

# **Avoiding the difficult issues**

A GeneWatch UK report on the Government's response  
to the 'GM Nation?' public debate

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# 1. Executive Summary

In July 2002, the Government announced that it would have a broad public debate on the future of GM crops and food in the UK which was called 'GM Nation?'. The results of this public debate were intended to be taken into account in the decision-making by the Government for any future GM policy.

The public debate was launched in parallel with studies to consider the economics and science of GM crops. The Prime Minister's Strategy Unit considered the Costs and Benefits of GM crops in its economic study, and the Chief Scientist's GM Science Review Panel considered the scientific evidence. The findings of the farm-scale evaluations (FSEs) as well as a report by the Agriculture and Environment Biotechnology Commission (AEBC) on coexistence of GM with non-GM farming, and liability for economic or environmental damage were also used to inform decision making.

This report focuses on how the findings of the public debate actually affected the Government's new GM policy announcement on 9th March 2004 in relation to the other evidence. It follows an earlier report on the conduct of the debate and forms part of GeneWatch's evaluation of the whole public debate.

**Results of the public debate.** The public debate showed that many people are particularly anxious about the potential for long-term impacts on the environment and health which are the most difficult to predict. They did not welcome commercialisation at this stage and had little confidence that the technology is being developed in ways which will genuinely benefit society. The sense of a powerful industrial agenda and lack of ability or willingness on the part of government to manage the risk-benefit equation in the public interest, leaves people sceptical but reluctant to turn their back on GM entirely because they recognise that there may be potential benefits under the proper conditions. To bring people on board with GM crops would appear to need some realignment of the direction and control of the technology that would address such concerns fundamentally. And unless there is some genuine consideration of the purpose of using GM, it seems unlikely that people will feel reassured about the risks the technology brings.

**Lessons to be learned.** GeneWatch believes that these findings of the 'GM Nation?' debate are robust and represent a valid and useful body of information to inform policy making. Importantly, they largely reflect the findings of other studies on public attitudes. Whilst it makes uncomfortable reading for government and the biotechnology industry, there is little to be gained from ignoring its findings. Limitations in methodology and resources provide useful lessons for the conduct of future debates, but should not detract from the key issue of how the findings have influenced the Government's decision making.

The Government's newly revised GM policy which has been determined in the light of this knowledge is that it considers GM crops on a case-by-case basis according to the regulatory system in place to evaluate environmental and human safety. Where a GM crop is pronounced safe, as with GMHT maize, commercial growing should take place in principle if a market exists. However, Government has also recognised a need for statutory rules that govern how GM crops are grown to prevent contamination of non-GM crops. The Government has also stated the need for a compensation system funded by the biotechnology industry if these rules fail.

How well does this policy meet the concerns of the public? On the face of it, the clearest influence

on the new GM policy has come from the results of the FSEs. Elements of the science review, some of the AEBC's report on co-existence and liability and, to a lesser extent, the Strategy Unit's study of the costs and benefits of GM crops have also supported the policy. It is more difficult to find evidence that the public debate has had an impact. The public's rejection of commercialisation was discounted and any potential public benefits from biotechnology left to emerge from the vagaries of the market. 'Jam tomorrow' was the message with no explanation of how this might be achieved.

Whilst it might be possible to influence the products emerging from GM technology through science policy and intellectual property rights, this was not engaged with. The Government could have considered ways of making biotechnology research more easily available for research in the public interest and influencing intellectual property rights debates to ensure equitable access for the poor, but it chose not to do so. It could also have sought ways of engaging people more in shaping the public research agenda for food and farming, rather than leave the outcomes to be wrangled over in the market place.

The lack of public appetite for GM crops may, behind the scenes, contribute to delays in actually allowing growing to go ahead, but this is a rather underhand approach. Now that Bayer CropScience has withdrawn from commercialising GM maize in the UK because of the economic implications of the delays, it seems the UK Government really can please nobody. This situation reflects the inability of both industry and Government to engage with the issues behind the technology and to address what shapes the products that emerge. Industry, like Government has to learn that in a complex area of risk driven by commercial industrial interests, 'jam tomorrow' will never make a convincing case for risks arising for no good reason today.

So the Government has proved unable to deal with the scope of public questioning about the trajectory of GM technology. Whilst it had the courage to hold a public debate, it did not have the maturity to deal with the outcomes in any depth.

## 2. Introduction

In July 2002, the Government announced that it would have a broad public debate on the future of GM crops and food in the UK. This was a novel and welcome step that brought the possibility of a new form of public participation in decision-making.

