their freedom of choice is being interfered with. We are exploring ways in which we might be able to involve the public much more. With the farm-scale evaluations, there have been local public meetings in Scotland that officials have attended to answer questions from the local public. In the regulatory framework, there is provision for supplying information to the public. There is a statutory public register that contains information about all the releases. The applicants are obliged to place advertisements in the area where the release is due to take place. Local people can write to us at the joint regulatory authority to complain, ask for more information or raise issues. If anyone ever raised a science or safety-related issue that had not been considered in the regulatory process, ministers might have the power to act. All the letters that we receive are brought to the attention of ACRE.

Mr MacAskill: Given what we have heard about English Heritage, in what ways are Scottish interests represented both in terms of the overall philosophical and scientific questions and in relation to field-crop studies? Is there any right of veto or a vote if decision making is dealt with in that manner?

Professor Gray: I will say something about the science side of that question. As Dr Burrows said, although they were not selected for this reason, two members of the advisory committee work in Scotland—a virologist and an ecologist. The ecologist works in the same institute as I do.

I would be the last person to claim that science was totally objective, but I think it is true to say that a committee of scientists in Canada, France, Australia or China that examined the same genetic evidence—what genes were there and how they were behaving—would come to the same conclusions as we would. There are certain universal elements to do with science that—thank goodness—allow us to proceed to the next stage and learn some more. However, there are some matters on the margins that are subjective. They are to do with environmental impacts. Environments differ and it is important for us to have a wide ambit in that. When we are thinking about the environments in which releases might occur, we think on a UK-wide scale.

I do not know about how that information is fed to Scotland. That is a political issue.

Dr Burrows: The decisions on consent are entirely Scottish matters and are up to Scottish ministers. We process the applications and give Scottish ministers ACRE's advice, via their officials.

Mr MacAskill: If the Scottish Parliament were to establish an independent commission, as the petition calls for, what impact would that have on your organisation and how would the two bodies interact?

Professor Gray: That would depend on the commission's remit. If it dealt with assessing risks from releases, it would exactly parallel the work of my committee. If it considered wider issues than risk, such as the socio-economic and cultural aspects and even ethical considerations, it would go beyond the remit of the committee that I chair.

Mr MacAskill: Do the decisions of Scottish ministers have to be based on guidance that is given at a UK level, or can a Scottish minister or any elected representative of the Scottish people say—irrespective of any decision taken by you—"We are not touching it"?

11:00

Dr Burrows: You would need to back up my answer with the views of Scottish ministers, their officials and possibly lawyers, but English ministers—if I can call them that—are bound by the European regulatory framework. ACRE advises on the risk to human health and the environment; ministers are not bound to accept ACRE's advice. However, if a company were to ask for a release and ACRE's advice was that that release would present a low risk or no risk to human health and the environment, any decision by ministers to refuse to give consent would be open to judicial review. The advice that we have received—in England, at least—is that that would be difficult to defend.

Mr MacAskill: What involvement does the Scottish Parliament have in the appointment of the members of ACRE?

Dr Burrows: The membership of ACRE must be agreed with Scottish ministers.

Mr MacAskill: Do they have the right of veto?

Dr Burrows: They do. They also have the right to suggest members for ACRE. All appointments are made under the Peach/Nolan rules from the UK Commissioner for Public Appointments. Any veto is subject to those rules. It is all done openly and transparently, with a level playing field. At the point of nomination, Scotland puts forward a number of nominations, which are considered with all the others.

Des McNulty (Clydebank and Milngavie) (Lab): To move back into the domain of science,

especially contamination issues, one of your papers suggests that ACRE has often taken the approach of assuming that any hazard, if present, will be realised and that the consequences should be focused upon. Had ACRE made any recommendations about how to deal with an accidental release such as that which occurred with the Advanta seed? Following that incident, have you made any further recommendations?

Professor Gray: When that event came to light, we were asked—initially by the DETR secretariat—to comment on the environmental risks and safety aspects. Our comments are slightly at variance, in that we did not see an environmental or human health safety issue. However, there was clearly a legal and political issue, because it would be illegal to market those crops. There was a certain natural tension between the agronomic side and the health and safety side.

We are scientists, so we are interested in how the event happened, how to prevent it happening again and what lessons we can learn. I am sure that Paul Burrows will know more about this, but I understand that the jury is still out on the scientific aspects of how it happened. It could still emerge that the event was the result of a mix-up of seeds in a grain store. However, the wherewithal exists—using modern molecular techniques—to find out whether it was, as suggested, the result of an accidental hybridisation of a crop, which included some plants that were male sterile.

Dr Burrows: I support what the chairman of ACRE has said. The jury is still out on what happened in Canada. The Canadian authorities are investigating and I understand that the Ministry of Agriculture, Fisheries and Food is in close contact with its counterparts in Canada to try to find out what happened. If the outcome of that investigation raises any safety and science issues, they will be referred to ACRE for further advice.

Des McNulty: What is your professional view about whether more could have been done to minimise the environmental risks associated with that accidental contamination of crops?

Professor Gray: We did not see an environmental or human health harm or hazard. The gene is a familiar one that has been used in agriculture around the world. Increasingly, we will have to face this problem at a global level. While one part of the world holds back on growing such crops, other parts—especially in the developing world—who want to increase their crop yields without using herbicides, will take up growing such crops. There were something like 40 million hectares last year and there is a black market in Roundup Ready soybeans in places such as Brazil that do not allow them.

GM will become a global issue. There will be the potential for genes and DNA derived from GM to appear in areas where people do not want to eat GM products. Maintaining separation of GM and non-GM is a huge issue, on which there is a struggle in the European political process. However, from the point of view of hazard evaluation, we did not see a hazard.

Robin Harper: Friends of the Earth Scotland, in its submission to the committee, stated that there was more scope for precautionary action than has so far been suggested. It cited article 4 of EC directive 90/220/EEC, which states that:

"Member States shall ensure that all appropriate measures are taken to avoid adverse effects".

Friends of the Earth does not consider that all appropriate measures are being taken. Do you have a view on that interpretation of the directive?

Professor Gray: If I did not anticipate a hazardous effect, I would not think that there was a better way of avoiding such an effect.

The Convener: That was a straightforward answer to a straightforward question. I thank you for keeping your answers non-technical enough that we were able to follow your train of thought. Thank you also for your written evidence. There are a number of question areas that we would like to pursue but did not have the chance to cover this morning. The clerk, Shelagh McKinlay, will correspond with you about those.

I ask Professor Malcolm Grant and Professor Jeff Maxwell to join us. Good morning and welcome. It would be useful to the committee if you would make a short introductory statement on your role. The floor is yours.

Professor Malcolm Grant (Agriculture and Environment Biotechnology Commission): Thank you. I am the chair of the Agriculture and Environment Biotechnology Commission and a lawyer who is based at the University of Cambridge. With me is Professor Jeff Maxwell, the director of the Macaulay Land Use Research Institute in Aberdeen.

We welcome the opportunity to appear before the committee this morning. We are grateful to you for the invitation for a number of reasons. The first, and probably the most important of those reasons, is that you are considering a petition from Friends of the Earth Scotland, which includes the suggestion that Scotland might wish to establish an advisory committee or an inquiry to consider GM technology.

We note that the petition is dated December 1999. The Agriculture and Environment Biotechnology Commission was set up in June of this year and we have had two meetings so far. We welcome the opportunity to explore with you

the extent to which the establishment of the commission may address at least some of the concerns that Friends of the Earth and other witnesses have raised with the committee.

Secondly, we are taking advantage of our appearance to launch our work plan, of which I hope committee members have a copy. The plan will tell you more than we can, in the short time that we have available, about the rather ambitious programme of study that we propose to undertake over the next year or so.

The work plan is set up with three primary themes that we propose to address immediately and three matters that we are reviewing on a developmental basis, with a view to bringing them into the primary framework. The work plan is a rolling, consultative document—it is not the end of the biotechnology debate. We anticipate that we will not be short of issues to review and that we will be kept extremely busy over our lifetime.

We are not an end-state commission—we have not been set up to report on a particular subject by a particular date. We have an initial appointment for three years. We have been set up not to regulate, but to give advice to ministers on the strategic issues relating to biotechnology and their impact on agriculture and the environment.

