

House of Commons

Environment, Food and Rural  
Affairs Committee

**GENETICALLY MODIFIED  
ORGANISMS**

Fifth Report of Session 2001–02



House of Commons  
Environment, Food and Rural  
Affairs Committee

**GENETICALLY MODIFIED  
ORGANISMS**

Fifth Report of Session 2001–02

*Report, together with  
Proceedings of the Committee and  
Minutes of Evidence*

---

*Ordered by The House of Commons to be printed Wednesday 12 June 2002*

---

HC 767  
Published on Tuesday 18 June 2002 by authority of the House of Commons  
London : The Stationery Office Limited  
£12.00

The Environment, Food and Rural Affairs Committee is appointed by the House of Commons to examine the expenditure, administration and policy of the Department for Environment, Food and Rural Affairs and its associated public bodies.

### **Powers**

The Committee is one of the departmental select committees, the powers of which are set out in House of Commons Standing Orders, principally in SO No.152. These are available on the Internet via [www.parliament.uk](http://www.parliament.uk). The Committee has the power to appoint two Sub-committees.

The Committee agreed on 30 January 2002 that it would nominate a Genetically Modified Organisms Sub-committee to undertake this inquiry.

### **Current Membership**

Mr David Curry (Chairman) (*Conservative, Skipton and Ripon*) \*  
 Mr David Borrow (*Labour, South Ribble*)  
 Mr Colin Breed (*Liberal Democrat, South East Cornwall*) \*  
 David Burnside (*Ulster Unionist, South Antrim*)  
 Mr David Drew (*Labour, Stroud*) \*  
 Patrick Hall (*Labour, Bedford*) \*  
 Mr Michael Jack (*Conservative, Fylde*) \*  
 Mr David Lepper (*Labour, Brighton Pavilion*)  
 Mr Eric Martlew (*Labour, Carlisle*)  
 Mr Austin Mitchell (*Labour, Great Grimsby*) \*  
 Diana Organ (*Labour, Forest of Dean*)  
 Phil Sawford (*Labour, Kettering*)  
 Mrs Gillian Shephard (*Conservative, South West Norfolk*)  
 Mr Keith Simpson (*Conservative, Mid Norfolk*)  
 David Taylor (*Labour, North West Leicestershire*)  
 Paddy Tipping (*Labour, Sherwood*)  
 Mr Mark Todd (*Labour, South Derbyshire*) \*

\* These Members were nominated as members of the Sub-committee. Mr Mark Todd was the Chairman of the Sub-committee.

### **Publications**

The Reports and evidence of the Committee are published by The Stationery Office by Order of the House. All publications of the Committee (including press notices) are on the Internet at [www.parliament.uk/commons/selcom/efrahome.htm](http://www.parliament.uk/commons/selcom/efrahome.htm).

### **Contacts**

All correspondence should be addressed to The Clerk of the Environment, Food and Rural Affairs Committee, Committee Office, 7 Millbank, London SW1P 3JA. The telephone number for general inquiries is: 020 7219 3262; the Committee's e-mail address is: [efracom@parliament.uk](mailto:efracom@parliament.uk).

## TABLE OF CONTENTS

	<i>Page</i>
REPORT .....	5
Introduction .....	5
The public debate .....	7
Polarised views .....	7
Public opinion .....	9
The public debate .....	11
The science .....	15
Published reports .....	15
Farm-scale evaluations .....	17
Conclusions .....	19
Conclusions and recommendations .....	20
 PROCEEDINGS OF THE GENETICALLY MODIFIED ORGANISMS SUB-COMMITTEE RELATING TO THE REPORT .....	 23
PROCEEDINGS OF THE COMMITTEE RELATING TO THE REPORT .....	24
LIST OF WITNESSES .....	25
LIST OF MEMORANDA INCLUDED IN THE MINUTES OF EVIDENCE .....	25
UNPRINTED MEMORANDUM .....	26
MINUTES OF EVIDENCE .....	Ev 1



# FIFTH REPORT

The Environment, Food and Rural Affairs Committee has agreed to the following Report:

## GENETICALLY MODIFIED ORGANISMS

### SUMMARY

In order to inform decisions to be made about commercial exploitation of GM crops the Agriculture and Environment Biotechnology Commission (AEBC) has proposed that there should be a public debate. Although we have some doubts about aspects of the proposal, particularly whether the debate will engage the wider public and how conclusive it will prove, we are supportive of it. At the very least it will enable views to be aired, and the public to be better informed. We call on those with entrenched views and vested interests, and the media, to approach the debate in a responsible manner. In order to improve the quality of information provided to the public we echo the AEBC's call for further independently conducted and independently evaluated scientific research to be funded by Government. Finally we acknowledge that decisions about the commercial planting of GM crops will be made in the context of the legal framework agreed within the European Union.

### Introduction

1. Humans have been selecting and cross-breeding plants to improve their yield, growth rates and other characteristics for many thousands of years. New biotechnology techniques have expanded the scope of such activities by allowing deliberate modifications to be made to individual genes or groups of genes. Genetic modification, whether carried out through cross-breeding or using the techniques of biotechnology, has the potential to result in unforeseen and undesirable outcomes for the plant and for the wider environment. The use in recent years of biotechnology to alter the genetics of crops has led, on the one hand, to much more widespread concern about the likely impact of such undesirable outcomes on other plants, the wider environment and human health,<sup>1</sup> and, on the other hand, to great optimism about the potential of such modifications to increase yields, reduce reliance on pesticides, herbicides and other inputs, and in fact lead to a better environment.<sup>2</sup>

2. Our predecessor Committee, the Agriculture Committee, undertook a number of inquiries into genetically modified (GM) crops and related matters during the last Parliament.<sup>3</sup> Since its last Report, published nearly two years ago, there have been a number of significant developments

- farm-scale evaluations of a number of GM crops have continued, and the current programme is nearing completion;

---

<sup>1</sup> See comments made in *Scientific Advisory System: Genetically Modified Foods*, First Report of the Science and Technology Committee, HC (1998-99) 286, para.6 ff; the relevant section of the Report can be viewed on the internet at <http://www.parliament.the-stationery-office.co.uk/pa/cm199899/cmselect/cmstech/286/28605.htm>.

<sup>2</sup> See, for example, a press release by Monsanto entitled *A Message From Respected Voices Around The World, Committed To Finding Better Ways To Feed The World's People*, 14 October 1998; the press release can be seen at [http://www.monsanto.com/monsanto/media/98/98oct14\\_Message.html](http://www.monsanto.com/monsanto/media/98/98oct14_Message.html).

<sup>3</sup> *Genetically Modified Organisms*, Sixth Report, HC (1998-99) 427; *The Segregation of Genetically Modified Foods*, Third Report, HC (1999-2000) 71; *Genetically Modified Organisms and Seed Segregation*, Eighth Report, (1999-2000) 812.

- the new Agriculture and Environment Biotechnology Commission (AEBC) has published its analysis of the conduct of the trials,<sup>4</sup> and the Government has issued its reply;<sup>5</sup> and
- reports analysing the safety and environmental impact of GM crops and food have continued to pile up.<sup>6</sup>

For that reason we decided in February 2002 to undertake a brief inquiry into genetically modified organisms, in order to keep abreast of recent changes.<sup>7</sup>

3. We allocated the inquiry to a Sub-committee of seven of our members.<sup>8</sup> The Sub-committee decided to take oral evidence from the Soil Association, the Supply Chain Initiative on Modified Agricultural Crops (SCIMAC), Professor Malcolm Grant, Chair of the AEBC, and Rt Hon Michael Meacher MP, Minister for the Environment, and officials, from the Department for Environment, Food and Rural Affairs. Although we did not travel specifically in relation to this inquiry, we discussed GM crops and food during our visits to Brussels, New Zealand and East Anglia undertaken as part of our inquiry into the Future of UK Agriculture. We are most grateful to all those who gave evidence to the Sub-committee, or otherwise assisted with our inquiry.

