European Food Safety Authority

EFSA Technical meeting with Non Governmental Organisations on Genetically Modified Organisms

Parma, 22nd February 2006[1]

Final report[2]

1 List of Participants

Participating Non-Governmental Organisations (NGOs):

- Albrizio Mauro (European Environmental Bureau)
- Bebb Adrian (Friends of the Earth)
- Cotter Janet (Greenpeace)
- John Brian (GM-free Cymru)
- Mayer Sue (Genewatch)
- Price Becky (Genewatch)
- Then Christoph (Greenpeace)
- Wright Liz (Friends of the Earth)

EFSA GMO Panel/ad hoc experts:

- Andersson Hans Christer
- Bartsch Detlef
- Davies Howard
- Gasson Mike
- Kuiper Harry
- Kryspin-Sorensen Ilona
- Sweet Jeremy
- van der Voet Hilko (ad hoc expert)
- Wal Jean-Michel

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[2] All participants were invited to respond to the report of the meeting and EFSA took their comments into account as far as possible. Comments that were additional to the meeting are not included in this report.

EFSA staff:

- Detken Dirk
- Koëter Herman
- Majewski Christine
- Renckens Suzy
- Schoonjans Reinhilde.
- Sondermann Carola
- Verloo Didier
- Villamar Victoria

2 Introduction to the meeting

The aim of the meeting was to open up a constructive debate between Non Governmental Organisations (NGO's) and EFSA on technical issues concerning the risk assessment of genetically modified organisms (GMOs). This meeting offered the opportunity for the kind of interaction between the parties concerned that was hoped would lead to improved mutual understanding and respect.

Herman Koëter, Acting Executive Director of EFSA chaired the meeting. In his opening address he stressed that, as a neutral risk assessment organisation, EFSA provides independent scientific advice on individual GMO applications and is not prepared to enter into discussions of a political nature or on risk management areas, especially with regard to the societal debate on GMOs. In line with its overall policy of openness and transparency and its policy towards entering into dialogue with all its stakeholders, Dr Koëter said that EFSA was pleased to have an opportunity to listen to the views of the NGOs on scientific matters and for EFSA to be able to clarify its own role in the assessment of GMOs, the basis for its scientific assessments and its risk assessment procedures. He mentioned that this meeting had long been planned and was initially scheduled for last year. However, it was felt that for some time the atmosphere had been considered unsuitable for constructive dialogue and therefore the meeting had been postponed.

Welcoming delegates to what he expected to be a lively discussion, Dr Koëter said he was happy the meeting was to take place and that he expected he, together with all of the participants, could hope to learn a lot about the concerns each delegate brought to the meeting for consideration. EFSA, he said, would respond frankly and openly to all of these questions during the day. .

3 Structure of the Meeting

The meeting kicked off with a description of how EFSA Scientific Panels are appointed and how they work. GMO panel members expanded on this introduction by outlining the scope and limitations of the risk assessment process for GM plants and derived food and

feed. EFSA risk assessment focuses specifically on human health, animal health and the environment. The Panel also assesses the quality of post market environmental monitoring plans. Science in the field of GMOs continues to evolve and becomes more sophisticated all the time. EFSA monitors all new developments and where appropriate, initiates an investigation to see if a new development can add a further dimension to its risk assessment methodologies. This usually takes the form of a 'self task'.

NGO participants then placed some of their concerns on the table including a number of questions regarding the quality aspects of the risk assessment process for GM plants. Matters relating to allergenicity, statistical analyses and EFSA's transparency and independence were of particular interest to the participants. There were additional requests for more information on the assumptions made in opinions and on how EFSA panels reach risk assessment conclusions. Questions were raised about 'EFSA's conduct of science' and complaints lodged that NGOs had difficulties obtaining key documents used in the risk assessment process. These questions formed the central themes for debate.

The full presentations from each of the NGOs are annexed to this report and are also published in full on the EFSA website.

4 Open debate per topic

4.1 Independence

Independence as it applies to EFSA and its scientific panels is not well understood and was the subject of several questions posed by delegates. To clarify, EFSA explained how Panel members are selected, and described how they work – governed by and in line with the rules to ensure independence that are laid down in the Management Board decision on the establishment and operation of the Scientific Committee and Panels. These rules were tightened up and expanded on by the Management Board as the Authority grew.