Planning started in the late summer of 2002 and the debate itself ran for six weeks from June 3rd to July 18th 2003. In parallel, several discussion groups (called the 'narrow-but-deep' sample) of randomly selected people were established. Each of these groups met on two separate occasions to debate the GM issue. The findings of the whole exercise were published in September 2003<sup>1</sup>. Inevitably, there will be useful lessons for any future process and this report is intended to aid that learning as well as to evaluate the importance of the debate for GM decision making. An earlier GeneWatch report gave initial reflections on the process of the public debate, drawing on the observations of people participating in it and those of stakeholders<sup>2</sup>.

**The GM dialogue.** When Margaret Beckett, Secretary of State for the Environment, announced the public debate on 26th July 2002, she also said there would be parallel, additional strands considering the economics of GM crops, to be conducted by the Prime Minister's Strategy Unit, and a science study by Professor David King, the Government's Chief Scientist<sup>3</sup>. This package of three strands was called the 'GM dialogue'.

In addition, the 1998 and 1999 voluntary agreements between the biotechnology industry and the Government not to proceed with the commercialisation of GM crops, rested on the conduct and results of a large-scale study of the impacts of growing GMHT crops on farmland wildlife. The results of these farm-scale evaluations (FSEs) were published in October 2003<sup>4</sup>. The Agriculture and Environment Biotechnology Commission (AEBC) was also considering the coexistence of GM with non-GM and organic farming, as well as the need for liability for economic or environmental damage. Its report was published in November 2003. Therefore, the Government had a wide range of information to call on during its policy formulation in late 2003 and early 2004.

***This report considers the outcomes - how the Government actually used the public debate alongside the science and economics reviews, farm-scale evaluations and the AEBC's report, in its policy formation and decision-making.***

GeneWatch's 2003 review of the debate process concluded that, despite some problems with the process, the outcomes should have provided a very important strand of information for the Government. We advised that if the Government sought to downplay the outcomes of the public debate, this could increase public suspicion that the debate was never intended to be more than a PR exercise, and further undermine confidence in the Government and its institutions to act fairly in complex matters of assessing risks to the public and the environment.

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<sup>1</sup> *GM Nation? The findings of the public debate.* Department of Trade and Industry: London. September 2003.

<sup>2</sup> *GM Nation? Engaging people in real debate?* GeneWatch UK: Buxton. October 2003.

<sup>3</sup> *Public dialogue on GM.* Government response to AEBC advice submitted in April 2002. July 2003.

<sup>4</sup> *The Farm Scale Evaluations of spring-sown genetically modified crops.* Papers of a Theme Issue. Philosophical Transactions of the Royal Society of London, Series B 358: 1773-1913.

### 3. Public debate findings

*"..they have strong anxieties about some risks from GM, particularly towards the environment and human health,.."* 'GM Nation? The findings of the public debate'. Executive Summary, p6.

*".... the general population would prefer caution: commercialisation of GM crop technology should not go ahead without further trials and tests, firm regulation, demonstrated benefits to society (not just for producers) and, above all, clear and trusted answers to unresolved questions about health and the environment"* 'GM Nation? The findings of the public debate'. Executive Summary, p7.

*"People believe that these companies are motivated overwhelmingly by profit rather than meeting society's needs, and that they have the power to make their interests prevail over the wider public interest, both at home and throughout global society"* . 'GM Nation? The findings of the public debate'. Executive Summary, p7.

The outcomes of the public debate, 'GM Nation?', showed that people are suspicious and sceptical about GM crops and have little confidence in Government and the agro-biotechnology industry. They do not reject the technology entirely, but want further research and demonstrated benefits. They also want to know more.

The seven key messages that were communicated during this process were:

1. People are generally uneasy about GM.
2. The more people engage in GM issues, the harder their attitudes and more intense their concerns become.
3. There is little support for early commercialisation.
4. There is widespread mistrust of government and multi-national companies.
5. There is a broad desire to know more and for further research to be done.
6. Developing countries have special interests.
7. The debate was welcomed and valued.

**Methodology and interpretation.** The public debate was organised in 2 parts – a relatively uncontrolled grass-roots debate and a more structured session using discussion groups. Importantly, by having the 'narrow-but-deep' (NBD) groups of randomly selected people, it was possible to compare their views with those of the self-selected groups of people engaging in the wider public debate. From this, it was clear that an underlying suspicion about GM crops and foods is not simply a feature of a vocal minority but is widely shared, although people in the NBD groups were much less fundamentally opposed. However, as those in the groups learnt more about GM crops in their discussions and the interval between them, they became more hostile to GM crops.