4. It was always our intention to gather evidence about the current state of affairs, and to publish it, so as to keep ourselves informed about recent developments and to be able to inform the House. Our evidence ranged widely, touching on matters as diverse as scientific reports about contamination of non-GM crops, consultation locally about the sites for farm-scale evaluations of GM crops, labelling and traceability of GM products in the food chain, and the unofficial moratorium across the European Union on new consents for commercial growth of GM crops. What our witnesses told us about such matters was extremely enlightening, and **we commend our evidence to the House and to interested parties.**

5. **We do not in this Report draw wide-ranging conclusions, such as whether GM crops are safe or desirable; we are in no position to do so.** Also, we note that in drawing up *Crops on Trial* the AEBC carried out extensive work into the methods used in the farm-scale evaluations, and so **we do not seek to comment in detail any further on the conduct of those trials.** Finally, we are aware of the work carried out in recent months by Sub-committee D of the House of Lords European Union Committee on the *Labelling and Tracing of Genetically Modified Food and Animal Feed*, looking particularly at proposals made by the European Commission on the subject.<sup>9</sup> **We do not in this Report cover labelling and traceability, and proposals for European legislation in that area, matters already recently addressed by colleagues in the House of Lords.** We also note the inquiry into biotechnology announced by the Trade and Industry Committee in March 2002.<sup>10</sup> We are also aware of the work being undertaken by the Food Standards Agency in this area.<sup>11</sup>

---

<sup>4</sup> *Crops on Trial*, AEBC, September 2001; see <http://www.aebc.gov.uk/aebc/crops.pdf>.

<sup>5</sup> Government response made in January 2002; see [http://www.aebc.gov.uk/aebc/response\\_crops.html](http://www.aebc.gov.uk/aebc/response_crops.html).

<sup>6</sup> For example, *Gene stacking in herbicide tolerant oilseed rape: lessons from the North American experience*, English Nature, February 2002; and *Genetically-modified plants for food use and human health – an update*, Royal Society, February 2002.

<sup>7</sup> See our press release announcing the inquiry at <http://www.parliament.uk/commons/selcom/efrapnt15.htm>.

<sup>8</sup> Mr Mark Todd MP (Chairman); Mr Colin Breed MP, Rt Hon David Curry MP, David Drew MP, Patrick Hall MP, Rt Hon Michael Jack MP, and Mr Austin Mitchell MP.

<sup>9</sup> See COM (2001) 182, at [http://www.europa.eu.int/eur-lex/en/com/pdf/2001/en\\_501PC0182.pdf](http://www.europa.eu.int/eur-lex/en/com/pdf/2001/en_501PC0182.pdf); and COM (2001) 425, at [http://www.europa.eu.int/eur-lex/en/com/pdf/2001/en\\_501PC0425.pdf](http://www.europa.eu.int/eur-lex/en/com/pdf/2001/en_501PC0425.pdf).

<sup>10</sup> See the Committee's press notice, at: <http://www.parliament.uk/commons/selcom/t&ipnt18.htm>.

<sup>11</sup> See [http://www.food.gov.uk/science/sciencetopics/gmfoods/gm\\_labelling](http://www.food.gov.uk/science/sciencetopics/gmfoods/gm_labelling).



6. In its report on *Crops on Trial* the AEBC urged a “comprehensive public discussion of the ecological and ethical – including socio-economic – issues which have arisen [around the subject of GM crops and food]”.<sup>12</sup> Mr Meacher has agreed, and told us that “there should be an opportunity for a wider discussion about this [matter] ... there has never really been a balanced public debate in this country because extreme views on both sides have been very strongly put by their adherents, and the general public have not really been able to get an oar in”.<sup>13</sup> He has also said that “it is important to take account of public opinion ... [we need a] wider public debate on this issue as the farm scale evaluations come to an end”.<sup>14</sup> Professor Grant argued that a public debate might help to reconcile polarised opinions, a step he considered vital since there is “no point in the Government moving to introduce on a wide scale basis commercial growing of GM crops against public confidence”.<sup>15</sup> **What we address in this Report is the proposed public debate – what it might set out to achieve, and what are its chances of success.**

## The public debate

### *Polarised views*

7. Opposition to GM crops and foods stems from a variety of different concerns about the new technology. The Soil Association told us that its objections related to a “range of issues ... the dangers of unforeseen consequences, both [for] the environment and [for] human health, the denial of choice and the incompatibility of genetic engineering with what we see to be the principles of sustainable agriculture”.<sup>16</sup> It has cited a number of specific issues,<sup>17</sup> including

- unintended side-effects for the plant as a result of genetic modification – the Association has cited GM cotton with deformed cotton bolls, and increased lignin in GM soya – which reinforce the belief that the technology is unpredictable;
- allergy to characteristics of the inserted gene which would not be experienced in relation to the original crop – the Association has pointed to experiments conducted in 1995 which found that a GM soya with a brazil nut gene would cause allergic reactions;
- increased use of herbicides and pesticides on herbicide- and pesticide-resistant crops, posing dangers to those consuming the product, who are exposed to greater levels of residues, and also to the environment;
- unknown consequences as a result of genes transferring between a GM crop and other organisms, including humans (known as horizontal transfer); the Association told us that evidence had been found of gene transfer between GM pollen ingested by bees and bacteria found in the bees’ gut,<sup>18</sup> and has raised the possibility of gene transfer between GM feed crops and ruminant animals;
- contamination of surrounding non-GM crops as a result of cross-pollination between related plants, raising concern about human health, since GM material might be consumed unknowingly; this is of particular concern to the organic farming community; and

---

<sup>12</sup> *Crops on Trial*, para.22.

<sup>13</sup> Q.156.

<sup>14</sup> HC Deb, 18 April 2002, col.689.

<sup>15</sup> Q.129.

<sup>16</sup> Q.7.

<sup>17</sup> See *GMOs in food production: Evidence of risks*, Soil Association Briefing Paper, which can be viewed on the Association’s website via <http://www.soilassociation.org.uk/sa/saweb.nsf/Media/campaigns.html>.

<sup>18</sup> See Q.37.

- as a result of contamination of crops on surrounding land, there is a risk of 'gene stacking', whereby the bringing together of a number of GM characteristics might have undesirable results, such as resistance to a range of different herbicides.

Other organisations have raised similar concerns. Greenpeace, for example, has published reports suggesting that there are risks of antibiotic 'marker' genes in GM crops being transferred to bacteria, which would then become resistant to antibiotics,<sup>19</sup> and of toxins generated by insect-resistant GM crops affecting 'non-target' organisms.<sup>20</sup>

8. At the same time the Soil Association also questions whether GM crops are likely to lead to significant benefits.<sup>21</sup> Greenpeace claims that promises of improved yields and lower costs have not been kept: "a number of studies in the last four years have found these promises to be false – some found that GE [genetic engineering] agriculture had no net effect on farmer profitability; some that it had a negative effect".<sup>22</sup> Therefore, it is argued, given that there are potential risks and no real benefits, "one should proceed on the basis of precaution".<sup>23</sup> In their evidence to us the Soil Association talked of going no further in respect of GM crops until their risks were understood – in perhaps ten or twenty years' time.<sup>24</sup> Friends of the Earth have argued for stopping GM crops being planted in the United Kingdom "until their safety and need is proven".<sup>25</sup> Greenpeace has simply called for a ban on GM crops.<sup>26</sup>

9. By contrast, those seeking to exploit GM crops not surprisingly view biotechnology in an very positive light. Monsanto, a very significant producer of GM crop seeds,<sup>27</sup> has claimed that biotechnology will provide "food that is more plentiful and more affordable than it is today", leading to "a tomorrow without hunger".<sup>28</sup> Another producer, Syngenta, claims that biotechnology allows the "development of seeds with significant grower benefits such as herbicide tolerance and insect and disease resistance ... In addition, a new generation of seed is being developed with plant qualities, or output traits, such as improved taste or nutritional value that benefit the ultimate consumer".<sup>29</sup> The company argues that "through plant biotechnology, we have the potential to bring considerable benefits to mankind in both developed and developing countries ...in the developing world, the promise of biotechnology for food production and health improvement is considerable".<sup>30</sup>

10. As well as delivering substantial benefits to both farmers and consumers, those in favour of GM crops claim that rather than causing environmental damage they are likely to have a beneficial effect. Monsanto, for example, has published reports that claim that using GM crops has dramatically reduced the use of herbicides and pesticides.<sup>31</sup> It also

---

<sup>19</sup> See *Antibiotic resistance in genetically engineered plants*, which can be viewed on the website of Greenpeace UK at <http://www.greenpeace.org.uk/MultimediaFiles/Live/FullReport/1223.PDF>.