We were established as a result of the Government's 1999 review of biotechnology. At the end of that open consultative process, the Government was concerned that there were gaps in the advisory structure. The commission was established as a sister organisation to the Human Advisory Commission and the Food Standards Agency. We are a trio of strategic commissions, with different remits, responsibilities and membership. We see ourselves as a group that must work together.

We are a UK commission and we were established by the UK Government in consultation with the devolved Administrations. Our members are appointed collectively by the UK Government, although the devolved Administrations of Northern Ireland and Scotland appoint some members—Susan Deacon appointed Jeff Maxwell. He appears on the commission as an independent expert, rather than as a spokesperson for Scotland. However, the UK Government makes a genuine attempt to ensure that the interests of the devolved Administrations are represented properly on the commission.

The Convener: Thank you. I heard the radio broadcast at 6.20 this morning in which you mentioned that subject.

Helen Eadie: Good morning, professors. Could you give me more detail on the role of the AEBC and the provision of strategic advice on biotechnology issues, particularly your role in relation to the environmental impact of GMOs?

Professor Grant: Formally, we have a broad remit. Ministers have been anxious not to restrain the ambitions of the commission and the range of issues that we will consider. Under our terms of reference, ministers—including Scottish ministers—have the power to ask us to examine particular issues. That power was used by Dr Mo Mowlam to invite us to consider issues relating to the public acceptability of seed impurity. We are rolling those issues into the first item of our work plan.

We are keen to examine strategic issues affecting decision making across biotechnology. We are trying to understand them by teasing out specific case studies. The first relates to the farm-scale evaluations. The draft work plan includes several questions that have already been agreed on—they build on what the committee has heard from ACRE—putting ACRE's work into context and exploring the broader issues. Indeed, we go so far as to ask not just about the impacts on the environment, but about impacts on agricultural practice. The second part of that inquiry relates to horizontal gene transfer, a subject that has already arisen in this morning's evidence.

However, we are not a scientific advisory committee. The commission includes distinguished scientists, but the critical aspect of our work is to examine the broader, socio-economic issues that arise from biotechnology and the impact on agriculture and the environment.

The project is ambitious and we take a pretty ambitious view. We are quietly optimistic about our chances of success. Our proposals are an earnest indication of our intention to succeed in the task that we have been given.

Helen Eadie: Do you have a view on the potential environmental benefits and risks associated with growing GM crops?

11:15

Professor Jeff Maxwell (Agriculture and Environment Biotechnology Commission): As the work plan makes clear, the commission is addressing those issues and seeking to come to a view on such questions. However, because of the way in which we are set up, that question will relate not only to the science, but to the public perception of the impact of GMOs. One of the important roles of the commission is to consider the views of the public. Our working model includes listening as much as we can to what the public say. When we come to Scotland—we hope to come in April next year—we will want to hear the public's views on the issues and how they perceive impacts on the environment. We will consider those views in relation to the scientific

evidence that we receive from committees such as ACRE.

Nora Radcliffe: I would like you to expand on a point that you have already mentioned. What is the commission's interest in farm-scale trials and will you be taking a view on issues such as the adequacy of current exclusion zones?

Professor Grant: In the work plan, we have set out a series of questions that we are keen to explore in relation to farm-scale trials. I must emphasise our anxiety to do several things. We must step back from the Advanta-Greenpeace conflict, because there is no point in the commission replaying that. Our job is to consider the strategic issues; to the extent that separation distances are part of that debate, they are part of our evaluation. The commission is made up of a group of extremely able and articulate people with, in some cases, strong constituency interests as well as the intellectual abilities that they bring to the commission. We are keen to develop the emerging trust between people in the commission from disparate backgrounds. We want to ensure high-quality advice to Government, at a strategic level. We will consider all issues relating to the farm-scale evaluations, but at a strategic level.

The Convener: Could you expand on the phrase "strategic advice"? What sort of advice do you expect to be giving to ministers?

Professor Grant: I hope that the questions that are posed in the work plan will clarify that. We want to investigate whether there are missing components in the decision-making process. The committee has heard from other witnesses consistently good opinions of the scientific quality of ACRE's work. However, there comes a point where a gulf develops between scientific acceptability and public acceptability of risk. The assessment of hazards and the quantification of risk is an objective and scientific process. However, public acceptability of risk is a political and social construct. That is the subject on which the commission can contribute.

The second part of the work plan outlines another area of consideration: public attitudes. We want to find out what influences the choices that we make as individuals and consumers in relation to biotechnology. That is the voice that we must understand more clearly and represent to Government. The word "strategic" does not mean replicating what others are doing; it means taking a fresher and broader view on the relevant issues.

Nora Radcliffe: One of our previous witnesses stated that farm-scale trials

"are clearly inadequate for the task needed and certainly cannot contribute much to 'a rational debate.'"

Do you agree that there are important questions that farm-scale trials can answer? If so, what are they and how are they being addressed?

Professor Maxwell: You heard the response from the ACRE representatives to roughly the same question. I would not demur from what they said.

The farm-scale trials were set up for a specific purpose. The answer that you received indicated that the trials will answer the questions that are posed. However, they cannot answer some of the other questions that were mentioned, for example on the long-term impacts. It is right that the commission should consider whether to advise ministers that work should be done on the long-term impact of GMO technology. As was explained, some of that work can be done in a laboratory, but one needs to move into the environment in which the crops will be used before one can determine what the real outcome will be. Before doing that, one must be as confident as possible that one will not run any risks in doing it. There is a stage-by-stage process to reach the point at which one can carry out more long-term studies. The commission will consider the gaps that have to be filled. We will have to advise the ministers on some of the issues that have been set out.

Robin Harper: Is it fair to say that the design of experiments is such that up to between 10 per cent and 20 per cent of even short-term effects might not appear in the results?

Professor Maxwell: I do not think that I am competent to answer that question. The answer depends entirely on the parameters that are measured. That is a question to add to your list for ACRE.

Mr MacAskill: Will you expand on your role of advising Government about the public acceptability of biotechnology developments? What philosophy lies behind what you are trying to achieve? Does it relate to the advancement of scientific knowledge, public perception and public safety or to an amalgam of those factors?

Professor Grant: Our philosophy relates to an amalgam of those factors. There is a philosophy inherent in the remit and terms of reference, a copy of which you have received. A separate philosophy will inevitably emerge as the commission's work gets going, and that will be determined by the membership of the commission. The commission has people from the non-governmental organisation community, scientists, bioethicists, lawyers and others. The philosophy that will emerge will draw together the insights of those people and will do so uniquely and experimentally, which is why I am loth to forecast the character of the advice that the commission will give. This is an unusual and fragile

experiment. It could go wrong or it could succeed extremely well. Members of the commission are willing to listen to people from other disciplines. The commission will have the capacity to learn and to produce intelligent advice for Government.

Mr MacAskill: You have told us about the structure of the organisation. Given that Scotland has a distinct legal system and, in many instances, a different farming framework, should Scottish issues be dealt with distinctly and how can that be done? Is there a distinct Scottish perspective?

Professor Maxwell: The AEBC has a duty to take account of all the issues. The extent to which we can be objective about the differences that there may be between England and Scotland or between England and Wales is open to debate. We accept that there will be issues in Scotland that require to be addressed specifically. The commission will have a duty to do that; I believe that it will be willing to do it and to advise Scottish ministers about those issues.

Previous witnesses mentioned the impact of GMOs on crofting and on how crofting produce is perceived. Clearly, that is a particular Scottish interest and one aspect that will have to be addressed. The question whether a different response will be suggested in Scotland will be answered only after the debate has taken place. The way in which the commission has been set up and has to report means that there is no reason to believe that Scottish issues will not be addressed specifically and in the necessary depth.

Mr MacAskill: How do you hope to achieve transparency in the advice that is given to ministers? What room is there for other organisations—the petitioners spring to mind—to be kept abreast of what is happening and the advice that you give?

Professor Grant: I would like to preface my answer with a supplementary point to what Professor Maxwell said on distinctly Scottish issues. I was intrigued by the suggestion in the written evidence from the RSPB that the committee might like to highlight the agronomic, environmental and broader branding issues that are peculiar to Scotland. If the committee were minded to do that, we would find it extremely useful, not just in relation to GM crops—which was the RSPB's suggestion—but across our work plan.