There have been, however, some critical reactions to the 'GM Nation?' debate, its methodology and interpretation. A semi-official evaluation took place that was not funded by Government or part of the debate process itself, but did have access to all the proceedings and was recognised by the debate steering board. It was conducted by researchers from the University of East Anglia and it concluded, like GeneWatch, that there were some problems with the conduct of the debate. The researchers also concluded, following their own survey research, that the degree of outright opposition to GM

crops had been overstated in the report of 'GM Nation?'<sup>5</sup>. However, the evaluators' findings did mirror the 'GM Nation?' debate's key conclusions about the general level of concern regarding the risks and need for independent regulation. Unfortunately, this evaluation did not go on to look at how the findings of the debate were used by Government or how they influenced policy.

Other academics from the University of Nottingham, were also critical of certain aspects of the methodology<sup>6</sup>. Their criticism was that the NBD sample had 13 questions from the debate to answer and that these questions were "leading" in nature. They also asserted that more positive attitudes to GM crops that could be gleaned from quantitative analysis of the NBD responses to these questions were not fully reported. In this, they failed to acknowledge or recognise that the overall findings of the NBD sample were largely based on the qualitative data from the several hours of discussion that took place, rather than the outcomes of two short surveys at the beginning and end of the process.

Overall, GeneWatch believes that the findings of the 'GM Nation?' debate are robust and represent a valid and useful body of information to inform policy-making. Importantly, they largely reflect the findings of other studies, including citizens' juries conducted by the Food Standards Agency<sup>7</sup> and the University of Newcastle<sup>8</sup>, during the course of the debate as well as much earlier research on public attitudes<sup>9</sup>. Whilst it makes uncomfortable reading for government and the biotechnology industry, there is little to be gained from dismissing the findings of 'GM Nation?'. Limitations in methodology and resources provide useful lessons for the conduct of future debates, but should not detract from the key issue of how the findings have influenced the Government's decision making.

The most challenging issues that emerge from the public debate for Government are that people are largely concerned about the potential for long-term impacts on the environment and health - which are the most difficult to predict - and have little confidence that the technology is being developed in ways which will genuinely benefit society. The sense of a powerful industrial agenda and lack of ability or willingness on the part of government to manage the risk-benefit equation in the public interest, leaves people sceptical although reluctant to turn their back on GM entirely because they recognise that there may be potential under the proper conditions. To bring people on board with GM crops would appear to need some realignment of the direction and control of the technology that would address such concerns fundamentally. And unless there is some genuine consideration of the purpose of using GM, it seems unlikely that people will feel reassured about the risks the technology brings.

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<sup>5</sup> A Deliberative Future? An independent evaluation of the 'GM Nation?' public debate about the possible commercialisation of transgenic crops in Britain, 2003. Understanding Risk Working Paper 04-02: University of East Anglia. February 2004.

<sup>6</sup> Cambell, S & Townsend, E. (2003) Flaws undermine results of UK biotech debate. *Nature* 425: 559.

<sup>7</sup> Food Standards Agency (2003) Consumer views of GM food. [http://www.food.gov.uk/multimedia/pdfs/gm\\_rep.pdf](http://www.food.gov.uk/multimedia/pdfs/gm_rep.pdf).

<sup>8</sup> The People's Report on GM (2003) <http://www.gmjury.org/downloads/report.pdf>.

<sup>9</sup> e.g. Marris et al (2001) Public Attitudes to Biotechnology in Europe [www.pabe.net](http://www.pabe.net); Grove-White, R., et al . (1997) Uncertain World. Genetically modified organisms, food and public attitudes in Britain. Centre for the Study of Environmental Change, Lancaster University: Lancaster. 64pp; EUROBAROMETER 55.2: Europeans, science and technology, December 2001. Directorate-General for Research <http://europa.eu.int/comm/research/press/2001/pr0612en.html>.



## 4. Science review

*"...the main special feature of GM plant breeding is that it allows a wider choice of genes for modifying crops in novel ways. No other plant breeding technique permits the incorporation of genetic material from such diverse biological sources. Inevitably this raises the possibility that some new consequences of GM plant breeding may be unexpected."* (Science Review, First Report, Executive Summary).

*"To date world-wide there have been no verifiable untoward toxic or nutritionally deleterious effects resulting from the cultivation and consumption of products from GM crops. However, absence of readily observable adverse effects does not mean that these can be completely ruled out and there has been no epidemiological monitoring of those consuming GM food."* (Science Review, First Report, Executive Summary).

*"An important outcome of the Science Review is that many of the uncertainties and gaps in knowledge it addressed, for example in long-term impacts on health or the environment and the co-existence of GM crops with other crops, coincide with concerns expressed during the Public Debate."* (Science Review, Second Report).