<sup>20</sup> See *Environmental dangers of insect resistant Bt crops*, which can be viewed on the website of Greenpeace UK at <http://www.greenpeace.org.uk/MultimediaFiles/Live/FullReport/1231.PDF>.

<sup>21</sup> See Q.40 and *GMOs in food production: Evidence of risks*.

<sup>22</sup> *GE crops – increasingly isolated as awareness and rejection grow*, Greenpeace, p.5; this can be accessed via the Greenpeace International homepage at <http://www.greenpeace.org/>.

<sup>23</sup> Q.40.

<sup>24</sup> See Q.12.

<sup>25</sup> *Real Food*, Friends of the Earth, at [http://www.foe.co.uk/campaigns/real\\_food/issues/food\\_safety/index.html](http://www.foe.co.uk/campaigns/real_food/issues/food_safety/index.html).

<sup>26</sup> See <http://www.greenpeace.org.uk/>.

<sup>27</sup> For details of its GM products, see <http://www.biotechknowledge.monsanto.com/>.

<sup>28</sup> *A Message From Respected Voices Around The World, Committed To Finding Better Ways To Feed The World's People*, Monsanto Press Release, 14 October 1998.

<sup>29</sup> *Syngenta Markets/products overview*, <http://syngenta.com/en/syngenta/overview.asp>.

<sup>30</sup> *Syngenta The impact of biotechnology*, <http://syngenta.com/en/customer/biotech.asp>.

<sup>31</sup> *Environmental Benefits Of genetically Modified Crops: Global And European Perspectives On Their Ability To Reduce Pesticide Use*, published by AgBioView, 25 April 2002, and reproduced on the Monsanto website, at <http://www.monsanto.co.uk/news/ukshowlib.phpl?uid=6411>.

claims that natural ecosystems are threatened by demands for land for agriculture, and that increasing yields through biotechnology will therefore help to preserve the environment.<sup>32</sup> Above all, producers and others are also confident that safety fears are unfounded. Monsanto, for example, says that the United States Food and Drug Administration “regulates biotechnology with the same rigour it applies to safeguard all foods in the marketplace ... Research shows that foods derived through biotechnology are as safe to eat as traditional foods”.<sup>33</sup> Frequently adduced in support of this view is the research, reported for example by the Royal Society, which has concluded that since humans have been ingesting DNA within the genes of plants for thousands of years with “no significant risk to human health ... additional ingestion of GM DNA has no effect”.<sup>34</sup> That confidence in the safety of GM foods has been supported by the United States Government: Dan Glickman, the former US Agriculture Secretary, has said that “our best scientists have searched for risks. Without exception, the biotech products on our shelves have proven safe”.<sup>35</sup>

11. Thus those promoting GM crops argue that they should now be permitted to plant and exploit such crops, albeit with some safeguards in place to ensure that environmental damage does not occur. As we have already said, those opposed claim that there should be a moratorium on the growing of GM crops until their concerns about safety and the environment are addressed. The polarity of their positions means that it is unlikely that the views of each side will be reconciled. Nevertheless, **we urge those in favour of GM crops and those opposed to approach debate on the subject in as responsible and open-minded a manner as possible. In particular we urge them to base their arguments on rigorous science, rather than conjecture.**

#### *Public opinion*

12. Only six years ago, in February 1996, a paste clearly labelled<sup>36</sup> as being made with genetically modified (GM) tomatoes was introduced to the market in the United Kingdom,<sup>37</sup> and apparently caused little concern amongst consumers. One of the retailers reported that “initially the GM tomato paste sold very well”.<sup>38</sup> In November 1997 the then Minister of State in the Ministry of Agriculture, Fisheries and Food (MAFF) reported that there were “much bigger sales of that [GM] paste than of the ordinary paste ... People are buying the paste because they know, from the labelling, that it uses genetically modified tomatoes”.<sup>39</sup> The Soil Association told us that “the fact that the tomato paste product sold, in the early days, was partly to do with price, because it was attractively priced, but, more significantly, it was [because] ... most of the people who were buying the product were buying it unaware of all the issues, which subsequently became the subject of public debate”.<sup>40</sup>

13. During the following few years – and particularly between 1998 and 2000 – consumer opinion apparently shifted sharply, to the extent that it is accepted that GM foods and crops are generally regarded with suspicion and mistrust. A very recent poll conducted

<sup>32</sup> *Growing More Per Acre Leaves More Land For Nature*, published by the Centre for Global Food Issues, 25 April 2002, and reproduced at <http://www.monsanto.co.uk/news/ukshowlib.phtml?uid=6413>.

<sup>33</sup> *Frequently asked questions: Are modified foods/ingredients safe to eat?*, Monsanto website biotech knowledge centre.

<sup>34</sup> *Genetically modified plants for food use and human health - an update*, Royal Society, February 2002, p.4; the report can be viewed on the internet via <http://www.royalsoc.ac.uk/policy/index.html>.

<sup>35</sup> Dan Glickman, Secretary, US Department of Agriculture, 13 March 1999.

<sup>36</sup> *The Segregation of Genetically Modified Foods*, Third Report, HC (1999-2000) 71-II, p.156. The evidence can be viewed at <http://www.parliament.the-stationery-office.co.uk/pa/cm199900/cmselect/emagric/71/71ap17.htm>.

<sup>37</sup> See HC Deb, 30 October 1996, col.179.

<sup>38</sup> *The Segregation of Genetically Modified Foods*, p.156.

<sup>39</sup> Debate in European Standing Committee A, 26 November 1997.

<sup>40</sup> Q.19.

by MORI for Greenpeace UK indicated that 51 per cent of those surveyed would either never eat, or would prefer not to eat, GM foods, whilst only 3 per cent would prefer to, or would always, eat such products.<sup>41</sup> In addition only 18 per cent of respondents had concluded that the benefits of GM food outweighed the risks, as opposed to 39 per cent who thought that the risks outweighed the benefits. But the same survey indicated that fully 40 per cent of those surveyed did not mind whether they ate GM food or not. Moreover, another survey conducted for the Office of Science and Technology by MORI in March and April 1999, when media coverage of the issue was at its peak, showed that only 18 per cent of those interviewed mentioned GM food when asked which major scientific discoveries 'sprang to mind'.<sup>42</sup> The depth of public feeling about GM food is a matter of some contention.

14. What is not a matter of debate is the degree and flavour of media coverage of the issue. Analysis of the role of the media in reflecting and shaping the debate has been carried out on behalf of the Science and Technology Committee in the House of Lords.<sup>43</sup> It concluded that existing public concern about food safety resulting from problems such as bovine spongiform encephalopathy (BSE), combined with mistrust of the new GM technology, amongst other factors,<sup>44</sup> led in early 1999 to "a widening gap between, on the one hand, Government policy towards GM crops and food and commercial practice, and on the other hand public attitudes [which some newspaper editors] proceeded to exploit".<sup>45</sup> There was an enormous increase in media coverage, particularly in February 1999,<sup>46</sup> and a number of newspapers adopted a position of 'campaigning' against GM products.<sup>47</sup> Some of the stories and headlines published were, to say the least, sensationalist: perhaps the best known example featured the headline 'Mutant crops could kill you'.<sup>48</sup> In this fevered atmosphere it is not surprising that retailers quickly responded by removing where possible products containing GM ingredients from their shelves – including the GM tomato paste, which is no longer available.<sup>49</sup>

15. As the House of Lords Science and Technology Committee pointed out, once they have left school "most people get most of their information about science from television and the newspapers".<sup>50</sup> That Committee heard evidence that 81 per cent of people obtained information about science from television news programmes and 74 per cent from national newspapers.<sup>51</sup> The then Chief Scientific Adviser, Sir Robert May, argued in 1999 that "the public ... is accessing an extraordinarily one-sided presentation of the facts".<sup>52</sup> Our witnesses also commented on the emotive and polarised quality of earlier media coverage.<sup>53</sup>

<sup>41</sup> See *Survey for Greenpeace UK on GM foods*, which was conducted by MORI between 18 and 22 April 2002; the survey results can be viewed at <http://www.greenpeace.org.uk/MultimediaFiles/Live/FullReport/4851.pdf>.