We are completely committed to public working. Lack of transparency has been one of the flaws in the system. We will give you the undertaking, which we have given in the House of Commons and elsewhere, that the working methods that we follow will be, as far as is possible, open and inclusive. In our consultation paper, we ask stakeholders and others responding to our paper to help us to understand how we can enhance the transparency and openness of our operation. Advice that I give to ministers will be given in public. There will not be a private process of communication with ministers. The faith of the public in the process depends on our working openly and transparently.

You asked about the room for other stakeholders to participate. We are desperately keen that they should participate. We will not succeed unless we listen very carefully to the views of stakeholders and non-committed members of the public. We will work hard to achieve that.

Robin Harper: If the Scottish Parliament established an independent commission or advisory body, as petition PE51 calls on it to do, what impact would that body have on the work of the AEBC?

Professor Grant: My answer to that is identical to the answer that Professor Gray gave you. The impact would depend on the role of such a body. For example, one of the options proposed in the petition is an independent inquiry, which suggests a start-and-stop operation.

If a separate Scottish commission exactly replicated our work, that might be thought unfortunate, as it would confine our contribution to south of the border. That would be a shame. We are keen to work with the Transport and the Environment Committee and with Scottish ministers to ensure that we, as a commission, are properly and professionally apprised of the Scottish elements that we ought to be addressing.

Robin Harper: Your submission states:

"The Government may also ask the Commission for advice on a particular issue and, if necessary, direct it not to become involved in an area if this could be better handled elsewhere."

Who would be the arbiter of whether it could be better handled elsewhere? How does that sit with the role of the AEBC as an independent body?

11:30

Professor Grant: I have to admit that I was very uneasy about that clause in our terms of reference when it was first broached. The informal assurance that I have received is that it is intended to cover only the situation of too many commissions trying to handle the same problem. I am content with that assurance. We are in close communication with the Food Standards Agency and the Human Genetics Commission to ensure that we are not trampling on each other's toes. In at least one of our inquiries, I am sure that we will wish to consult—or work jointly with—the Food Standards Agency. I feel that the threat of Governments directing us not to investigate

something is fairly remote. I assure the committee that if we felt that Governments were trying to direct us not to do something that we felt ought to be done, we would not hesitate to announce it publicly.

Robin Harper: Very good. The answer to my next question was implicit in what you have already said about transparency, but will the AEBC independently publish its advice to ministers in the manner of the Food Standards Agency?

Professor Grant: Yes.

Robin Harper: When will you be in a position to take a view on issues such as whether there are any gaps in the regulatory and advisory framework?

Professor Grant: The programme that we are launching today is a rolling programme. The commission has formed three sub-groups, adopting the simple principle that every member of the commission should be a member of one sub-group but not more than one. The three sub-groups are working separately and are carrying through three areas of inquiry. I hesitate to give members an outcome date, because it may then become binding and be used against me—not only by this committee but by members of our commission. However, I will say that a chairman's aspiration is that some point in the first half of next year would be a suitable time to see something substantial emerging from the commission.

Robin Harper: That is a very fair answer.

The Convener: Yes—thank you for that aspiration.

Des McNulty: In its submission to the committee, Friends of the Earth Scotland said that it felt there was more scope for precautionary action than has so far been suggested. In particular, it cited article 4 of EC directive 90/220/EEC, which states that:

"Member States shall ensure that all appropriate measures are taken to avoid adverse effects".

Do you have a view on Friends of the Earth Scotland's interpretation of that directive?

Professor Grant: I do not have a view that I could express at the moment, because this is something that we want to consider as part of the studies that we are undertaking. There are two or three elements to this matter. One is the operation of the precautionary principle to ensure that harm is not caused to the environment. Another is the question of legal liability if harm is caused to the environment. An appropriate legal liability regime can operate as a highly precautionary barrier to a firm that would otherwise be free to introduce potentially harmful technology. Liability issues are of fundamental importance in this area, as we all know, but they also lead to great difficulties. We are developing a proposal for a commission programme of work on legal liability. I hope that that work will carry across to our understanding of the precautionary principle.

Des McNulty: Will you be taking a view on issues such as whether member states should be able to impose a complete ban on the cultivation of GM crops?

Professor Grant: I am sure that that will come up in our deliberations because stakeholders will press that argument on us. It would be premature of me to express a view at the moment.

Des McNulty: Your commission is made up largely of people with a scientific and research background, so, whatever else there is, there is in a sense a research lobby in the commission. Do you feel that your deliberations might influence the work of the relevant research councils? Might you influence the directions in which funding is channelled or is not channelled?

Professor Grant: I hope that we will have such an influence. We will be meeting the research councils during these inquiries. If it is argued that too much funding has been going to one side of the debate, you can expect our commission to be alert to that.

Incidentally, I do not accept that we are made up largely of researchers, but there is a great deal of, as it were, cross-interest among people who are researchers but who have another interest in the debate. We also—interestingly—have a strong representation from consumer organisations, bioethicists and other organisations that, like me, have a fairly sceptical stance and are waiting to be convinced by the arguments in one direction or the other. One of the outcomes of the work that we are doing may be the traditional researcher's cry that more research is required and that more money ought to go into it.

Des McNulty: How do you guard against that? It is a difficulty for organisations such as yours.

Professor Grant: It is a difficulty, but if we regard it as an inevitable conclusion, we will have to say so.

Professor Maxwell: It is important to point out that, as far as the funding of research in Scotland is concerned, the advice that the commission may or may not give on the matter would be directed at the Minister for Rural Affairs, when he funds research programmes into issues that it might be appropriate to address differently in Scotland from elsewhere.

The Convener: That completes our questioning. Thank you very much for coming along. It was a most interesting and informative session. I

welcome your consultation document and I hope that our report will influence that process.

Professor Grant: Thank you for listening to us. If there are other issues that you would like to explore with us, please write to us; we will be pleased to deal with them as best we can.

The Convener: I offer the committee a short natural break, as we say in common parlance. We will resume in two or three minutes.

11:37

Meeting suspended.

11:43

On resuming—

The Convener: I reconvene the meeting and welcome the Minister for Transport and the Environment and her officials. Our meeting today is the last of the evidence-taking sessions in the GMO inquiry and we welcome the minister's input.

As with previous encounters, I offer the minister the opportunity to make a short opening statement.

The Minister for Transport and the Environment (Sarah Boyack): Thank you, convener.

I will take the opportunity to set out the Executive's approach as a starting point for the committee. The first point is that there are a variety of ministerial inputs into the issue of GMOs. The lead minister is Susan Deacon, the Minister for Health and Community Care. Ross Finnie and I come at the issue of GMOs from the perspectives of agriculture and rural affairs and of the environment, sustainability and biodiversity. While Susan is the lead minister, the three of us are very much involved in all decisions and in the strategic direction of the Executive's policy.

We must approach the issue in a way that reassures people that any consent for the release of genetically modified material into the Scottish environment has been properly assessed, that we are acting responsibly, that we are considering scientific advice and that we are listening to public opinion, which is crucial.

During a parliamentary debate earlier this year, Susan Deacon and Ross Finnie made it clear that we are neither pro nor anti-GM. We are developing a balanced approach and assessing all factors rationally. We will take those factors into account when making decisions. It is wrong to assume that, by permitting trials of GM crops to take place, we are implicitly giving our support.

11:45

It is critical that I emphasise the extent to which our scope for action is constrained by European legislation. We helped to create that legislative framework, which recognises that this issue is not just Scottish—or even just British—but that it has an international dimension. The use of GM crops in Scotland, for both research and marketing—although we are not yet at that stage—is one of the Executive's devolved responsibilities.

We are required to operate within the governing European and domestic law, and under existing provisions a moratorium, or refusal to grant consent, would be illegal unless based on sound scientific evidence of harm. That is where the issue of farm-scale crop trials of GMOs comes in. We must evaluate those issues and develop the scientific evidence to enable us to take decisions.

Consent granted by Scottish ministers is based on advice from statutory scientific advisers, including the Advisory Committee on Releases to the Environment, from which I understand that the committee has already taken evidence. ACRE will have explained how detailed risk assessments apply on a case-by-case basis. The Executive appoints members to ACRE in order to ensure that we receive the best advice from the best scientists in a wide range of disciplines. The quality of ACRE's advice is critical: it is relevant to circumstances in Scotland and gives us a sound basis for the decisions that we must make as the competent authority.

