



GM FOOD SAFETY: FACTS, UNCERTAINTIES, AND ASSESSMENT

The OECD Edinburgh Conference on the Scientific and Health

Aspects of Genetically Modified Foods

28 February - 1 March 2000

CHAIRMAN'S REPORT

LA SÉCURITÉ DES ALIMENTS GÉNÉTIQUEMENT MODIFIÉS :

FAITS, INCERTITUDES ET ÉVALUATION

*Conférence OCDE d'Edimbourg sur les aspects scientifiques et sanitaires des
aliments génétiquement modifiés*

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INTRODUCTION

1. The conference was attended by about 400 invitees from more than 25 countries. Its aim was to be inclusive, and to encourage a wide diversity of views to be expressed both on the platform and in the audience. Each session was organised with short introductory presentations, followed by commentaries from panel discussants before opening the discussion to the audience.
2. The speakers and panellists were, in approximately equal numbers, proponents of GM, opponents, and those who were essentially neutral. The presenters came from a wide range of developing and developed countries. They were primarily scientists, regulators, NGOs and industry representatives.
3. The conference focused on GM food safety and human health. In my Introduction, I acknowledged that this was only one part of the debate about GM technology in food and agriculture, which in turn was only part of the debate about the future of biotechnology. Whilst the conference was focused on food safety, which was the primary public and NGO concern in the UK and elsewhere during the adverse public reaction to GM last year, I did not wish to exclude debate of other issues. These include ethics, environmental safety, economic development, and the ownership of intellectual property.
4. The conference also focused on the science (including the social science of consumer attitudes) of GM food safety, although I agreed that other non-scientific issues (e.g. values and beliefs) come into the debate, and should not be excluded.
5. The conference was not aimed at producing a simple consensus, but rather at identifying areas of greater agreement, of divergence of opinion, and of uncertainty due to lack of knowledge. Even the very basic question of whether or not GM technology is fundamentally different from genetic modification through conventional breeding was one on which there was not a consensus amongst the participants.
6. The conference was divided into three sections:
 - (a) What is the science of GM and its potential risks and benefits for food and agriculture?
 - (b) What is the science of assessment of food safety, and what, if any, are the special problems posed by GM foods?
 - (c) What are the regulatory systems worldwide, and do these require adjusting because of special features of GM foods?

7. This short summary provides an account of my personal impressions of the conference. A more detailed summary is available in the rapporteurs' report. I have taken into account comments made in the concluding discussion, and afterwards by e-mail and by members of the Steering Committee.

PRINCIPAL CONCLUSIONS

Food safety

8. Worldwide, many people are eating GM foods (especially in North America and China) with no adverse effects on human health having been reported in the peer-reviewed scientific literature.

9. There could, in theory, be long-term effects on human health that have not yet been detected because GM foods have been available for less than ten years.

Decision-making, assessment and choice

10. In the future, policy decisions about GM food, as well as the assessment of their safety, should be more inclusive and open than has typically been the case in the past. People want to know how decisions have been reached and to be consulted. This process will help to remove suspicion.

11. Having said this, there was no clear conclusion on how attitudes and beliefs that might become apparent as a result of consultation should be incorporated into the assessment and communication of GM food safety. For many, safety assessment remains an essentially technical and scientific process.

12. Consumers should be allowed to choose. Labelling of GM foods is important, although there was no agreement on how far this should extend (e.g. to GM derivatives? To animals fed on GM?). It is important also to note that the labelling applies to the process by which organisms are created and not the food product, which in many cases is identical to its conventional counterpart.

The assessment of GM food safety

13. The assessment of the safety of any novel food, including GM food, involves a variety of kinds of evidence. One commonly used tool is the concept of "substantial equivalence". The essence of this idea is that a comparison between the novel food and one already in the diet provides the basis for asking questions about the safety of the novel product. Substantial equivalence is not a quantitative criterion or a hurdle, but a framework for thinking. It is continually modified and updated, but it is timely now, after six years of using the tool, to undertake a more detailed review.

14. On two more technical issues, (a) there is no clear agreement about the importance of animal feeding trials (other than toxicity trials) in assessing the safety of novel foods, including GM foods; (b) The methods for testing toxicity and allergenicity of GM foods need re-examination.

15. Existing international bodies are working to achieve consistent standards and criteria for the assessment of food safety, and this is to be applauded. The precautionary principle is now beginning to be discussed internationally in relation to food safety, but it has not yet been translated into an agreed operational form.