<sup>42</sup> Evidence given to the House of Lords Science and Technology Committee, HL (1999-2000) 38-I, p.150.

<sup>43</sup> See *Science and Society*, Third Report, HL (1999-2000) 38, paras.7.20 ff and Appendix 5. The Report can be viewed at <http://www.publications.parliament.uk/pa/ld199900/ldselect/ldscitech/38/3801.htm>.

<sup>44</sup> See *Science in the media: Press coverage of GM food*, POST Report Summary 138. This document, which can be found at <http://www.parliament.uk/post/report.htm>, was based on the research conducted for the House of Lords Science and Technology Committee.

<sup>45</sup> *Science and Society*, para.7.22.

<sup>46</sup> In the week beginning 14 February 1999 more than 300 articles appeared in national newspapers (see *Science and the media*). On 3 February 1999 GM was raised in a major debate in the House of Commons (HC Deb, 3 February 1999, col.843) and at Prime Minister's Questions (HC Deb, 3 February 1999, col.925).

<sup>47</sup> See *Science in the media*.

<sup>48</sup> Daily Express, 18 February 1999.

<sup>49</sup> By 28 April 1999, most of the major supermarkets had announced that they were removing GM products from their own-label foods, and were putting in place a range of other measures relating to GM (see the BBC website, 28 April 1999, [http://news.bbc.co.uk/1/hi/english/business/newsid\\_330000/330210.stm](http://news.bbc.co.uk/1/hi/english/business/newsid_330000/330210.stm)); in early 2001 a number of retailers moved towards phasing out products from animals fed on GM feeds (see *Supermarkets pave way for 'GM-free' Britain*, Guardian Unlimited, 27 January 2001).

<sup>50</sup> *Science and Society*, para.7.1.

<sup>51</sup> Evidence given to the House of Lords Science and Technology Committee, HL (1999-2000) 38-I, p.3.

<sup>52</sup> Evidence given to the House of Lords Science and Technology Committee, HL (1999-2000) 38-I, p.5.

<sup>53</sup> See Q.22 (Soil Association), Q.85 (SCIMAC) and Q.128 (Professor Grant).

Mr Meacher told us that the media had not handled discussion of GM technology well: he said that “it has been largely a propaganda exercise rather than the provision of factual information or encouragement to genuine debate ... for a period of about a year and a half – a period which has now ended about a year ago – it was pursued at a frenzied level”.<sup>54</sup> **The media has an important role to play in informing the public about the complex issues surrounding GM food and crops. We urge all parts of the media to address those issues in future in a rational and constructive matter – their commitment to doing so is a prerequisite of a well-informed public debate.**

### *The public debate*

16. In 1999, in response to the intense debate over GM food and crops, the Government reviewed its advisory and regulatory framework on biotechnology. It concluded that advice on strategic issues should come from a wider range of sources. The Agriculture and Environment Biotechnology Commission (AEBC), set up in June 2000, forms part of the new strategic framework: it is charged with looking “at the broad picture taking ethical and social issues into account as well as the science”.<sup>55</sup> The Commission, liaising closely with the other bodies in the new advisory framework, the Human Genetics Commission and the Food Standards Agency, is asked, amongst other responsibilities, to “keep under review current and possible future developments in biotechnology with actual or potential implications for agriculture and the environment; advise Government on the ethical and social implications arising from these developments and their public acceptability; and consider and advise on any specific issues relating to relevant aspects of biotechnology as requested by the Government”.<sup>56</sup>

17. The Commission’s members hold a range of opinions across the GM debate, and they include academics, farmers, consumer representatives, and others.<sup>57</sup> Professor Grant stressed that the Commission particularly sought to operate in as open and transparent a way as possible: its meetings are open to the public, and it publishes documents, including draft proposals, on its website.<sup>58</sup> He rightly told us that “we felt we were not going to get anywhere in this highly polarised area unless we were as open and as committed to public deliberations as we could be”.<sup>59</sup> **We commend the AEBC for the transparency to which it has committed itself. All those involved in supporting or opposing the use of GM technologies, or who are otherwise engaged in the public debate about the issues surrounding GM food and crops, would do well to heed the example set by the Commission since its inception.**

18. The main work of the Commission to date has been to assess the current programme of farm-scale evaluations of GM crops – but also to look beyond it to future decisions about whether or not to allow commercial planting of such crops. In its report, *Crops on Trial*, the Commission concluded that whilst the outcome of the evaluations will help to inform those decisions, consideration will be needed of other matters, such as the framework of European legislation which governs the matter, and also scientific information from other sources, ethical concerns, strategic and economic issues, and “the concerns which have been expressed by the public”.<sup>60</sup> The Commission argued that

---

<sup>54</sup> Q.167.

<sup>55</sup> See the AEBC website, at <http://www.aebc.gov.uk/aebc/aboutus.html>.

<sup>56</sup> Terms of reference of the AEBC: see its website, at <http://www.aebc.gov.uk>.

<sup>57</sup> See <http://www.aebc.gov.uk/aebc/member.htm>.

<sup>58</sup> At <http://www.aebc.gov.uk>.

<sup>59</sup> Q.127.

<sup>60</sup> *Crops on Trial*, p.15.

“Ministers must, through proper consultation, engage with the public ... They are required to take a decision on behalf of society as to what is an acceptable level of risk to health and environment from the commercial growing of GM crops, and they will wish to have as comprehensive an understanding as possible both of the science and of public opinion as to the acceptability of that risk”.<sup>61</sup>

The purpose of consulting with the public is not only to help in making decisions about the commercial planting of crops, but also to assist the Government in its negotiations within the European Union. It will also help prospective growers, since “without a higher level of public consent, or consensus, than exists at present, a decision to allow commercial growing of GM crops might offer the industry no more than a precarious basis for proceeding”.<sup>62</sup> Therefore the AEBC recommended that the Government “commit to an open and inclusive process of decision-making around whether the GM crops being grown in the farm-scale evaluations should be commercialised, within a framework which extends to broader questions”.<sup>63</sup>

19. In its reply to *Crops on Trial* the Government expressed its commitment “to taking public opinion into account as far as possible through an open decision-making process. There will be a public debate on the possible commercial growing of GM crops”.<sup>64</sup> Mr Meacher told us that a public debate would provide “an opportunity for a wider discussion”.<sup>65</sup> The purpose of the debate, he said, would be to “make it clearer what the public’s views are”.<sup>66</sup> Moreover, as the AEBC has made clear, “an inevitable outcome of the debate will be a better-informed public because that is what happens in good debates”.<sup>67</sup> **We support the proposed public debate about the issues surrounding the outcome of the farm-scale evaluations and the future commercial growing of GM crops. However, we caution that the most optimistic aspirations for such a debate – that through it a clearer public consensus in favour or opposed to commercial planting will be formed – are unlikely to be fulfilled. The debate will, though, help to inform those members of the public who become aware of it about GM crops in a rational and intelligent way, and at the same time help the Government to understand public opinion rather better.**

20. The Government invited the AEBC to advise by the end of April 2002 on how and when to promote public debate, and how to make best use of its results. The AEBC advice was published on 26 April.<sup>68</sup> It set out a detailed prescription for the way in which the public debate should be conducted, including a draft timetable and an estimate of costs.<sup>69</sup> The Government in turn made proposals intended to support the public debate on 31 May 2002.<sup>70</sup> The proposals made both by the AEBC and the Government appear entirely sensible. There are three aspects of them about which we wish to comment: the level of public trust in Government, maintaining and increasing public faith in science, and the way in which the debate will be assessed and evaluated.