The regulatory framework gives us the power to withdraw consent where evidence shows that there may be some risk, either to human health or to the environment. I want to be clear that we will use that power if required. The Executive will not take risks with public health or the environment. Before a GM crop may be grown commercially, all the regulatory controls must be in place, including marketing consent, seed listing and pesticide consent. Even then, agreement with the biotech industry and farmers means that no GM crops will be grown commercially until the Scottish Executive and the UK Government are satisfied that there will be no adverse impact on public health or the environment.

The Executive accepts that all agricultural activity impacts on the environment to a greater or lesser extent. Key interests for the Executive, and for me as the Minister for Transport and the Environment, is the work that we undertake with the National Farmers Union of Scotland on the agri-environment schemes promoted by Ross Finnie, our approach to the local biodiversity action plans, our work to reduce pollution through the code on prevention of environmental pollution from agriculture activities and the finance that we provide for organic farming. That work provides us

with a range of opportunities to improve, or to lessen, the environmental impact of agricultural activities. Farm-scale evaluations must be considered in that wider context. They were begun in Scotland earlier this year to provide us with evidence that will inform our future decisions on GM crops.

Without the industry's agreement and the farm-scale evaluation programme, a number of GM crops would be on the brink of obtaining the appropriate consents, which would allow them to be grown freely across the UK without any notification. Our precautionary approach is a sensible alternative and gives us the opportunity to consider wider implications and to examine evidence properly.

I know that the petition from Friends of the Earth Scotland calls for a mechanism to be established in Scotland regarding the impact of the release of GM crops on human and environmental health. I stress that we are aware of and alert to those issues, which is why we supported the UK Government's 1999 review of all advisory structures on GMOs in the UK. That review recognised that wider issues are involved in genetic modification, which go beyond the purely scientific remit of the advisory bodies that existed at that time. That recognition led directly to the establishment of the new, overarching bodies, including the Agriculture and Environment Biotechnology Commission. The commission has now begun its task and today launched a consultation exercise in Scotland on its proposed work plan. Such an open approach is absolutely critical and enables a range of people to provide input and comment on the programme. Opening the programme to scrutiny is very important.

The commission is accessible to and influenced by the public and has a diverse membership, which will allow us to gather a range of the different views on the GM process. Our decision to establish the AEBC will address the petitioners' concerns and it must be given the opportunity to collect different views and begin its work. A positive start has been made and, in future, the work of Professor Grant and his colleagues will make an important contribution to the debate.

Some people are lobbying strongly that there should be no progress on GM crops in Scotland. However, crop trials are absolutely essential to ensure that there is information and evidence for properly evaluating the issue. Furthermore, accurate product labelling is necessary and, in that respect, the European regulatory framework is important to safeguard consumer choice. Such products are, however, currently permitted under existing legislation, which is why we need a rigorous system of approvals. As a responsible regulator, the Scottish Executive will ensure that all proposals to release GM material are scrutinised, rejected if there are any grounds for doubt, and monitored carefully once criteria have been satisfied and permission has been granted. Public health and the environment are our top priority and we will use the powers within that legislative framework to ensure that risks are not taken.

The Convener: Thank you, minister. I will move swiftly to Helen Eadie.

Helen Eadie: What are the potential environmental benefits and risks associated with growing GM crops?

Sarah Boyack: It is ACRE's job to evaluate risks and to work out the seriousness of such risks and at what point it would recommend that we should not develop a proposal, or that the risks are very low, or that they could be regarded as negligible. It is important that ACRE's criteria are applied to every proposal that we receive.

We do not have a policy position on whether GM crops have environmental benefits. That point should be made by the industry, which is promoting GM crops for a range of reasons. One of those reasons centres on environmental benefits; however, that position has not been adopted by the Executive. We are considering a risk assessment approach for every application that we receive.

Helen Eadie: Are there adequate exclusion zones around GM crops in Scotland? Given that the evidence submitted by other witnesses calls for distances of 4,000 m or more, is there merit in identifying different exclusion zones for different crops?

Sarah Boyack: The Government is currently reviewing the issue of exclusion zones. Work is being undertaken on what the appropriate distances would be around any GM crops that might be grown. We need that evidence before I can give the committee an opinion on the matter.

Mr MacAskill: We have heard from ACRE about the structure of the commission. How will the interests of the Parliament and the Executive be represented on the commission and what powers will be available to the Scottish Parliament?

Sarah Boyack: That is a very important question. We are bound by European rules and regulations on this matter, which is why we must be fully involved in the debate. The Scottish Executive, which is accountable to Parliament, has the power to decide on the consent process regarding applications. However, that process must comply with European rules and regulations and we are very involved with the UK Government in negotiations and discussions being held through

the EU environment council on the shape of future regulations on GMOs. Whether that shape should relate to environmental liability issues, which are currently being discussed in Europe, or whether changes should be made at a European level, we are strongly involved in the process.

Furthermore, our opinions must be informed by the Scottish experience, which is an important consideration for the farm-scale evaluations. If farm-scale evaluations were being carried out only south of the border, the UK line on the issue could not be informed by aspects of the Scottish experience, such as the climate and different agricultural practices—even within Scotland. For example, farming on the Black Isle is different from farming in East Lothian. Whatever the opinions we feed into Europe, they must be soundly based on the Scottish experience and we must use our powers appropriately throughout the process.

Mr MacAskill: It has been suggested that if a Scottish minister chose to exercise a veto—which seems to exist—the Executive would leave itself open to judicial review. If the scientific adviser appointed by the Scottish ministers said "No" to a proposal and the rest of ACRE said "Yes", what would happen if the Scottish minister chose to accept the advice of the nominee from Scotland, given that any judicial review would probably take place in a Scottish court?

Sarah Boyack: A general moratorium issued by Scottish ministers would have very little chance of success. We must operate within the European directive, which specifically stipulates that any refusal of GM consents must be on the basis of scientific advice and evidence. Every application for a consent gives us the opportunity to consider such evidence and advice. It is up to the Scottish ministers to decide on each case by weighing the advice that has been submitted, reaching a conclusion and defending that decision thereafter.

Mr MacAskill: What would happen if the Scottish Executive's nominee gave different advice from a nominee from elsewhere? Where would the accountability lie?

Sarah Boyack: It is not so much that Scottish advice comes through ACRE; ACRE's overall advice represents Scottish views and opinions from certain representatives on the committee. I have already given the example of Scottish Natural Heritage. The Countryside Commission for Wales and SNH, along with English Nature, are on ACRE. The new AEBC set-up will provide another source of advice. Scottish ministers must weigh all the advice that is in front of them. The issue is not whether the advice is Scottish or which scientific adviser is offering the advice: our job is to go through all that advice and come to a proper decision.

Mr MacAskill: That aside, if you had appointed or nominated the adviser, you would probably have trusted them in the first place. Given that SNH is a quango and that its powers and appointments are at the behest of you and your colleagues, it would be rather surprising if you ignored its advice and took advice from elsewhere.

The Convener: Perhaps this will be the last time the minister will have to answer that question.

Sarah Boyack: Mr MacAskill's point is pretty spurious and underplays the rigour of the process. Applications submitted to ACRE undergo a very rigorous process and by the time they reach us, a great deal of work has been done on risk assessment. After we receive that advice, we can make appropriate decisions and be accountable for them.

The Convener: Kenny, you have had three goes at that question. Can we move on?

Mr MacAskill: I do not know whether I received an answer, but there we go.

What steps do you propose to take on matters beyond farm-scale trials?

Sarah Boyack: Can you clarify which matters?

Mr MacAskill: Dr Loening suggested that farm-scale trials alone are insufficient—I think that you touched on that point in your preliminary statements or in your response to previous questions. What other steps have you taken in the pursuit of knowledge of GMOs besides farm-scale testing?

Sarah Boyack: Setting up the AEBC has given us an opportunity to review a range of GMO issues, which is a key area in which we expect to get advice in future. The fact that the AEBC is now consulting on its work programme gives us an opportunity to provide input on specific environmental or health issues that we think need to be examined.

12:00

Mr MacAskill: What about the current advisory framework? Given the difficulties that we have had with local authorities and the inability to influence planning decisions, what role do you envisage for local authorities? How will the general public be able to influence the planning process, other than through their elected representatives in Parliament?