Professor David King appointed a 25-member panel to conduct a review of GM science that was intended to be driven by public concerns. This panel held a series of public meetings and invited comment via its web site. As well as setting out what was known about the science and possible impacts of GM technology, the science review, in the first of its two reports, explicitly laid out where the uncertainties remained and what further research was needed<sup>10</sup>. Significantly, across all the areas it covered, from human health to environmental protection, it identified uncertainties and gaps in knowledge and made recommendations for further research.

However, although the first report highlighted uncertainties and the need for more research in all areas of the science identified by the public as being important, it was reassuring about the safety of the currently available GM foods. The review said that there was no scientific case for a blanket ban or approval of GM crops and said that they should continue to be evaluated on a case-by-case basis: where each new GM line of a crop or food is individually assessed under the regulatory system. There was no formal peer review of the first report and no corrections made in the light of comments received.

In its second report, the science review panel considered reactions to its first report, new scientific research published since the first report, the findings of the public debate and the farm-scale evaluations. The second report said that the concerns of the public coincided with the gaps in knowledge and uncertainties identified in the Science Review and that the public were, in their demands for more research, clearly not being anti-science. It maintained its original conclusions about the safety of existing GM foods, although it did not examine the approvals process and quality of the risk assessment and data provided. The second report also endorsed the findings of the farm-scale evaluations.

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<sup>10</sup> GM Science Review Panel (2003) GM science review. First report. Department of Trade and Industry: London.

## 5. Economics review of the costs and benefits

*"In the short term, negative consumer attitudes can be expected to limit the demand for products containing GM foods, and therefore the economic value of the current generation of GM crops." (Field Work, p16).*

*"...a key trade-off will be between the costs and burden of regulation, and its effectiveness in anticipating and handling risk. A regulatory system which required large amounts of information, such as many years' worth of testing, might be more effective in anticipating problems or in dealing with unexpected events should they arise. But it could also be expensive and may discourage biotechnology firms from developing potentially valuable new crops in the UK." (Field Work, p16).*

*"But no procedures can be 100% effective, and there will always be the possibility – however small, or disputed – that some unforeseen (and possibly unforeseeable) adverse impacts to the environment or human health may occur, particularly in the longer-term. The potential irreversibility of some of these impacts also has to be taken into account when considering this possibility." (Field Work, p16).*

The findings of the Prime Minister's Strategy Unit (SU) study into the costs and benefits of GM crops were published in July 2003<sup>11</sup>. Their main conclusions were that the public's attitudes would be central in determining the marketability of GM foods in the future and that there was little evidence that the current generation of GM crops would bring much, if any, economic benefit to the UK.

In coming to their conclusions, the SU considered scenarios with less or more public acceptance of GM food and more or less regulation. They considered how well different systems would deal with unanticipated adverse effects or 'shocks' – such as a GM food proving to be allergenic when it had previously been judged to be safe - and the effects of international regulation and differing attitudes. From this, they evaluated the likely effects on various costs and benefits. For example, a tight regulatory system may prevent or mitigate against adverse impacts but may stifle research and development. The SU also considered that the UK's science base might suffer if a negative view of GM dominated. The report pointed to potential benefits from future developments in GM crops such as those to produce pharmaceuticals and that this might be harmed by a strict regulatory system.

The SU report identified a gap in knowledge in relation to the potential for alternatives to GM agriculture such as organic systems and the use of genomics in non-GM production systems. This made comparative analysis difficult and so restricted the scope of the report. One of the recommendations of the SU's report was that such research should be undertaken.

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<sup>11</sup> Strategy Unit (2003) *Field work: weighing up the costs and benefits of GM crops*. Cabinet Office: London.

## 6. AEBC report on co-existence and liability

*"Statutory protocols would make clear where responsibilities would lie if crop commercialisation went ahead. A statutory scheme would probably give greater confidence to the public and stakeholders." (AEBC report, para 212).*

*"It is unclear, however, whether it would only be organic farmers who are working to a 0.1% threshold, or some other threshold lower than 0.9%. For food products this will depend critically on consumer demand as mediated by the supermarkets. In turn, supermarket requirements will be strongly influenced by availability of product, competitive advantage and perceived consumer requirements. Only time will tell, but it seems to most of us, in line with the principle of enabling farmers to reconnect with their markets, that those farmers who do need to work to a lower level should have the opportunity to do so." (AEBC report, para 166).*

*"Our understanding is that the agricultural biotechnology industry would be unwilling to underwrite a compensation scheme for any losses related to 0.9% and even less willing to do so for breaches of thresholds lower than this." (AEBC report, para 301).*

In November 2003, the Agriculture and Environment Biotechnology Commission (AEBC) published its much-delayed report considering the issues surrounding coexistence of GM and non-GM farming systems and liability for economic or environmental harm<sup>12</sup>. The AEBC, the Government's strategic advisors on biotechnology, recommended that there should be a legally enforceable set of rules governing how GM crops should be grown to limit contamination of non-GM and organic crops. It also said that there should be a tightly monitored introductory period to ensure the rules worked in practice.