---

<sup>61</sup> *Crops on Trial*, p.16.

<sup>62</sup> *Crops on Trial*, pp.16 and 17.

<sup>63</sup> *Crops on Trial*, recommendation 6, p.19.

<sup>64</sup> *UK Government response to crops on Trial report*, January 2002, para.29; the Government response can be seen at [http://www.aebc.gov.uk/aebc/response\\_crops.html](http://www.aebc.gov.uk/aebc/response_crops.html).

<sup>65</sup> Q.156.

<sup>66</sup> Q.165.

<sup>67</sup> *A debate about the issue of possible commercialisation of GM crops in the UK*, AEBC, 26 April 2002, para.7.

<sup>68</sup> *A debate about the issue of possible commercialisation of GM crops in the UK*, which can be viewed on the internet at [http://www.aebc.gov.uk/aebc/public\\_attitudes\\_advice.html](http://www.aebc.gov.uk/aebc/public_attitudes_advice.html).

<sup>69</sup> See *A debate about the issue of possible commercialisation of GM crops in the UK*, para.46 and Annex B.

<sup>70</sup> See *Beckett announces a public debate on GM*, DEFRA Press Release, 31 May 2002.

21. Professor Grant told us that the process of public debate should be conducted independently of Government. He argued that in the eyes of many already engaged in the debate the Government was not seen as neutral,<sup>71</sup> a view reflected in the comment of the Soil Association that there are considerable pressures for commercial planting to go ahead “backed by an element of Government opinion which is very pro-scientific innovation”.<sup>72</sup> Mr Meacher conceded that “despite the fact that Government ministers make the case as honestly, truthfully and fully as we can, we are not always believed over GM”.<sup>73</sup> He suggested that public mistrust may result from the strongly polarised views expressed about GM food and crops, and from the past role of Government in respect of BSE and foot and mouth disease. Mr Meacher concluded that “a debate would probably have greater credibility if it were independent of Government”.<sup>74</sup> Professor Grant agreed that “it is important ... for the debate to be conducted in as independent a manner as possible. Independence will divorce it from the suspicion of Government interference and intervention, both in framing the questions for the debate and the processes through which the debate is undertaken”.<sup>75</sup>

22. The AEBC, in its advice to Government on the public debate, proposed that an “independent steering board” be set up to “oversee the programme of debate”.<sup>76</sup> It offered to provide members to sit on the board, and indicated that Professor Grant would be willing to chair it. Other members might include Government officials and one or two other individuals “with particular expertise in running programmes of this sort”.<sup>77</sup> The steering board would oversee the practical work of promoting public debate, which would be undertaken by a contractor “qualified to manage public engagement exercises of this sort”.<sup>78</sup> Finally, the AEBC said, independent evaluators would be needed to analyse and synthesise contributions to the debate, and to produce a report at the end of the programme. This group would be “independent and professionally qualified”.<sup>79</sup> **We agree that public mistrust of its intentions in respect of GM crops and food requires that the programme of public debate should be conducted independently of Government. The approach proposed by the AEBC appears likely to keep the process at arm’s length from the Government, and we therefore commend it.**

23. Public concern is further heightened by both their scepticism about science in public policy in general and their mistrust of the arguments put forward in support of GM technology in particular. In part this reflects what the House of Lords Science and Technology Committee has described as a crisis of public confidence in science.<sup>80</sup> GM technologies suffer from the particular difficulty of having apparently definitive scientific findings used by each side in the debate to attack the arguments advanced by the other. Moreover scientific research into GM crops and food is almost always funded by organisations promoting or opposing the new technology. Under such circumstances it is not surprising that public faith in scientific findings is extremely weak. The AEBC has advocated “an independent scientific review of all the information [which it lists] that will complement the results from the farm-scale evaluations”,<sup>81</sup> and also urges the Government to ensure that public funds are made available for research which will permit “an objective independent comparative assessment of the potential impacts of new technology on the

---

<sup>71</sup> See Q.126.

<sup>72</sup> Q.48.

<sup>73</sup> Q.153.

<sup>74</sup> Q.153.

<sup>75</sup> Q.126.

<sup>76</sup> *A debate about the issue of possible commercialisation of GM crops in the UK*, para.45.

<sup>77</sup> *A debate about the issue of possible commercialisation of GM crops in the UK*, Annex A, para.5.

<sup>78</sup> *A debate about the issue of possible commercialisation of GM crops in the UK*, Annex A, para.4.

<sup>79</sup> *A debate about the issue of possible commercialisation of GM crops in the UK*, Annex A, para.7.

<sup>80</sup> *Science and Society*, para.1.

<sup>81</sup> *Crops on Trial*, para.43.

environment. The aim must be to promote a genuine search for knowledge that will contribute to scientific understanding of the impact of new technology on agriculture and the wider environment".<sup>82</sup> **It should be stressed that comparative models of change are required. Conventional British agriculture has not stood still and its evolution has had profound effects on our environment, our landscape, even arguably on our health. Analyses of GM technology must compare potential change from that source with predictable change as a result of conventional farming.**

24. A prerequisite of a successful public debate will be scientific findings which are reliable: like the Royal Society "we wish to stress the importance of informing debate with sound science".<sup>83</sup> The Government has commissioned an assessment of the science of GM to be undertaken by the Government's Chief Scientific Adviser and the Chief Scientific Adviser of the Department for Environment, Food and Rural Affairs, working with the Food Standards Agency and 'drawing on all available expert and scientific advice and evidence'.<sup>84</sup> **Whilst we welcome the assessment of the science surrounding GM to be carried out by the Government's scientific advisers, we urge the Government to go further in order to buttress public confidence in the science underpinning the debate. We recommend that the Government not only adopt the recommendations made by the AEBC about the provision of independently-reviewed data and of public funds for future research, but also consider establishing a panel of scientists able to provide advice which is seen to be unbiased to inform the public debate.**

25. Perhaps the greatest difficulty to be overcome in the public debate is how to bring it to an end, and how to evaluate the results. The AEBC acknowledges as much, saying that the "information to emerge from the programme of debate ... will be qualitative rather than quantitative. It seems very likely to encompass a range of views, not a simple 'yes' or 'no' to commercialisation of GM crops".<sup>85</sup> It argues that the Government should declare openly at the start of the process what it expects to gain from it: that it will make decisions about commercial use of GM crops within a legal, European and international context, and that "it will take account of public views in making those decisions".<sup>86</sup> The Commission also envisages bringing the debate to a close within twelve to eighteen months,<sup>87</sup> and, as we have already discussed, that its results should be analysed by an independent panel of evaluators.

26. We have no quarrel with the practical suggestions made by the AEBC about how long the public debate will take and about how its results will be assessed. However, we are concerned that the results will nevertheless be unclear. As we have said, the polarity of the views held make it very unlikely that a consensus will be reached: Mr Meacher commented that although we need to move the debate forward, "it will not be with a consensus, by any means", although he hoped that the debate might "narrow the degree of polarisation which exists".<sup>88</sup> There is in any event a danger that the public debate will allow those who already hold particular views about GM technology to reiterate their opinions, whilst the vast majority of people, who feel much less strongly about the matter, may not be seriously engaged by the process. **The public debate will not establish whether or not public opinion has swung for all time in favour or against the commercial planting of GM crops, and may not even give a clear view of the state of public opinion. The value of the exercise may, as we have suggested, lie in the process**

---

<sup>82</sup> *Crops on Trial*, para.46.

<sup>83</sup> *Genetically modified plants for food use and human health – an update*, p.10.

<sup>84</sup> *Beckett announces a public debate on GM*, DEFRA Press Release, 31 May 2002.

<sup>85</sup> *A debate about the issue of possible commercialisation of GM crops in the UK*, para.10.

<sup>86</sup> *A debate about the issue of possible commercialisation of GM crops in the UK*, para.13.