Sarah Boyack: We need more understanding and discussion of the implications of GMOs, not only in Parliament, but throughout every community that will be potentially affected. That is one of the areas in which there have been improvements. For example, in farm-scale trials, effectiveness of communication with local people

is an issue. Local meetings and a requirement to advertise such meetings in local newspapers are crucial if local people are to be made aware that there is an issue in their area. We need to give people the opportunity to come along to meetings, where they can put questions to scientific advisers and air their views.

It is important to broaden the discussion—people need to be able to understand the regulatory process, which can appear quite remote. All sorts of information is accessible on the web, but people must know where to find it. The discussion that has taken place in Scotland during the past year has promoted understanding. I hope that the committee's discussions will develop that and enable people to see what the regulatory process entails.

We have an opportunity to ensure that information is available. European directive 90/220, which we must abide by, emphasises that we must make decisions based on environmental risk assessment and that we may take into account only scientific criteria. That means that we need to put as much information as possible into the public domain, so that people can come to an opinion that is based on scientific criteria. That is the appropriate way in which to proceed.

Robin Harper: The background paper from the UK joint regulatory authority states:

"The sole basis for making decisions on the granting of consents is safety."

Why is the definition of safety that is used so narrow as to exclude social and economic risks?

Sarah Boyack: That is the way in which the directive was drafted and that is how it is being implemented. We have to abide by that. It is important to provide more information so that people feel that they can engage with the scientific advice. None of us believes that scientific advice comes from above; it must be debated and discussed rigorously. The regulatory process will enable people to do that and we need to promote it more effectively. I welcome the opportunity to do that today. We can learn from the current round of trials about how to improve the process for the future.

We are looking into whether we need to ensure that people have more opportunity to examine the information, so that they do not come to the process cold. More understanding of the implications of GMOs in general means that, when specific issues come up at local level, people are better equipped to deal with them. That is important if people are to feel that they are involved in the process.

Mr Murray Tosh (South of Scotland) (Con): It may be that my concentration is going because I am sitting in the sun, but I am not sure that the minister answered Kenny MacAskill's question about the planning system. Does the Executive intend to give the planning system a role in deciding whether tests should go ahead? Is there a role for public opinion, other than for people to attend meetings to be informed and to discuss what will happen?

Sarah Boyack: Mr Tosh is right to say that I did not answer that question. There are issues about the extent to which agriculture is covered by the planning system and whether there is a material difference between agriculture, and research and development, which is, to all intents and purposes, agriculture. We have no plans to change our interpretation of that.

Mr Tosh: I thought that the minister might be able to answer that question before Kenny MacAskill came back.

Nora Radcliffe: The minister answered my next question in her introductory remarks, but I will ask it in case she wants to expand on what she said. How is the responsibility for dealing with GM issues divided among the Scottish ministers? Which ministers are involved in decisions on whether to issue release consents for GM crops in Scotland?

Sarah Boyack: Three ministers—including me—have explicit responsibilities, which means that we are all involved in all the decisions, but that each of us leads on different subjects. To give an example, as I am the minister with responsibility for the environment, I would lead on biodiversity. Ross Finnie, as the Minister for Rural Affairs, leads on seed purity issues and Susan Deacon, as Minister for Health and Community Care, leads on health issues. Beyond that general division of responsibilities, we are all involved in discussions and have regular ministerial meetings to discuss policy and implementation.

Nora Radcliffe: To what extent does the Scottish Executive rely on legal advice and other information received from the Department of the Environment, Transport and the Regions? How do Scottish ministers access the advice of bodies such as ACRE? Are ministers involved in decisions to issue individual release consents? I think that most of those questions have been answered.

The Convener: The minister handled those questions in her statement.

Nora Radcliffe: In its submission to the committee, Friends of the Earth Scotland said that in its view there is

"more scope for precautionary action than has so far been suggested".

Friends of the Earth Scotland also cited article 4

of the directive, which states that:

"Member States shall ensure that all appropriate measures are taken to avoid adverse effects".

Friends of the Earth Scotland clearly does not believe that all appropriate measures are being taken. Could you do more to prevent unplanned releases, if you wanted to?

Sarah Boyack: I repeat that we have to make our decisions based on scientific advice and evidence. We must ensure that we get the best possible range of advice and evidence. We use a wide range of organisations and individuals, who reflect a broad range of interests. Farm-scale trials are in themselves evidence of a precautionary approach. They give us the opportunity to examine issues—before consents are given—not only in the laboratory or on a very small patch of soil, but using a rigorous process at farm level. That combination of the right institutions and farm-scale trials, which allows us to examine the impact in practice of any GM material that is proposed for consent, is important to ensure a rigorous approach. That is how we deliver the precautionary approach.

Nora Radcliffe: Are you happy with the current EU regulatory framework, or do you think that Scottish ministers should have more flexibility in deciding whether and how releases should happen? On a related point, do you believe that member states should have the right to impose an outright ban on the cultivation of GM crops?

Sarah Boyack: It is important that we work with Europe and that there is a framework to which all member states must sign up. We must all deliver that framework to ensure safety and to ensure that environmental impacts are properly considered throughout Europe. In the interests of the environment in Europe, I would not want people in other countries to go through a less rigorous process for deciding consents than exists in Scotland. The European level is important. Our flexibility and the opportunity that we have to implement the directives are evidenced by the farm-scale trials that we are running. We are not required to conduct those trials, but we are committed to ensuring that we get the best possible scientific evidence. There is some flexibility, but there needs to be an overall requirement on all member states to ensure that all follow broadly the same approach.

Des McNulty: The arrangements cause concern in that the burden of proof of a threat to safety is always with the objectors to GMOs, or even with ministers. Is there an argument for shifting the burden of proof to companies or whoever finances GM crops? Who funds the farm-scale trials? Is it the companies or the Government?

Sarah Boyack: Derek Bearhop will answer the funding question.

Derek Bearhop (Scottish Executive Rural Affairs Department): The answer to that question is that both companies and the Government fund the trials. The UK Government and the Scottish Executive both contribute; in essence, they fund the research programme. The biotech companies must come to a financial arrangement with farmers whose land is being used for trials. They also provide the seed and herbicides that are used in the trials.

Sarah Boyack: Des McNulty asked about the burden of proof. In essence, each application from each biotechnology company must be approved by ACRE and must be judged on its own merits. The burden of proof lies with the company, which must be able to persuade ACRE that the environmental impact will not be unacceptable and that the safety issues have been dealt with. ACRE can set conditions, for example on monitoring, and can say how trials must be carried out and how consent must be given. ACRE can impact on the applications that come in from different companies by assessing cases objectively against a range of criteria.

Des McNulty: That could be interpreted in two different ways. I accept that a product must satisfy ACRE's criteria if it is to be licensed. However, if one turned that on its head, ACRE or ministers would have to demonstrate that a product failed to meet one aspect of a particular criterion before they could reject an application. In effect, the burden of proof is on the publicly funded body rather than on the company.

Sarah Boyack: That is the way in which the directive is structured. We have to be able to come to a view on the basis of the evidence.

Mr MacAskill: Given the importance of the European directive framework, what powers do you or any other minister have to instruct those who represent the UK at European level?

Sarah Boyack: We have no powers to instruct the Commission but, through the UK framework, we can play a full part in the background negotiations and all the discussions that take place among European environment ministers. We are fully involved in that process.

Mr MacAskill: Does that full involvement give you the power to insist on a distinct and separate Scottish position?

Sarah Boyack: If there were particular issues that we wanted to raise through the European council of environment ministers, we could do that through our current process. Part of the reason for conducting farm-scale trials in Scotland is to ensure that we have that knowledge when we have the discussions. Michael Meacher, other

ministers from the devolved bodies and I are involved.

Mr MacAskill: If the Scottish Executive wants to take a different tack, will UK representatives accept and adhere to its instructions?

Sarah Boyack: It depends on what you mean by a different tack. We agree on what is in our collective interest in negotiations in Europe. That is a justifiable approach.

Mr MacAskill: If, however, no agreement can be reached, can the Scottish Executive insist upon a different position being put forward?

Sarah Boyack: We have not experienced that circumstance because we have worked together closely on the development of our approach. The Scottish Executive is not alone in being neither pro nor anti-GM; that is also the position of the UK Government. Our policy position enjoys the support of all ministers who are involved at a European level.

Mr MacAskill: I accept that, but I want to clarify what the position would be if the circumstance that I described were to arise. Would the Scottish Executive be able to insist on a different position being put forward?