At the beginning of each year, members are required to sign a declaration of their interests and these are published on the EFSA website. In addition, at the beginning of each meeting of a panel or the Scientific Committee, members must declare any interest that might impact on their impartiality when working on a particular issue. If such an interest is declared, it is noted in the minutes of the meeting which is also a public document. Any opinion is adopted by the whole Panel preferably by consensus. It is never the work of one or a few individuals.

However, one of the NGOs indicated that the declarations of interest were not always completed in a consistent manner and gave some examples of inconsistencies that had been noted. EFSA responded that while the Authority can and does provide guidance on how these declarations should be completed, differences in interpretation of EFSA guidance cannot be excluded. Each expert is legally responsible for his or her declaration and EFSA intends to improve on and streamline this process – one that has relevance for all the Panels and the Scientific Committee. In the meantime, EFSA will stress the importance to its Panels of the principle: 'when in doubt whether or not an interest applies, for example

participation in a particular national or international working group, the interest should always be mentioned'.

Discussion moved on at this point to a debate on which declared interests should be considered to be conflicts of interest. This discussion remained unresolved, as what was seen by some participating NGO's as a conflict of interest did not present a conflict of interest according to others, for example if a member of the Panel also held membership in a different scientific advisory group.

The procedures imposed by EFSA on Panel members when working to produce an EFSA opinion are designed specifically to preclude any possibility that an interest could influence the outcome.. When working on an opinion for EFSA, the experts will need to declare any interest or involvement that could affect the independence of the outcome of the Panel opinion. A conflict could be seen as a member having carried out research in the past sponsored by the very industry under scrutiny by the Panel or holding a significant number of shares in a company which has notified a dossier to be assessed by the Panel. In a case such as either of the examples described, the expert is expected to withdraw from participation in the discussion and therefore has no part in the outcome. Furthermore, should it happen that other members of a Panel feel one of the members holds a view that was biased or influenced, the chair of the Panel could refuse to allow the expert to participate.

4.2 Statistics

A frank exchange of views followed on statistical approaches with several specific questions raised by the NGOs concerning the statistical approaches applied by the GMO panel. In particular, the NGOs wanted to know what is considered the most appropriate statistical approach to take and how statistical significance and biological relevance relate to one another. One example put forward was the statistical analysis on a 90 day toxicological study of one of the GMO applications. In this case, the NGOs questioned whether the use of several statistical tools had been appropriate.

EFSA pointed out that in practice, a sufficiently specific and sensitive statistical tool (limited false positives and no false negatives) able to pick up only relevant differences, does not exist for studies where one does not know in advance what kind of effects to expect, if anything. This is a major difference with studies that are aimed at a specific effect (as in pharmaceutical studies). Statistics is a set of tools and using one tool does not necessarily mean it is the most effective one. In a less than ideal world the statistical method used is one that aims to miss nothing.

The current approach in EFSA is to find all possible differences between GM and non-GM crops. Once all statistically significant differences are identified, they are further scientifically assessed in the context of other findings for their biological relevance. Knowledge of essential linkages between the observed statistically significant findings and corresponding biological phenomena (such as a statistically increased clinical chemistry figure and an observed effect in the kidney) as well as the natural biological and environmental variation are crucial in order to assess the biological relevance of any

observed statistical finding. Hence, many differences may be identified but may not be biologically relevant. Besides, statistics are only one tool in the risk assessment toolbar.

However the NGOs countered that in their opinion, this was not a transparent process and they were concerned that these sets of statistics could lead to each significant difference being evaluated as biologically irrelevant, when together the significant differences might well be of biological relevance.

EFSA agreed effective statistical tools are essential and has already initiated an ongoing self-tasking activity specifically focussed on the harmonization of statistical approaches used in GMO risk assessment – an evolving science in itself. It also stressed, however, that in any event a substantial part of the judgement whether or not a statistical significance equals a biological relevance, is based on expert knowledge.