<sup>87</sup> *A debate about the issue of possible commercialisation of GM crops in the UK*, Annex B.

<sup>88</sup> Q.167.



itself, which will help to inform the public, at least give a flavour of the variety of opinions held, and offer at least a framework for involvement.

27. We recommend as a matter of priority that the Government address the question of the need to rebuild public confidence in science as an instrument of public policy, without which it will be extremely difficult to have a well informed public consultation and debate on matters such as the future of GM technology.

## The science

### *Published reports*

28. In recent months a range of reports have been published about GM food and crops. We raised some of them with our witnesses, and asked for their views. We focussed on three reports in particular: (1) that of Quist and Chapela dealing with contamination of non-GM maize in Mexico by GM genes, (2) that commissioned by English Nature to examine 'gene stacking' in oilseed rape in Canada, and (3) that of the Royal Society on the safety of eating GM foods.

### *Quist and Chapela*

29. A paper by University of California biologists David Quist and Ignacio Chapela, published by *Nature* on 29 November 2001, reported evidence that genes from GM maize varieties had crossed into native strains of maize in southern Mexico. The paper claimed that such genes had become permanently established in the genome of the wild maize plants they had tested. The scientists subsequently argued that this development threatened the genetic diversity of maize in the area, which is considered the point of origin of the crop.<sup>89</sup> Others used these findings to support their own arguments. The Five Year Freeze Campaign<sup>90</sup> said that the report "shows evidence of GM contamination of wild maize in Mexico, the origin of all maize varieties, posing a potential threat to vital diversity essential for future global food security".<sup>91</sup> Similarly the Soil Association claimed that "we now face the terrible prospect of all natural varieties [of maize] in Mexico being contaminated by genetically engineered maize imported from the United States. This threat to the genetic diversity of one of the world's most important crop plants was widely predicted by environmentalists and organic farmers".<sup>92</sup>

30. The article by Quist and Chapela, and particularly the methods used in their research, proved controversial. One reviewer of the article argued that "transgenic [ie. GM] corn may be being grown illegally in Mexico, but Quist and Chapela's claim that these transgenes have pervaded the entire native maize genome is unfounded".<sup>93</sup> Another reviewer said that "the Quist and Chapela study is a testament to technical incompetence".<sup>94</sup> In April 2002 *Nature* unusually distanced itself from the original article, saying that "in the light of criticisms and advice from referees, *Nature* has concluded that the evidence available is not sufficient to justify its publication of the original paper".<sup>95</sup>

<sup>89</sup> Reported by the BBC on 28 November 2001: a copy of the BBC report can be viewed on the internet at the corporation's website at [http://news.bbc.co.uk/1/hi/english/sci/tech/newsid\\_1680000/1680848.stm](http://news.bbc.co.uk/1/hi/english/sci/tech/newsid_1680000/1680848.stm). Also covered in, for example, AgBioWorld, at [http://www.agbioworld.org/biotech\\_info/articles/mexmaizeresource.html](http://www.agbioworld.org/biotech_info/articles/mexmaizeresource.html).

<sup>90</sup> The Five Year Freeze Campaign is an alliance of organisations calling on the Government for a moratorium for five years on growing genetically engineered crops for any commercial purpose, on imports of genetically engineered foods and farm crops, and on the patenting of genetic resources for food and farm crops. See <http://www.fiveyearfreeze.org>.

<sup>91</sup> Reported by the BBC on 28 November 2001.

<sup>92</sup> Press Notice of the Soil Association, issued 29 November 2001: see <http://www.soilassociation.org.uk/>.

<sup>93</sup> Comment attributed to Nick Kaplinsky, also of the University of California at Berkeley, by Scientific American; the article can be read at <http://www.sciam.com/news/040802/2.html>.

<sup>94</sup> Comment attributed to Matthew Metz, of the University of Washington, by ConsumerFreedom.com.

<sup>95</sup> Reported in *Nature backs off GM crop claims*, The Guardian, 5 April 2002.

### *Gene stacking*

31. On 5 February 2002, English Nature published a report of a study of 'gene stacking' in herbicide tolerant GM oilseed grown in Canada.<sup>96</sup> The study considered evidence of gene flow between oilseed plants, particularly that genes from plants modified to be tolerant to certain herbicides have passed from one to another, leading in some cases to plants tolerant of two or even three different herbicides. Controlling the growth of such plants may therefore be difficult, and other chemicals may be needed. In its press release accompanying the report English Nature concluded that "the SCIMAC code [governing distances between GM and non-GM crops] is probably inadequate to prevent gene stacking happening in Britain, if these crops were commercialised. The consequences for farmers could be that volunteer crops would be harder to control and they might have to use different, and more environmentally damaging, herbicides to control them".<sup>97</sup>

32. However, in its evidence to us SCIMAC said that it was "concerned at a discrepancy between the press release which reported the report, and what the report actually contained".<sup>98</sup> It pointed out that the report itself drew attention to the SCIMAC guideline that a herbicide tolerant crop should be separated from other oilseed rape crops by at least 50 metres, and that "both UK gene flow data and Canadian experience suggest that this would be effective in reducing significantly the occurrence of gene flow".<sup>99</sup> The report goes on to say that dealing with gene stacking may have cost and practical implications, and that there would be an environmental impact caused by the need to use additional herbicides, although the impact may not be too severe.<sup>100</sup>

### *Food use*

33. The Royal Society published its report into *Genetically modified plants for food use* in September 1998.<sup>101</sup> In February 2002 it produced an update.<sup>102</sup> It concluded that the risks to human health as a result of using viral techniques to modify plants are negligible, and that "given the very long history of DNA consumption from a wide variety of sources, it is likely that such consumption poses no significant risk to human health, and that additional ingestion of GM DNA has no effect".<sup>103</sup> When this point was put to the Soil Association, however, it reiterated its concern about the fact that parts of viruses are commonly used to alter genetic information in GM plants. The Association said that "it is for that reason that it is thought that there is no actual means of controlling this genetic part, this viral part, and so the gene could actually transfer out again [into the person consuming the GM food] ... it has been proven in the laboratory that these genes can transfer, so there is no reason to think they could not".<sup>104</sup>

34. Many other reports on GM technology have been produced: these three examples illustrate the degree to which the science is contentious. **No consensus is emerging from the scientific research undertaken into the environmental impact and safety of GM food and crops – at least not one sufficiently robust to refute the claims of those**

<sup>96</sup> *Gene stacking in herbicide tolerant oilseed rape: lessons from the North American experience*, English Nature Research Reports No. 443; see <http://www.english-nature.org.uk/pubs/publication/PDF/enrr443.pdf>.

<sup>97</sup> *GM Crops may become weedier*, English Nature Press Release EN/02/06, 5 February 2002; the press release can be viewed on the internet at <http://www.english-nature.org.uk/news/story.asp?ID=335>.

<sup>98</sup> Q.98.

<sup>99</sup> *Gene stacking in herbicide tolerant oilseed rape*, p.11.

<sup>100</sup> *Gene stacking in herbicide tolerant oilseed rape*, p.15 and 16.

<sup>101</sup> *Genetically modified plants for food use*, Royal Society; see <http://www.royalsoc.ac.uk/policy/index.html>.

<sup>102</sup> *Genetically modified plants for food use and human health – an update*, Royal Society policy document 4/02, February 2002; see <http://www.royalsoc.ac.uk/policy/index.html>.

<sup>103</sup> *Genetically modified plants for food use and human health – an update*, p.10.

<sup>104</sup> Q.37.

opposed to the technology, although we note the comment made to us by SCIMAC that gene flow in plants has been going on for centuries;<sup>105</sup> we also note the conclusions of the Royal Society that consuming GM food poses no significant threat to human health. What is needed for the sake of the public debate is that efforts be made to reach agreement on even the simplest points of science. We reiterate our recommendation that Government should take steps to ensure that scientific research is carried out and made available to inform the public debate, and that research should be assessed by the panel of scientists we have recommended, and their views also disseminated.