Sarah Boyack: Could you clarify what you mean by a different position? Do you mean that the Scottish Executive might not want to apply the European directives?

Mr MacAskill: I am talking about the contribution to the debates around the European directives. Those matters have to be discussed. I am trying to work out whether, if the Scottish Executive disagreed with the perception of the departments south of the border, it could insist that the position that was put forward on behalf of the UK was that the UK department says X, but the Scottish Executive says Y.

Sarah Boyack: That will be for us to discuss politically as we put forward our position in the Council of Ministers.

The Convener: We will move on to questions on the Advanta GM contamination.

Robin Harper: Before I ask a question on that subject, I want to ask about the definition of acceptable levels of risk, which is a scientific definition. Is there any political input into that definition?

Sarah Boyack: Yes, to the extent that ACRE gives us advice and we accept the broad principles under which it operates when it gives us that advice.

12:15

Robin Harper: So, at present, that definition is scientific rather than political.

Do you know how the Advanta seed became contaminated?

Sarah Boyack: I will pass that question to Ian Anderson who, as an official, has been more closely involved in that issue.

Ian Anderson (Scottish Executive Rural Affairs Department): In response to the Advanta incident, the Scottish Executive introduced—with the UK Government—a number of measures, one of which was a review of separation distances. That review had a number of components, one of which was an investigation into the circumstances of the contamination in Canada. Officials have visited the Canadian authorities and asked for particular areas of investigation to be covered. Those investigations by the Canadian authorities continue and we await the report.

Robin Harper: So you do not know the answer.

Ian Anderson: No.

Robin Harper: What level of environmental risk do you consider to be associated with the recent accidental contamination of conventional crops by GM crops in the UK?

Ian Anderson: Sorry—could you repeat that question?

Robin Harper: There has been contamination of conventional crops in the UK, following the Advanta incident. What environmental risks do you consider have been associated with that contamination?

Ian Anderson: The levels of contamination were very low—the figure was 0.9 per cent, which is less than the 1 per cent threshold figure for seed purity legislation. Therefore, the GM element was within the tolerance limit that is allowed under the seed marketing regulations.

Robin Harper: Do you concede that the concerns are less about seed purity than they are about effects on the environment?

Ian Anderson: On effects on the environment, one should consider the action that was taken—accidentally or inadvertently—following the discovery that crops had been sown. The crops were destroyed before they flowered and we have been working closely with Advanta to ensure that the locations of the crops and all contaminated seeds were accounted for. We have inspected the fields in which the crops were sown and we have worked with Advanta to ensure that the crops were destroyed competently and properly.

Robin Harper: That more or less answers my next question.

Subsequent to the action that has been taken,

does a suspicion remain that there might have been escapes into the local environment and that there might still be problems with volunteers?

Ian Anderson: We were aware of the possibility of volunteers appearing. If they had come through, they would have been evident. One would not have planted the field with another oil-seed rape crop, but with winter wheat, winter barley or something of that nature. The fields would have been fallow for some time before the next planting took place. If volunteers were to come up subsequently—that would be possible if there were ungerminated seeds in the ground—that would be noticeable because one would find oil-seed rape in a field of another crop. Specifically targeted action could then be taken. Our agricultural staff are mindful of that possibility and will carry out further checks to ensure that such situations are contained.

The Convener: Does the minister wish to add anything?

Sarah Boyack: It might be helpful if Simon Cooper gave the Scottish Agricultural Science Agency perspective. The SASA is involved in giving us advice and on-the-ground information. It might be appropriate for him to say a few words—we have talked a lot about ACRE, but we also get advice from the SASA.

Simon Cooper (Scottish Agricultural Science Agency): Our remit is to provide ministers with scientific and technical advice, services, representation on some committees and enforcement action in relation to the legislation on the regulation of genetically modified organisms.

We have a multidisciplinary team of specialists, one of whom acts as assessor at ACRE on behalf of the Scottish Executive, and who reviews the deliberate release applications that are made to the Scottish Executive. That specialist also attends ACRE meetings and provides information—or obtains it from external bodies, where necessary—about potential risks to the environment in Scotland. That information is fed into the process that ACRE follows for advising the Scottish Executive.

We also have a representative on the ACRE sub-group on best practice in the design of genetically modified crops. That group tries to work out ways of producing a next generation of GMOs that might be safer for the environment.

We took over the enforcement of the various regulations that deal with genetic modification from the health and safety inspectorate on 1 April 2000. We carry out a number of functions in relation to that work. We inspect active deliberate release trial sites, of which there are about 23 in Scotland. We check imported seed for genetically modified products. We inspect the post-trial monitoring of release sites. In some cases, consents have attached to them a requirement that they are monitored for some years after the trial has taken place—we make those inspections.

We conduct management audits on Scottish consent holders to ensure that they abide by the conditions of the consent. We co-ordinate our procedures with the Central Science Laboratory, which is an executive agency of MAFF, our English equivalent in relation to this work. We have established various programmes for training our staff to do the work.

The purpose of an inspection is to ensure that the consent holder carries out the conditions of the consent. An inspection also enables us to identify potential risks either to human health or to the environment, which we deal with accordingly. As I said, there are about 23 sites in Scotland. There have been 26 inspections, so all those sites have been inspected at least once. Inspections can occur at any time during the year in the life of a consent and may focus on different aspects of compliance. We have been trying to reach sites during flowering, at harvest time and so on.

The question of seed audits impinges a little on the Advanta situation to which Ian Anderson referred. We established that oil-seed rape is not imported directly into Scotland from outside the European Union. Nearly all the seed comes via England and is distributed throughout Great Britain. We have made arrangements with Scottish seed merchants and with some English seed merchants to give us information about the material that comes into Scotland from England, with a view to being able to pass on that information to the Central Science Laboratory, which can then carry out audits in England. Some seed comes in from other EU member states—we deal with that seed.

That is about as far as we have got.

Des McNulty: I will go back to the matter of the burden of proof.

Given the nature of the European directive, I am interested in how the precautionary approach could be adopted, unless one was absolutely certain that the burden of proof was established, which would impose a big cost on the public purse.

In that context, and with reference to the costs of undertaking tests, inspections and so on, as well as the operational costs of the bodies, have the costs to the public purse been quantified? Has consideration been given to the establishment of a charging regime under which applicants would be required to offset some of those costs to the public purse?

Sarah Boyack: Fees and charges are passed

back to the applicants, so they pay for the process.

Des McNulty: Do they pay the real cost?

Derek Bearhop: They certainly pay for the costs of the regulator and the inspection. Whether that amounts to the full cost is difficult to ascertain, but a statutory fees and charges regime is imposed on all applicants, regardless of whether the application is successful.

Des McNulty: I would certainly be interested in any further information that you could give about fees and charges and how they match the cost.

What is your view of the petitioners' request for a mechanism to be established in Scotland to address concerns about the impact of releases on the environment and on human health?

Sarah Boyack: We have a system of regulation in place, with a variety of organisations giving us advice. There is a Scottish input into all that. We need to be part of the wider debate. It is important that Scotland plays its full part in the discussions, in the UK and in a European context. I cannot see what another advisory body would give us that would add value to what we have at the moment.

We could ask whether we get sufficient value from the existing organisations. The AEBC is a relatively new agency, as is the Food Standards Agency Scotland. We must examine whether we can make the process more transparent and make people feel that the system is working to its full effect. Devolution is now nearly a year and a half on, so we have had some time to get to grips with that. This is an issue for the future; I do not think that there is a specific gap that we need to fill from a Scottish perspective.

Our real job is to ensure that we are properly embedded in the existing structures and that local discussions get fed back through the Parliament. The organisations that have the information should be transparent so that people can engage with them and with the scientific views that are coming forward.

Robin Harper: In evidence to the committee, the Scottish Crop Research Institute and RSPB Scotland expressed concern that they heard about the Advanta problems from the media. Why were they not contacted by the Executive?

Ian Anderson: They were contacted by the Executive. There were contacts between the SCRI and the rural affairs department at senior management level within a day or two of the incident.

Robin Harper: The RSPB Scotland representative stated:

"Once the release had occurred, we were extremely concerned that the mechanisms were not in place to deal with the situation."—[*Official Report, Transport and the Environment Committee*, 20 September 2000; c 950.]

Do you accept that the response, in this instance, was inadequate? What has been done to ensure that procedures are in place should a similar incident occur?