The AEBC also considered that there should be a compensation system established to reimburse farmers if their produce were contaminated and they lost income as a result. Improvements to legislation that would allow the Government to require companies to pay for remediation (when possible) if environmental harm arose through the use of a GM crop, were also recommended. Many questions were not resolved by the AEBC including the extent to which efforts should be made to limit contamination – to 0.9 per cent or effectively zero at 0.1 per cent - and who should be liable to pay for economic harm. Therefore, the Government was left many difficult issues to address in its GM policy about how the balance of interests should be determined.

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<sup>12</sup> AEBC (2003) *GM crops? Coexistence and liability*. Available on [www.aebc.gov.uk](http://www.aebc.gov.uk).

## 7. The results of the farm-scale evaluations

In 1998, in response to mounting public concerns about GM crops, a deal was struck between the Government and biotechnology industry. The industry agreed not to proceed with commercial growing of GM crops until farm-scale evaluations (FSEs) had been carried out. These trials were intended to address concerns, expressed by English Nature and others, about the potential impact of growing herbicide resistant crops (the first GM crops intended for growing in the UK) on the agricultural environment and wildlife. The widespread use of herbicides in conventional farming has already been associated with declines in farmland birds and other species and there are fears that the increased use of broad spectrum herbicides with resistant GM crops will result in the highly efficient removal of weeds and a consequent decrease in food supplies for invertebrates and birds.

Four GM herbicide tolerant (HT) crops were evaluated in the trials – maize, sugar/fodder beet and spring and autumn oil seed rape. The results from the first three of these crops showed that if GM herbicide tolerant spring oilseed rape and sugar/fodder beet were grown commercially in the UK, harm to farmland wildlife was likely to occur. For GMHT maize, the situation was the reverse – if the maize was grown according to the conditions in the FSE this would be better for biodiversity than with conventionally produced maize.

The research team summarised the findings thus: *"If these trends are maintained under widespread GMHT cropping, then the present herbicide regimes associated with GMHT beet and spring oilseed rape might exacerbate long-term declines of dicot weeds, that include species that are important food resources for many invertebrates, small mammal and bird species. By contrast, these same weeds might increase in abundance following a shift from conventional to GMHT maize cropping, due to the greater weed control exerted by conventional herbicide regimes compared to those used with the GMHT crops"*<sup>13</sup>.

The Government's statutory advisors on GM organisms, the Advisory Committee on Releases to the Environment, have considered the findings of the trials and published their advice to the Government<sup>14</sup>. They concluded that the growing of the GM sugar beet and oilseed rape tested in the trials should not be allowed, but that growing the maize should be allowed as long as the same herbicide regime was used as in the FSE. However, the comparison of GMHT maize to the growing of maize using atrazine as a herbicide, which is to be banned, has undermined the confidence that can be placed in the results. Indirect impacts of GM crops on the environment now form part of the risk assessment required under revised European laws (the Deliberate Release Directive 2001/18). Therefore, there is a statutory basis for this decision.

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<sup>13</sup> The implications of spring-sown genetically modified herbicide-tolerant crops for farmland biodiversity: A commentary on the Farm Scale Evaluations of spring-sown crops. Available at: [www.defra.gov.uk/environment/gm/fse](http://www.defra.gov.uk/environment/gm/fse).

<sup>14</sup> ACRE's advice on the implications of the farm-scale evaluations of genetically modified herbicide-tolerant crops. 13th January 2004. [http://www.defra.gov.uk/environment/acre/advice/pdf/acre\\_advice44.pdf](http://www.defra.gov.uk/environment/acre/advice/pdf/acre_advice44.pdf).

## 8. The Government's new policy on GM Crops

*"I have said consistently that the Government is neither pro- nor anti-GM crops - our over-riding concern is to protect human health and the environment, and to ensure genuine consumer choice."* Mrs Beckett, Secretary of State for the Environment and Rural Affairs 13th January 2004<sup>15</sup>.