#### *Farm-scale evaluations*

35. Some of the necessary scientific data will be derived from the current programme of farm-scale evaluations of GM crops. That programme was instituted on 21 May 1999, when it was announced that guidelines had been agreed between Government and the body representing the farming and biotechnology industry, SCIMAC,<sup>106</sup> for the conduct of experimental planting of GM crops.<sup>107</sup> The programme of farm-scale evaluations began in spring 2000, and will end at harvest 2002 for spring-sown crops and at harvest 2003 for winter-sown crops. Four crops, genetically modified for tolerance to herbicide, are involved in the trials: (1) fodder and sugar beet, (2) forage maize and (3 and 4) winter and spring varieties of oilseed rape. Approximately sixty fields have been planted with each crop, half of each field sown with the GM variety, and half with a non-GM variety.<sup>108</sup> The purpose of the farm-scale evaluations is not to evaluate the safety or effects of the crops themselves, but rather to assess whether the herbicide management regimes used in relation to the GM crops have any effect on the biodiversity of the farmland.

36. A number of our witnesses commented on the limited nature of the farm-scale evaluations. SCIMAC told us that “the farm-scale evaluations are asking one single question, does the management of the GM herbicide-tolerant crops, in direct comparison with the equivalent non-GM crop, have a positive, neutral or negative impact on farmland biodiversity”.<sup>109</sup> Mr Meacher commented that the programme of evaluations was “a limited project, that is perfectly true ... Many of [the public] confusedly and wrongly believe that these trials have something to do with safety, and that we will be making a declaration to say whether they [GM crops] are safe or not. We are not going to do any such thing at all. We will be talking about impact on the environment exclusively”.<sup>110</sup> Professor Grant told us that “the data that will come from the farm-scale evaluations should not be regarded as the final piece of the jigsaw. They are trials which are relatively narrowly focussed in their perspective ... The question is quite narrowly defined”.<sup>111</sup> **The farm-scale evaluations are important, but they will answer only a very limited number of questions. As we have said, further independently-conducted and independently-assessed research will be needed in order to inform the public debate.**

37. During our inquiry we discussed with witnesses what the impact on public acceptance of GM technologies might have been if plants had been modified to deliver, for example, health benefits or other consumer benefits, rather than simply giving better yields for producers. The Soil Association told us that the same principles applied to non-food

---

<sup>105</sup> See Q.96.

<sup>106</sup> SCIMAC is a body comprising five agricultural organisations: British Society of Plant Breeders, National Farmers Union, British Agrochemicals Association, United Kingdom Agricultural Supply Trade Association and British Sugar Beet Seed Producers Association. More information about it can be obtained at <http://www.ukasta.org.uk/news/scimac/>.

<sup>107</sup> See HC Deb, 21 May 1999, col.1371.

<sup>108</sup> See *Crops on Trial*, para.10 ff.

<sup>109</sup> Q.112.

<sup>110</sup> Q.157.

<sup>111</sup> Q.137.

products as to food, but said that it took a different view of derivatives of GM plants used for medical applications.<sup>112</sup> SCIMAC pointed to possible benefits if rye grass could be modified to cause fewer problems for sufferers of hay fever.<sup>113</sup> Mr Meacher told us that “in respect of pharmaceuticals and drugs the public is much more willing to be supportive than in the case of food production”.<sup>114</sup>

38. It is perhaps unfortunate, therefore, that the crops featured in the programme of farm-scale evaluations are so workmanlike. SCIMAC conceded that from the consumer’s point of view there was probably no benefit as a result of genetic modification in the range of crops being trialed.<sup>115</sup> Mr Meacher agreed that “oilseed rape, maize (which is largely used for animal feed) and beet are not directly relevant to the consumer. Therefore, making the consumer aware that there are benefits – if there are and I think there are – does need to be propagated much more strongly if we are going to get a proper balance between potential consumer benefits and the downside risks”.<sup>116</sup> He told us that he thought that “the biotechnology companies have very largely concentrated on producer benefits rather than on the consumer benefits”.<sup>117</sup> **It is unfortunate that the crops chosen for use in the farm-scale evaluations are not directly used by consumers. Debate about the farm-scale evaluations is therefore likely to focus on alleged risks associated with GM technology without the balance of any concrete examples of substantial consumer benefits. As a result the public, looking at the outcomes of the farm-scale evaluations alone, is unlikely to perceive much advantage in proceeding to commercial exploitation of GM crops. This ensures that the debate will be about principles and hypotheses not concrete consumer-relevant United Kingdom data, making it all the harder to involve the wider public.**

## Conclusions

39. Views about GM technology, at least amongst the vocal minorities opposed to or in favour, are firmly entrenched. There is reason therefore to doubt whether attempts to hold a rational discussion about the principles of the subject will be successful. However, the passage of time since the furore of 1999, the public acceptance of GM food when it was first sold in the mid-1990s, the apparent success of the AEBC, and the observations of our witnesses about the acceptability of GM technologies for medical and pharmaceutical purposes indicate that in fact such a discussion may be possible. We hope that the media, including scientific journals, will address the matter in a responsible way, and that the wider public, beyond those with already well-formed opinions, will be engaged by the debate. We also hope that a method can be found to draw meaning from the debate. That said, **the public debate about GM crops and food proposed by the AEBC is an innovative and sensible means of attempting to understand public feelings about such a complicated issue. At the very least the debate will provide a platform through which the quality of public knowledge will be raised, particularly if the Government commits itself to providing not only the already-commissioned assessment of the science by its own advisers but also the independently-conducted and independently-evaluated research we have recommended, and the debate will also provide a forum through which the public can air its views.**

40. Commercial planting of GM crops is governed by European Union legislation, in particular Directive 90/220/EEC on the deliberate release into the environment of GM

---

<sup>112</sup> See Q.9.

<sup>113</sup> See Q.75.

<sup>114</sup> Q.160.

<sup>115</sup> See Q.74.

<sup>116</sup> Q.191.

<sup>117</sup> Q.191.

organisms,<sup>118</sup> and the Regulations on novel foods.<sup>119</sup> Directive 90/220/EEC governs the release and marketing of GM organisms in the European Union, establishing two categories of release of organisms into the environment: part B releases for research trials and part C releases for marketing (commercial) purposes. Applications for part C consents in any one member state are circulated to the Commission and to all other member states for their comments. If there are no objections, the application will proceed, and once a part C consent has been approved in any one member state, it is valid throughout the European Union.<sup>120</sup> Since 1999 there has been an unofficial moratorium on new part C consents because some member states<sup>121</sup> have “pledged to block all GM product approvals” until rules on traceability and labelling have been put in place.<sup>122</sup> **To give approval for commercial planting of GM crops the Government will have to act within the legal framework of the European Union. Thus the public debate will inform decisions made in the United Kingdom; it can also, as the AEBC proposes, help to inform the attitude of the United Kingdom Government in European deliberations on these matters. In the end, however, decisions about commercial exploitation of GM crops will be decided by our legal obligations within the Union and, potentially, in due course within the World Trade Organisation. In setting the framework for the public debate, the Government should, nonetheless, make clear the importance of the United Kingdom’s international obligations.**

## Conclusions and recommendations

### *Openness, transparency and responsibility*

- (a) **We urge those in favour of GM crops and those opposed to approach debate on the subject in as responsible and open-minded a manner as possible. In particular we urge them to base their arguments on rigorous science, rather than conjecture (paragraph 11).**
- (b) **The media has an important role to play in informing the public about the complex issues surrounding GM food and crops. We urge all parts of the media to address those issues in future in a rational and constructive matter – their commitment to doing so is a prerequisite of a well-informed public debate (paragraph 15).**
- (c) **We commend the AEBC for the transparency to which it has committed itself. All those involved in supporting or opposing the use of GM technologies, or who are otherwise engaged in the public debate about the issues surrounding GM food and crops, would do well to heed the example set by the Commission since its inception (paragraph 17).**

### *Support for the public debate*

- (d) **We support the proposed public debate about the issues surrounding the outcome of the farm-scale evaluations and the future commercial growing of GM crops. However, we caution that the most optimistic aspirations for such a debate – that through it a clearer public consensus in favour or opposed to commercial planting will be formed – are unlikely to be fulfilled. The debate will, though, help to inform those members of the public who become aware**

---

<sup>118</sup> See <http://www.europa.eu.int/eur-lex/en/index.html>.