Ian Anderson: The response was swift and effective, given the size and nature of the problem. We first had to identify seed lots that were contaminated, because not all the hyola varieties were contaminated. We had to establish where those crops were and develop mechanisms for dealing with that. Inevitably, that took a day or two. The action that we took was not just concerned with the situation as it existed then. We considered such things as separation distances for the future and an approach to the European Commission to negotiate tighter standards on seed purity and tolerances. A number of measures were taken with the longer term in view; that work is on-going.

Robin Harper: The UK Government sat on this problem for about a month. What is being done to ensure that that never happens again?

Ian Anderson: The Minister for Rural Affairs addressed those points fully in oral questions at the time, including in response to questions from you, Mr Harper. He made it clear that he had made strong representations to the Minister of Agriculture, Fisheries and Food in England and had received an apology for the way in which the matter had been handled by the ministry. Lessons have been learned from that.

12:30

Robin Harper: Are you content that it will never happen again?

Ian Anderson: It is not in my gift to give that assurance.

Robin Harper: I have two more quick questions. Suppose a case were to arise in which someone engaged in the organic movement farmed a crop that had been cross-pollinated or contaminated with pollen from a GM crop. Legally, who would be liable for the damage?

Sarah Boyack: That would be a matter for the courts rather than the Executive.

Robin Harper: Finally, I heard the alarming news that the John Innes Centre is saying that, because of the certainty of pollen flow, the organic movement must accept some small percentage of GM contaminated seed. Do you share that view?

Sarah Boyack: We understand the concerns of the organic community and want to ensure that representations that are put to us or through the regulatory framework are properly considered, whether they concern separation distances or

acceptable levels of GM in other seeds. The discussions on Advanta concentrated people's minds on what was an acceptable lower level; the current level is below 0.1 per cent. We must always keep those issues under review. It is important that the organic sector's representations are properly considered and acted on where appropriate.

Nora Radcliffe: I would like the representative from SASA say more on the inspection and checking regime for seed.

Simon Cooper: For seeds or for crops in the field?

Nora Radcliffe: For seeds. Do you inspect all seeds, some seeds or representative batches?

Simon Cooper: Our inspections take place under the Environmental Protection Act 1990. We have to have some idea that contamination might have occurred. If the seed is imported from a country where we know that a lot of genetically modified organisms are grown, and if it is of a variety that may be susceptible to contamination, as hyola was, we can follow that up in various ways. We could take samples of the material and test it to see whether there is any genetic contamination. We could also conduct an audit of the seed company and ask the company to produce documentation to show that it has checked for contamination.

Nora Radcliffe: Does that happen?

Simon Cooper: That process has been introduced since the hyola incident and it is building up in the UK.

The Convener: As a result of the Advanta incident, do we now have a documented and auditable system by which we can manage any such incidents in future? Has a procedure been laid down?

Ian Anderson: There are internal procedures for dealing with such incidents, and key officials are immediately brought together. Of course, the individual circumstances of any incident must be considered to decide how to deal with each case. The simple answer to your question is that there is no one document that says how we would deal with an incident. However, I can assure you that lessons have been learned from the Advanta incident and have been addressed, not only by the Executive but by the Ministry of Agriculture, Fisheries and Food and other departments.

We are well equipped to cope with similar incidents. Simon Cooper described measures relating to seeds coming from countries outside the European Union where we know there is a GM industry. We can target such measures, and checking procedures are being brought in. There is also the information from the seed companies. All those measures are a direct result of what happened with Advanta.

The Convener: If there are any more questions perhaps they can be followed up in writing, as we are fairly pressed for time.

Robin Harper: All right.

The Convener: Thank you for your co-operation, Robin.

I thank the minister and her officials for attending this morning's meeting. That concludes our evidence on GMOs. I thank all the witnesses from the past three meetings who have contributed to our work on the subject. I hope that we will be in a position to consider a draft committee report on GMOs following the October recess.

Petitions

The Convener: The first petition is PE16 from Mr Jimmy Oswald, calling for urgent action to reverse the decline of the capercaillie population in Scotland. The petition has been circulated with accompanying notes. We have received information from the Scottish Executive and Scottish Natural Heritage on the issues raised by the petitioner. In addition, "Capercaillie: A Review of Research Needs", commissioned by the Executive, has recently been published. The committee may wish to seek further information on the petition or members may wish to express views on points raised by the petition and convey them to the Executive, the petitioner and any other relevant bodies. As the covering note indicates, the petition was received by the Parliament almost a year ago and therefore a prompt response would be appropriate.

Mr Tosh: Given the length of time the Parliament has had the petition, I suggest that it would be appropriate for us to advise the Scottish Executive of our support for the conservation practice outlined in the extract from "Capercaillie: A Review of Research Needs". We should draw the Executive's attention to the update from the petitioner, dated 23 September, indicating that so far some of those management practices have not succeeded. We should ask ministers to consider taking more effective action. As the issues all relate to land management, we should encourage the Executive to report at an appropriate date to the Rural Affairs Committee on changes and achievements in management practices. We should advise the petitioner accordingly.

The Convener: I thank Murray Tosh for his helpful response. That seems fair. Do we agree to do what is suggested?

Members *indicated agreement.*

The Convener: Our next petition, PE33, is from Mr Stuart Crawford. It calls for the clearance of litter and rubbish from roadsides and other public areas. The petition was circulated to members with a covering note. We have received a response from the Scottish Executive on the issues raised; that response is attached to the covering note.

We have been waiting for a response from the Convention of Scottish Local Authorities, which we have not yet received; there is no indication that COSLA intends to respond to our request for information on its views on the matter. I will write to COSLA; if it does not wish to comment on a petition, I would like a response to indicate that that is the position. We should not have to hang on and write several letters on the subject.

PE33 is a long-running petition. It was received by the Parliament last November. As ever, several options are open to the committee.

Mr Tosh: I suggest that we advise the petitioner of the Executive's response and of your intention to clarify what response COSLA will make to future petitions.

The Convener: That is a fair comment. Is that agreed?

Members *indicated agreement.*

The Convener: PE39 is also on the subject of littering. We agreed to consult the Scottish Executive and COSLA on the issues raised in the petition. We received a response from the Executive, but, again, we have not received a response from COSLA.

The petition is concerned with fixed penalties issued by litter wardens for littering. The petitioner requests that the Scottish Parliament debates section 87 of the Environmental Protection Act 1990, with a view to making mandatory the serving of fixed-penalty fines in relation to litter offenders. In other words, the petitioner wants to make it compulsory for local authorities to appoint litter wardens. Like the previous petitions, PE39 has been in the hands of the Parliament for some time.

Mr Tosh: I suggest that we advise the petitioner of the response from the Scottish Executive as well as of Sarah Boyack's answer to a parliamentary question from Keith Harding on the subject. It might also be appropriate to indicate that I intend to ask the minister a question about allowing councils to keep fine income to pay for enforcement, along the same lines as fines for speeding and parking offences. I would be happy to advise the petitioner of the answer that I receive in due course.

Mr MacAskill: We should commend Angus Council as suggested.

Robin Harper: I strongly support the steps suggested. It seems bizarre that we have so much legislation on litter, which is hardly ever enforced.

The Convener: Do we agree to the actions that have been suggested?

Members *indicated agreement.*

The Convener: The next petition, PE96, is from Mr Allan Berry. It calls the Scottish Parliament to hold an independent and public inquiry into the adverse environmental effects of sea cage fish farming. A copy of the petition was circulated at last week's meeting. Members will have a list of indications of support for the petition, a copy of the paper on the petition requested from the Scottish Executive rural affairs department and a letter from Mr Frank Buckley, which raises similar issues.

On 13 June 2000, we agreed to support in principle the petition's call for an inquiry, but we noted that the committee already had a significant work load and previously agreed work priorities. At that time, we agreed that I should consult the convener of the Rural Affairs Committee on the scope and time scale for such an inquiry. I met Alex Johnstone on 31 August to discuss the matter. As members are probably aware, the Rural Affairs Committee is the lead committee on the petition; at its meeting yesterday, it discussed how it would handle the petition. The committee agreed to appoint two reporters on the issue, John Farquhar Munro and Richard Lochhead.

As the covering note indicates, we will not have time in the near future to consider PE96 in great detail. I suggest that the best way for us to be involved in the work undertaken by the Rural Affairs Committee would be to appoint a reporter or reporters to consider the issue and report back. That would ensure that those issues most relevant to the Transport and the Environment Committee are addressed keenly. I have received notes of interest on taking on the role of reporter from Robin Harper and Nora Radcliffe.