*"There is no scientific case for a blanket approval of all the uses of GM. Safety, human health and the environment must remain at the heart of our regulatory regime and rigorous and robust monitoring must be maintained. But equally there is no scientific case for a blanket ban on the use of genetic modification."* Mrs Beckett, Secretary of State for the Environment and Rural Affairs 9th March 2004<sup>16</sup>.

Until recently, the Government's policy on GM crops was that it was neither for nor against. Simply ensuring that there were no adverse impacts on human health or the environment was the Government's stated role. Whilst this had never quite rung true in the light of direct and indirect support for the development of GM crops and the biotechnology industry, the new policy announcement was expected to spell out the Government's views more clearly in the light of all the new evidence.

On the 9th March 2004, Mrs Margaret Beckett, the Secretary of State for the Environment and Rural Affairs, made a statement to the House of Commons, detailing the Government's new policy on GM crops in the light of the public dialogue<sup>17</sup>. The Department for the Environment and Rural Affairs (DEFRA) and the devolved administrations also published a formal response to the GM dialogue<sup>18</sup> and DEFRA to the GM public debate<sup>19</sup>.

### Key steps in the new policy

The main elements of the policy announcement were that:

- the UK would follow the findings of the FSEs in relation to GM herbicide tolerant maize, sugar beet and oilseed rape. Therefore, it would oppose European marketing consents for herbicide tolerant oilseed rape and sugar beet but support the commercial growing of GM maize in the UK in principle;
- the growing of GM maize would be subject to restrictions on the way in which herbicide may be used so that this follows the regime used in the FSEs;
- a code of practice with statutory backing would be developed to govern how GM farmers must grow GM crops to limit contamination of other farmers crops to a maximum of 0.9% - the threshold above which labelling as GM is required;

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<sup>15</sup> Farm scale evaluation results: Margaret Beckett welcomes advice from statutory advisers. DEFRA press release 13th January 2004. Available at: [www.defra.gov.uk](http://www.defra.gov.uk).

<sup>16</sup> Secretary of State Margaret Beckett's statement on GM policy. 9th March 2004. Available on [www.defra.gov.uk/corporate/ministers/statements/mb040309.htm](http://www.defra.gov.uk/corporate/ministers/statements/mb040309.htm).

<sup>17</sup> Secretary of State Margaret Beckett's statement on GM policy. 9th March 2004. Available on [www.defra.gov.uk/corporate/ministers/statements/mb040309.htm](http://www.defra.gov.uk/corporate/ministers/statements/mb040309.htm).

<sup>18</sup> The GM dialogue: Government response. DEFRA, Scottish Executive, Welsh Assembly and DOE, Northern Ireland. 9th March 2004.

<sup>19</sup> The GM public debate: lessons learned from the process. DEFRA. March 2004.

- the possibility of lower thresholds for organic producers would be explored further with stakeholders on a crop-by-crop basis;
- there would be a consultation on an industry compensation scheme for non-GM farmers whose crops are contaminated and suffer economic losses as a result;
- Government would provide guidance for farmers interested in establishing GM-free zones;
- that a case-by-case approach was to be taken as this was scientifically justified and met the caution required by the public.

### **Addressing public concern on GM crops**

The more detailed response to the GM dialogue identified and responded to elements of the public's concerns:

**Caution and precaution** – the Government concluded that the regulatory case-by-case approach met these demands stating that the system is precautionary and "*is capable of managing the risks effectively*" (para 5.6). When information was insufficient to make an objective assessment of the risks, the UK would request it and oppose marketing until it had been produced (para 5.7).

**Protecting human health** – the Government concluded that long-term studies were difficult to undertake (para 5.13), but post market monitoring would be used where appropriate (para 5.14) and choice provided through labelling. Whilst there were concerns about allergenicity, it was considered easier to detect the potential for new allergens in GM than conventional foods and that current GM foods do not appear to have caused allergies (para 5.17). The use of antibiotic marker genes that could be harmful would be phased out under EU rules by 2008 (para 5.18).

**Protecting the environment** – the Government was reassured that the main risks of GM crops to the environment would be identified or managed during the risk assessment process (paras 5.23-5.25). Whilst there may be unforeseen adverse effects on the environment, there was an EU Liability Directive to address remediation although this only related to specified habitats and species (paras 5.26-5.27). The AEBC's recommendations to extend environmental liability would be responded to in "*due course*" (para 5.28).

**Providing choice** – the Government said it wanted to allow people to make an informed choice but that this was not a safety issue because GM crops would not be allowed to be grown if they were unsafe. Government also said that farmers should be able to chose GM if they wanted.

**Labelling** – the Government considered new EU labelling laws which require produce with a GM content above 0.9% to be labelled would meet consumer choice whilst allowing for a "*pragmatic tolerance for perceived impurities*" (paras 5.32 – 5.33).