4.3 Animal feeding studies: Long term versus short term

Diverging views were not altogether resolved in the discussion on animal feeding studies. ESFA holds the view that in addition to adequate short term feeding studies for testing the effects of GMOs, long term feeding studies with GM foods/feed are not always necessary or appropriate. On the other hand, several NGOs are of the opinion that long term feeding studies are merely a starting point and that long term lifespan animal studies are needed for full evaluation of a GMO. But from experience, EFSA's toxicologists have become aware that 90-day studies may demonstrate shortcomings, such as masking effects due to aging of the animals, and that this type of effect may only increase with longer term studies. Furthermore, since these studies involve a high number of animals, requesting such long term studies on a routine basis is not considered appropriate from the animal welfare point of view.

The potential as well as the limitations of 90-days animal feeding trials for safety and nutritional testing of whole GM foods/feed are currently under further investigation by the GMO Panel in an ongoing self-tasking activity. The particular aim is to optimise the feeding studies - originally developed to test one single chemical - so that they allow good testing of food without disturbing the dietary balance of the animal.

On the issue of comparative multi-generation animal studies raised by the NGOs, EFSA responded that it does indeed consider this aspect in its assessments.

There was a general agreement amongst all the participants that the predictive aspects of 90 days studies, in respect of potential adverse effects upon chronic exposure is satisfactory, particularly when information from other toxicological and analytical studies are also taken into account.

From the discussion it was obvious however, that the divergence of views on the need for additional studies remained unchanged.

4.4 Quality check of applications

The NGOs suggested that a separate and more comprehensive quality review of the data produced by an applicant should take place before a risk assessment commenced. EFSA responded with a description of the existing and exacting process for risk assessment that begins with a completeness check of the application and an in depth assessment of the data provided. Inadequate information at the completeness check stage means that EFSA requests more data from the applicant. Only when the dossier is complete does it move on to the next step when the data are peer reviewed by the GMO Panel members as the first part of the risk assessment. At this point, more data or clarifications are requested if considered necessary by the Panel.

Delegates learned that this has occurred with most of the applications, reported in each case in the minutes of the GMO Panel meetings. EFSA stressed that the quality of data is key to the risk assessment and when assessing the quality of the documentation it receives, the Panel follows internationally accepted requirements for 'Good Laboratory Practice (GLP)' and complies with internationally agreed risk assessment criteria (e.g. OECD criteria).

EFSA also explained how quality control of the data in a risk assessment entails a check of methodology including statistical replication, experimental design and consistency of approach. In addition, the GMO Panel looks at other sources of information including the scientific literature, scientific reviews and takes on board the direct experiences of other scientists who have relevant knowledge or experience in the field, to develop as full a picture as possible.

However, some of the NGOs held on to their view that EFSA is not critical enough. and urged EFSA 'to display a much greater degree of scepticism relating to the scientific studies submitted as supporting documents by applicants for GMO consents, on the grounds that these studies are non-replicable and may even have been designed to mask health and safety dangers.'

4.5 Allergenicity

One of the environmental NGOs was concerned about whether GM foods could cause allergic reactions in humans and animals. In particular, the NGO wanted to know whether the GMO Panel could identify an allergenic effect from the expression of a particular bean protein in GM peas (reported in a scientific journal). This theme was explored with the Panel and EFSA explained that using the risk assessment approach adopted by the Panel, there would have been at least two warnings in this case: (i) a similar protein is known to be an allergen in cereals and (ii) a sequence homology search shows relevant homology to a peanut allergen.

The risk assessment approach adopted by EFSA[3] was further compared to the process in the original FAO/WHO consultation document: the assessment criteria are very similar and

[3] Guidance document of the Scientific Panel on Genetically Modified Organisms for the Risk Assessment of Genetically Modified Plants and Derived Food and Feed, The EFSA Journal (2004) 99, 1-94.

the main difference is that the weight of human sera results is decreased in the EFSA approach, because of very low availability of human sera from allergenic patients. On the other hand the weight of bioinformatics was increased.

EFSA affirmed that the GMO guidance document describes the general approach taken by the GMO Panel for assessment of allergenicity whereas more detailed conclusions may be reported in the EFSA opinions on a case by case basis.

Many of the issues raised by the NGOs are already being dealt with as part of the EFSA constant review process,. Of particular relevance to the questions posed in this section, the GMO Panel is currently carrying out an in-depth investigation on methods for testing and assessment of the allergenic potential in GM crops as a self tasking initiative.

EFSA was pleased to receive a very detailed briefing commissioned by the NGO concerned on the current allergenicity testing from the viewpoint of recent research on transgenic peas and post-translation modifications.