Des McNulty: The inquiry will need to be a significant exercise. The Rural Affairs Committee took the view that the reporters would have to carry out a ground-clearing exercise to identify the parameters of the work to be undertaken. It is not expected that the reporters would carry that work through. There will be a need for an external adviser and further support. I am happy for us to appoint reporters, but we should be clear that that is a preliminary step to conducting the inquiry and not the inquiry itself.

The Convener: That is clear and was mentioned in my discussion with Alex Johnstone. The reporters will deal with terms of reference, approach, content and possible mechanisms for carrying out the research. The reporters will not conduct the research.

Do we agree to proceed on that basis?

Members *indicated agreement.*

The Convener: We now come to petitions PE132, PE154, PE156 and PE207. The petitions have been grouped because they relate to planning matters and contain several common themes. They are accompanied by a covering note, which updates the committee on the progress of each of the petitions. We should bear in mind our agreed work programme, in which we have made heavy commitments in the forthcoming months.

The covering note sets out several options for the committee. Of course, the list is not exhaustive. There is a recommendation that the clerk write to the petitioners of PE132, PE154 and PE156 to inform them that their requests do not fall within the remit of the committee and that it would not be appropriate for us to take a view or recommend further action in respect of individual cases, particularly with regard to planning matters.

Mr Tosh: I suggest that we select option A in relation to the long outstanding petitions. We could discuss the more recent petition from East Renfrewshire separately.

Helen Eadie: I was going to suggest that we take option B, which is that the committee write to the Scottish Executive to ask whether it has any plans to consult on legislative proposals for the Scottish planning system and whether that would be compatible with requirements under the European convention on human rights.

Mr Tosh: I think that that could be premature, given that there is an Executive appeal against a legal decision in Glasgow relating to the whole issue. If we took the course of action that Helen Eadie suggests, we would be prevented from dealing with any of the petitions in the interim.

12:45

The Convener: We have a problem in relation to what Helen Eadie has suggested. I accept what she wants to achieve, but I agree with Murray Tosh's view.

Robin Harper: A large part of my mailbag is concerned with third-party rights of appeal and the fact that the planning system is not transparent to the man and woman in the street. As a matter of urgency in the next couple of years, the Executive should revise the Scottish planning system. We should do what we can at this stage to accelerate that process.

Des McNulty: The route to doing that is by committee consideration of the issues rather than by being prompted by petitions. Petition PE96 is perhaps an exception, as it has generated an inquiry. If we are to carry out a review of planning procedures, we should do so as part of our regular work programme in a considered way.

Mr Tosh: It is important to bear in mind the fact that the planning aspects of local government will find the ECHR binding on them in the near future and that the Scottish Executive will have a responsibility for ensuring that the entire planning system is ECHR compliant. That will require all the issues that we have discussed to be addressed. It would be appropriate for us to play our part at that time. To go further while specific decisions are still up in the air would be difficult—some of the issues might be sub judice.

Helen Eadie: I share the view that Robin Harper takes—a large part of my mailbag is also concerned with third-party rights of appeal. I

accept the wisdom of Murray Tosh's point about the fact that legal cases might be pending, but I think that the issue is important enough to warrant our asking the Executive about its plans. I get a sense that it might want to consider the issue anyway without our pushing it to do so. That is why it would be valuable to ask that question.

The Convener: A number of issues are driving the matter—the ECHR, the fact that cases are currently going through the courts, and our desire to help people with whom we have come into contact who feel disillusioned and detached from the planning process and have found themselves up against powerful forces such as large multinational organisations, planning consultants and well-organised legal advisers. Bearing in mind the external forces that are involved, the committee should mark out some territory and write to the Executive to say that we consider this to be a problem. We should ask how the Executive expects the situation with third-party appeals to develop in the near future. If the response is inadequate, we will have the opportunity to fit into our planning programme some work on the matter. I believe that time will run with us on this issue and that it will take care of itself.

Mr Tosh: In that case, I propose that we send Mr Whittet, who submitted petition PE132, an extract from the *Official Report* that will advise him of the discussion that we have just had. I suggest that we draw to his attention the Scottish Executive's response in relation to points (a), (d) and (e) on his list for action and that we advise him of ministerial answers to parliamentary questions in respect of request (b) on statutory rights of appeal. He will see what the Executive's current thinking is and, from our discussion, he will see that we think that the system requires reassessment within a realistic time scale.

The Convener: Are we comfortable with that approach?

Members *indicated agreement.*

Mr Tosh: Petition PE134 has also been before us for a long time. I was interested to read the documentation that Kenny Macintosh insisted we get from the city of Glasgow. It would be appropriate to advise the petitioners of the responses from the Scottish Executive and from Glasgow City Council to our requests for information. We should advise them that we have no power either to revoke a planning consent or to rebuke and that, having reviewed the evidence from Glasgow City Council, we see no basis for a rebuke. There was clearly an important difference of opinion between the council and the objectors, but it is clear that planning permission was recommended by the council's planners, that notification procedures were drawn to the committee's attention and were followed, that the Scottish Executive considered the notification procedures and declined to call the applications in, and that, therefore, no basis exists for suggesting that there were any procedural improprieties. I further recommend that we so advise the Scottish Executive and the council.

The Convener: That seems fair, with the exception of what you said about commenting on the arguments. I think that we should stay out of that. We should say that the proper processes were followed and that our powers and remit are narrow in relation to this matter—in a sense, we have no powers. With that exception, I am happy to concur with what Murray Tosh has constructively suggested.

Mr Tosh: The suggestion would also cover petition PE156.

The Convener: Petition PE207 fits into our previous discussion. If members are clear about the process that will be undertaken with regard to the ECHR, we can deal with it in the same manner. Is that agreed?

Members *indicated agreement.*

The Convener: I thank members for their co-operation in relation to the petitions. We need to get through them as constructively as possible and try to ensure a decent response for the people who submit them.

Transport (Scotland) Bill

The Convener: As members will be aware, we are starting our stage 2 consideration of the Transport (Scotland) Bill next week. I advise members that, under standing order 9.7.4, committees may decide the order in which the bill is to be considered. The usual order for consideration is to work through the bills from front to back, with the schedule being taken immediately after the section that introduces it. I have therefore lodged a motion in my name proposing that we follow that normal order of consideration.

I move motion S1M-1205,

That the Transport and the Environment Committee consider the Transport (Scotland) Bill at Stage 2 in the following order: Parts 1 to 5; and that each schedule is considered immediately after the section that introduces it.

The Convener: The question is, that the motion be agreed to.

Motion agreed to.

The Convener: Our first meeting on stage 2 will be on 4 October. Given where we expect to be by then, we do not think that we will progress beyond quality partnerships, or section 11. That gives members an indication of where they should focus their efforts with regard to amendments.

Mr Tosh: Convener, it would be helpful if you were to indicate what form of agreement you will expect at the end of each stage and what you will allow in terms of amendment or negation in relation to specific parts of the bill. That will not arise in the discussions on 4 October, but the information would be of assistance to me in the fullness of time when considering subsequent parts of the bill.

The Convener: I will give members that information at the next meeting. We have also asked the minister to give us an overview of how she regards the bill. That fits in with Murray Tosh's request, as it will give me a better idea of the minister's approach.

This might be a wish rather than a reality, but, based on the number of amendments that we are likely to receive, our next meeting may be relatively short. We might therefore also want to discuss stage 2 of the budget process at that meeting. If that is agreed by the committee, can we also agree to take that part of the agenda in private?

Members *indicated agreement.*

Des McNulty: It would be handy to have projected start and finish times for next Wednesday.

The Convener: We will have a 10 o'clock start, unless we get a flood of amendments overnight. I think that we should always start at 10 o'clock, unless pressing matters disallow that.

Robin Harper: Would it be helpful to the clerking team to have amendments as soon as possible, irrespective of the stage that the bill has reached?

The Convener: Yes. We have written to the minister to say that we want her amendments as early as possible. She has indicated that, because of other pressures, time will be tight. However, she has assured us that the Executive will try to submit amendments as early as possible, as what the Executive does will impact on our activities.

That ends today's meeting. I thank everyone for attending.

Meeting closed at 12:55.

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