**Coexistence of GM and non-GM crops** – the intention to have statutory coexistence rules aimed at meeting the 0.9% threshold and a closely monitored introductory period was announced. Whether a lower threshold could be delivered at 'reasonable cost' (para 5.40) would be discussed with stakeholders including the organic movement. A consultation on a compensation scheme for economic losses funded by the biotechnology industry would take place. Advice would be given to farmers wanting to set up voluntary GM-free zones (para 5.42).

**Providing information** – various Government web sites provide information on GM crops and their regulation and new comprehensible guides would be produced. However, the Government considered it was unlikely that anyone could produce the agreed 'facts' the public appeared to want.

**Openness and transparency** – here the Government spelled out its procedures to give the public information about GM crop applications and their assessment. Their scientific advisory committees did not meet in public but would hold public meetings (para 5.50).

**Gaps in scientific knowledge and further research** – the Government explained how the existing risk assessment system allowed for uncertainty to be “*dealt with and managed*” (para 5.53). Some of the areas where the need for more research was identified by the science review are responded to in an annex. New research is to be commissioned on soil ecology and gene transfer between plants and soil microorganisms.

**Keeping pace with the technology** – the need for legislation to be able to respond to new developments and for horizon scanning was already part of DEFRA’s Science and Innovation strategy (para 5.58).

**Developing countries** – the Government recognised that GMO crops could not ‘feed the world’, but considered that they have a role to play. The United Nations Cartagena Protocol on Biosafety would address any safety issues (para 5.61).

**No need for GM crops?** – although the Government accepted the Strategy Unit’s assessment that the current generation of GM crops might not have much to offer the UK economically, future developments might (para 5.62). Case-by-case regulation would deal with any health or environmental safety issues these raised (para 5.63).

**Ethical issues** – the Government felt that although people might feel uneasy about the role of multi-national corporations in promoting the technology, regulation in the public interest, as was taking place, met these concerns. The Nuffield Council on Bioethics considered there was an ethical obligation to explore GM crops as they may reduce poverty. Intellectual property rights were an important stimulus to research and, in Europe “*in some circumstances*”, farmers could save patented seed for replanting (para 5.67).

Thus the Government’s ‘new’ policy is that it considers GM crops on a case-by-case basis according to the regulatory system in place to evaluate environmental and human safety. The Government is confident that this approach will be able to anticipate and manage the risks of GM crops. Where this deems a GM crop safe, as with GMHT maize, commercial growing should take place in principle if a market exists.

Providing choice via new labelling laws had already been agreed in Europe (although, ironically, the UK opposed the extension of the scope of labelling), so the only new element in the policy is the commitment to statutory rules for growing GM crops to avoid contamination of non-GM crops at a 0.9% threshold. Issues surrounding liability for environmental and economic damage have been deferred for more consideration.

## 9. Conclusions

*"...it is clear that there are few advantages to the UK of crops that are currently available. However, it is also clear that this technology has the potential to produce much greater advantage. That is why the Government have taken a case-by-case approach."* Mrs Beckett, Secretary of State for the Environment and Rural Affairs, House of Commons, 9th March 2004<sup>20</sup>.

On the face of it, the main influences on GM policy have come from the results of the FSEs. Elements of the science review, some of the AEBC's report on co-existence and liability and, to a lesser extent, the Strategy Unit's study of the costs and benefits have also played a role. It is difficult to find clear evidence that the public debate has had an actual impact, except in its presentation. Existing practice plus co-existence rules are used to reassure the public, whilst the public's rejection of commercialisation now was discounted and attempts to ensure potential public benefits left to the vagaries of the market. 'Jam tomorrow' is the message.

**Over-confidence in scientific knowledge in this area.** The whole emphasis in the Government's position is on what is "scientifically" justifiable. What is striking is the confidence that is placed in the extent of our scientific knowledge in this area and the ability of the regulatory system to manage uncertainty. Given the public anxieties surrounding long-term impacts and the uncertainty that exists, simply using parts of the science review to reassure people comes across as both patronising and complacent. It denies, for example, the possible consequences that might arise from the extent of the uncertainties and lack of knowledge revealed in the science review. As a result, the Government has failed to engage with the issue of "shocks" identified in the SU's report on costs and benefits or to understand how this denial fuels public anxieties and increases political risk should problems arise. What is quite clear from the public debate and other research into why people are so uneasy about GM crops, is that people do not trust the Government in large part because it is so reluctant to acknowledge and address uncertainty and lack of knowledge.