<sup>119</sup> See, for example, Regulation (EC) No 258/97.

<sup>120</sup> See HC Deb, 2 May 2001, col.689W.

<sup>121</sup> France, Italy, Greece, Denmark and Luxembourg (also supported in part by Belgium).

<sup>122</sup> See *ENDS Environment Daily*, 13 July 2000.

of it about GM crops in a rational and intelligent way, and at the same time help the Government to understand public opinion rather better (paragraph 19).

- (e) The public debate will not establish whether or not public opinion has swung for all time in favour or against the commercial planting of GM crops, and may not even give a clear view of the state of public opinion. The value of the exercise may, as we have suggested, lie in the process itself, which will help to inform the public, at least give a flavour of the variety of opinions held, and offer at least a framework for involvement (paragraph 26).

#### *The Government*

- (f) We agree that public mistrust of its intentions in respect of GM crops and food requires that the programme of public debate should be conducted independently of Government. The approach proposed by the AEBC appears likely to keep the process at arm's length from the Government, and we therefore commend it (paragraph 22).

#### *Independent science*

- (g) Whilst we welcome the assessment of the science surrounding GM to be carried out by the Government's scientific advisers, we urge the Government to go further in order to buttress public confidence in the science underpinning the debate. We recommend that the Government not only adopt the recommendations made by the AEBC about the provision of independently-reviewed data and of public funds for future research, but also consider establishing a panel of scientists able to provide advice which is seen to be unbiased to inform the public debate (paragraph 24).
- (h) It should be stressed that comparative models of change are required. Conventional British agriculture has not stood still and its evolution has had profound effects on our environment, our landscape, even arguably on our health. Analyses of GM technology must compare potential change from that source with predictable change as a result of conventional farming (paragraph 23).
- (i) No consensus is emerging from the scientific research undertaken into the environmental impact and safety of GM food and crops – at least not one sufficiently robust to refute the claims of those opposed to the technology, although we note the comment made to us by SCIMAC that gene flow in plants has been going on for centuries; we also note the conclusions of the Royal Society that consuming GM food poses no significant threat to human health. What is needed for the sake of the public debate is that efforts be made to reach agreement on even the simplest points of science. We reiterate our recommendation that Government should take steps to ensure that scientific research is carried out and made available to inform the public debate, and that research should be assessed by the panel of scientists we have recommended, and their views also disseminated (paragraph 34).
- (j) We recommend as a matter of priority that the Government address the question of the need to rebuild public confidence in science as an instrument of public policy, without which it will be extremely difficult to have a well informed public consultation and debate on matters such as the future of GM technology (paragraph 27).

*Farm-scale evaluations*

- (k) **The farm-scale evaluations are important, but they will answer only a very limited number of questions. As we have said, further independently-conducted and independently-assessed research will be needed in order to inform the public debate (paragraph 36).**
- (l) **It is unfortunate that the crops chosen for use in the farm-scale evaluations are not directly used by consumers. Debate about the farm-scale evaluations is therefore likely to focus on alleged risks associated with GM technology without the balance of any concrete examples of substantial consumer benefits. As a result the public, looking at the outcomes of the farm-scale evaluations alone, is unlikely to perceive much advantage in proceeding to commercial exploitation of GM crops. This ensures that the debate will be about principles and hypotheses not concrete consumer-relevant United Kingdom data, making it all the harder to involve the wider public (paragraph 38).**

*General conclusions*

- (m) **The public debate about GM crops and food proposed by the AEBC is an innovative and sensible means of attempting to understand public feelings about such a complicated issue. At the very least the debate will provide a platform through which the quality of public knowledge will be raised, particularly if the Government commits itself to providing not only the already-commissioned assessment of the science by its own advisers but also the independently-conducted and independently-evaluated research we have recommended, and the debate will also provide a forum through which the public can air its views (paragraph 39).**
- (n) **To give approval for commercial planting of GM crops the Government will have to act within the legal framework of the European Union. Thus the public debate will inform decisions made in the United Kingdom; it can also, as the AEBC proposes, help to inform the attitude of the United Kingdom Government in European deliberations on these matters. In the end, however, decisions about commercial exploitation of GM crops will be decided by our legal obligations within the Union and, potentially, in due course within the World Trade Organisation. In setting the framework for the public debate, the Government should, nonetheless, make clear the importance of the United Kingdom's international obligations (paragraph 40).**

**PROCEEDINGS OF THE GENETICALLY  
MODIFIED ORGANISMS SUB-COMMITTEE  
RELATING TO THE REPORT**

---

WEDNESDAY 22 MAY 2002

Members present:

Mr Mark Todd, in the Chair

Mr David Curry

Mr Michael Jack

The Sub-committee deliberated.

Draft Report [Genetically Modified Organisms], proposed by the Chairman, brought up and read.

*Ordered*, That the Report be read a second time, paragraph by paragraph.

Paragraphs 1 to 40 read and agreed to.

Summary read and agreed to.

*Resolved*, That the Report be the Fifth Report of the Sub-committee to the Committee.

*Ordered*, That the Chairman do make the Report to the Committee.

[The Sub-committee adjourned]



## PROCEEDINGS OF THE COMMITTEE RELATING TO THE REPORT

---

WEDNESDAY 12 JUNE 2002

Members present:

Mr David Curry, in the Chair

Mr Colin Breed	Mr Austin Mitchell
David Burnside	Diana Organ
Mr David Drew	David Taylor
Mr Michael Jack	Mr Mark Todd
Mr Eric Martlew	

\* \* \*

The Committee deliberated.

Report from the Genetically Modified Organisms Sub-committee [*Genetically Modified Organisms*], proposed by the Chairman, brought up and read.

*Ordered*, That the draft Report be read a second time, paragraph by paragraph.

Paragraphs 1 to 40 read and agreed to.

Summary read and agreed to.

*Resolved*, That the Report be the Fifth Report of the Committee to the House.

*Ordered*, That the Chairman do make the Report to the House.

A Memorandum was ordered to be reported to the House.

The Committee further deliberated.

\* \* \*

[Adjourned till Wednesday 19 June at Ten o'clock.]

## LIST OF WITNESSES

*Page*

*Evidence taken Tuesday 16 April 2002*

### THE SOIL ASSOCIATION

Mr Patrick Holden and Ms Gundula Meziani   ... .. Ev 1

### SUPPLY CHAIN INITIATIVE ON MODIFIED AGRICULTURAL CROPS (SCIMAC)

Dr Roger Turner, Mr Bob Fiddaman and Mr Daniel Pearsall   ... .. Ev 10

*Evidence taken Tuesday 23 April 2002*

### AGRICULTURE AND ENVIRONMENT BIOTECHNOLOGY COMMISSION

Professor Malcolm Grant   ... .. Ev 25

### DEPARTMENT FOR ENVIRONMENT, FOOD AND RURAL AFFAIRS

Rt Hon Michael Meacher MP, Dr Linda Smith and Mr Graham Davis   ... .. Ev 31

## LIST OF MEMORANDA INCLUDED IN THE MINUTES OF EVIDENCE

*Page*

1. Memorandum by SCIMAC (D2)   ... .. Ev 18
2. Memorandum by the Department for Environment, Food and  
Rural Affairs (D3)   ... .. Ev 38

## **UNPRINTED MEMORANDUM**

The following Memorandum was received and has been reported to the House. A copy has been placed in the House of Commons Library where it may be inspected by Members. Another copy has been placed in the Record Office, House of Lords, and is available to the public for inspection. Requests for inspection should be addressed to the Record Office, House of Lords, London SW1A 0PW (tel 020 7219 3074). Hours of inspection are from 9.30 am to 5.30pm on Mondays to Fridays.

1. Memorandum by the American Soybean Association (D1)