GM technology in developing and developed countries

16. The majority of speakers from developing countries stressed the crucial importance of GM technology as part of the armoury for feeding their population in the future. In China, with 20% of the world's population and 7% of the land surface, GM is already playing a major role in food production, and its importance was also emphasised by speakers from Africa and Latin America. However, the view was also expressed that the future application of GM technology in developing countries should be more explicitly tuned to the needs of local people rather than of multinational corporations.

17. In light of this last comment, GM technology for the developing world should be carried forward through a mixture of public and private funding.

18. Whilst it is essential that standards of safety assessment should be consistent and high throughout the world, the strongly expressed demand for GM technology in developing countries casts substantial doubt on proposals for a worldwide moratorium made by some participants.

19. The first generation of GM crops and foods are perceived as having brought little direct benefit to consumers in developed countries, but this may well change as new products appear with direct quality, health or price benefits.

Concerns about GM other than food safety

20. The principal concerns of the opponents of GM related less to food safety than to the broader question of why GM food is being produced at all. Most developing country speakers argued forcefully that GM technology is an essential part of their future food production (see paragraph 16), but this was rejected by some NGO speakers from Europe and North America. They argued, instead, for solving world food shortage by redistribution, better prevention of loss during storage and so on. They also pointed out, as did some developing country participants, that citizen engagement in decision-making and discussion (see paragraph 10) should be improved in developing countries.

21. A second concern about GM agriculture was the potential environmental impact. Although there have been many field trials and, in some parts of the world, large-scale commercial planting of GM crops, there has been insufficient work to fully assess environmental impacts, especially in the biodiversity-rich tropics.

THE WAY FORWARD

22. The most significant aspect of the Edinburgh Conference was that it included all sides of the debate surrounding GM foods and nevertheless identified certain areas of agreement. It also succeeded in identifying issues in which there is disagreement or uncertainty due to lack of knowledge, and in separating out issues which are subject to scientific analysis and those which are related to political factors, beliefs and values. Further detail is available in the rapporteurs' report.

23. The conference represents a new start in the global debate about GM food and agriculture: a more inclusive approach in which the protagonists discussed some of the key issues with each other. There was support for continuation of this process to deal with other parts of the debate.

24. I therefore recommend that an **international forum** be set up to continue the process started in Edinburgh. The aim of such a forum would be to provide governments with a state of the art assessment of scientific knowledge about GM technology, and to set this assessment in the context of broader concerns of society.

25. A model for such a global assessment is the IPCC (Intergovernmental Panel on Climate Change). This Panel allows governments to draw on worldwide expertise in climate science. It informs but does not make policy and it acknowledges the minority scientific views as well as the current majority view. It also updates its reports at intervals.

26. The forum I propose would have similarities to the IPCC, but it would include not only scientists but also other stakeholders.

27. The following suggestions indicate how the forum might be developed:

- (a) It should build on and interact with, rather than duplicate or replace, the work of existing international groups such as Codex Alimentarius.
- (b) It should be global in scope and not restricted to G8 countries or a subset thereof. In particular, a key message of the Edinburgh conference was the role of developing countries where application of the technology is proceeding rapidly.
- (c) It should be led by the world's best scientific experts, but include a wider range of expertise and opinion than scientists.
- (d) Two initial themes for the forum would be food safety and environmental safety of GM in agriculture and food production.

- (e) There would be two kinds of outputs: (a) scientific assessments in the form of reports that inform policy; (b) an inclusive and global debate about the relationship between GM technology and society. It will be essential that governments take ownership of the forum and its reports.
- (f) The reports should be produced in a timely way so as to facilitate the assessment of rapidly emerging technologies.

SUMMARY

28. In summary, this proposed forum could serve two important functions by enabling a global debate and assessment of GM technology in food and agriculture.

29. First, it will allow the best scientific analysis of the risks and benefits of the new technology, as it develops, to be carried out in order to provide governments worldwide with appropriate expert advice. This advice will acknowledge the range of scientific opinion and uncertainties, as well as indicating the current majority opinion.

30. Second, it could create a better understanding of the relationship between technological developments, policy, and the concerns and aspirations of citizens. This would be achieved by widening the forum beyond purely scientific analysis, to include the broader issues that I have referred to in relation to the Edinburgh conference.

31. There is more than one way of achieving these twin objectives. One approach would be to have an expert panel, led by scientists but including other stakeholders, to carry out the scientific assessments. Draft reports of this expert panel could be used as the basis for discussion by a broader forum, along the lines of the Edinburgh meeting, in which the non-science issues are brought into the debate. The expert panel might choose to revise its report in light of this broader discussion.

32. I have deliberately left the details of implementation to others, because I want to sketch out the vision rather than the detailed mechanisms.

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