**Ignoring the crux of the issue for the public.** Quite surprisingly, it seems, the whole gamut of public concerns can be encompassed within the current case-by-case risk assessment plus a series of surrounding guidelines on use. This is despite a lack of consideration anywhere among these regulations of the issue of 'need' which is a key question underlying the public's views on GM – for what reasons are such far reaching interventions into nature being made? The very thin, 2 paragraph response (paras 5.62 & 5.63) to this question, underlines the unwillingness or inability of the Government to engage in this area. Whilst the Government pointed to areas such as climate change where GM has the potential to contribute to some solutions, ministers neither considered why other less beneficial GM crops had to be accepted (even if "safe"), or what policy initiatives they would put in place to identify or support the development of GM crops which might be considered beneficial.

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<sup>20</sup> Commons Hansard Debates - Tuesday 9th March 2004.

<http://www.publications.parliament.uk/pa/cm200304/cmhansrd/cm040309/debindx/40309-x.htm>.



**Overly simplistic approach to barriers to innovation.** The leaked minutes of the cabinet sub-committee (known as SCIBIO) dealing with biotechnology and considering Government policy in relation to GM crop commercialisation are very revealing in this respect<sup>21</sup>. As well as having a subsequent agenda item on how to promote the biotechnology industry, the minutes revealed how the Government hoped "*Opposition might eventually be worn down...*". This is a war of attrition, not an engagement with the underlying substance of public concern. Nowhere is there any critical evaluation of what kinds of innovation might arise simply through a policy of supporting a particular technology. As such it relies on an overly simplistic and shallow analysis that regulation stifles innovation and that intellectual property rights are crucial.

**Ignoring concerns about the impacts of IPRs.** In relation to intellectual property rights, the policy announcement was particularly unwilling to address the public interest. Whilst relying on the Nuffield Council on Bioethics' report supporting the promotion of GM for developing countries, the Government fails to consider the Nuffield Council's report on patenting DNA and innovation<sup>22</sup> or its own Commission on Intellectual Property Rights which considered the implications of patenting for developing countries<sup>23</sup>. Both of these made far reaching criticisms of the intellectual property rights systems and recommendations which address, in part, shaping the path of technological development in the public interest both in the developed and developing worlds. The Government could have considered ways of making public sector patented biotechnology research more easily available as platforms for research in the public interest<sup>24</sup> and ways of influencing intellectual property rights to ensure equitable access for the poor, but it chose not to do so. It could also have sought ways of engaging people more in shaping the public research agenda for food and farming, rather than leave the outcomes to be wrangled over in the market place. To-date, pursuing such a policy has in fact provided little benefit to the biotechnology industry or public confidence in Government in matters of science and technology.

**Lack of courage to address the real outcomes of the public debate.** The lack of public appetite for GM crops is clearly contributing, behind the scenes, to delays in allowing growing to go ahead, but this is a rather underhand approach that helps no one. Rather than having any dialogue, where views are exchanged in an iterative fashion, the public has expressed concerns and the Government has told it that everything is OK. In this respect, the Government has proved unable to deal with the depth of public questioning about the trajectory of the technology. Whilst it had the courage to hold a public debate, the Government did not have the maturity to deal with its outcomes in any depth.

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<sup>21</sup> Minutes of SCI(BIO) cabinet committee meeting, 11th February 2004. Available on [www.genewatch.org](http://www.genewatch.org).

<sup>22</sup> Nuffield Council on Bioethics (2002) *The ethics of patenting DNA*. Nuffield Council on Bioethics: London.

<sup>23</sup> CIPR (2002) *Integrating intellectual property rights and development policy*. Commission on Intellectual Property Rights, c/o DFID: London.

<sup>24</sup> Graff, G.D. et al (2003) *The public-private structure of intellectual property ownership in agricultural biotechnology* *Nature Biotechnology* 21: 989-995.

Now that Bayer CropScience has withdrawn from commercialising GM maize in the UK because of the economic implications of the delays<sup>25</sup>, it seems the UK Government really can please nobody. This situation reflects the inability of both the biotechnology industry and Government to engage with the issues behind the technology and address what shapes the products that emerge. Industry, like Government has to learn that in a complex area of risk driven by commercial industrial interests, 'jam tomorrow' will never make a convincing case for risks arising for no good reason today.

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<sup>25</sup> Following the announcement of the UK Government's position on GM foods and crops on 9th March 2004 Bayer CropScience discontinues further efforts to commercialise GM forage maize in the UK. Press Release 31st March 2004. Available on [www.bayercropscience.com](http://www.bayercropscience.com).

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*GeneWatch*

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