4.6 Assumptions made in the opinions

Another NGO queried whether the GMO panel could be more transparent about the type and nature of assumptions made in their assessments and said: 'The public should be able to scrutinise the assumptions made and risk managers should have a clearer picture of what is known or not known.' The NGO illustrated the point by referring to Annex VII of Directive 2001/18/EC. This Directive states that descriptions of assumptions in Environmental Risk assessment and monitoring are mandatory .

Agreeing on the importance of transparency related to assumptions, EFSA said that in line with the rules set out in the Directive, it always describes an assumption when included in an opinion, for example, when statements were made on Bt proteins and their impact, they were made in view of data obtained from literature or from other GM events that express the same class of proteins. However, as transparency is fundamental to the mission of EFSA, his point will be followed up with all of the EFSA Panels to see if implementation can be improved. In addition, the Working Group on Transparency in Risk Assessment will address the issue and will provide adequate guidance.

Expanding on this theme EFSA described how, when evaluating a GMO, EFSA applies the overall weight of evidence approach, i.e. taking into account all data on a particular GMO before coming to a final conclusion. An essential part of the evaluation is recognizing and dealing with these uncertainties and assumptions, both being essential elements of all risk assessments.

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http://www.efsa.eu.int/science/gmo/gmo_guidance/660/guidance_docfinal1.pdf and the new Chapter 11.4: http://www.efsa.eu.int/science/gmo/gmo_guidance/660/guidance_docfinal1.pdf

4.7 Environmental risk assessment and post-market environmental monitoring

Assumptions and uncertainties are a contentious issue in environmental risk assessment. Environmental risk assessment of a particular GM crop is performed in as close as possible proximity to the real-life situation and context applicable for that GM crop. In one of the examples given for the assessment of adverse effects on soil, the GMO Panel described how it focuses on the effects on functional performance of the soil, rather than on the individual shifts in, for example, bacterial populations.

NGOs nevertheless considered that the requirements according to EU legislation are not met. They say the guidelines as adopted are not sufficient to deal with unexpected, unintended, delayed or cumulative effects. For this reason, discussion focussed in on the new chapter of the guidance document on post-market environmental monitoring (Chapter 11.4), designed to monitor unanticipated effects when the GMO product is placed on the market. This chapter was recently adopted by the GMO Panel and results from a wide public consultation process.

4.8 Public access to EFSA documents and public participation in the decision making process

One of the NGOs finds the overall transparency of the authorisation process governed by Regulation (EC) No 1829/2003 to be problematic and also spoke of difficulties with public access to EFSA documents and public participation in the decision making process. The NGO went on to say: 'EFSA, has a role to help the public understand the process and to explain how the public can participate. Understanding of this taken to be that EFSA should look at how they could work with the Commission to make the process more transparent.'

In response to the desire expressed for full public access , EFSA explained that there had been just one case of delayed access due to changing circumstances around the data available, but confirmed that it always responds to its duty to provide access to documents associated with applications.

Some delegates spoke of having had some technical difficulties obtaining documents due to the required downloading and asked EFSA to make the process less time consuming. EFSA agreed that it would examine ways to improve public access to these documents

Another NGO complained about the rules which allow key documents to be classified as commercial in confidence 'when they clearly should be released in the public interest'.

On this complaint, EFSA explained that there are confidential parts of dossiers and some of these had indeed been requested by NGOs. However, EFSA is not permitted to allow access to a full dossier as confidentiality rules are applied to part of that dossier under the current legal framework and therefore the documents were not released. It is the European Commission or the Member State that decides on confidentiality as requested by the applicant. These restrictions are set out in the GMO legislation.

There was a further request to limit the time between the adoption and publication of a scientific opinion of the GMO Panel, and the publication of the overall EFSA opinion in

accordance with Regulation (EC) No 1829/2003 on the European Commission's website for commenting. EFSA explained that this inevitable difference in time is due to the need for other bodies (such as the Joint Research Centre of the European Commission) to contribute to the overall opinion.

A number of NGOs then asked: 'why', according to the terms of the Aarhus Convention, 'there was not more opportunity for inputs from NGOs and other stakeholders into the GMO Panel's assessment process prior to the formulation of opinions. This', the NGO emphasised, 'was something that had been asked for on the occasion of the inaugural meeting of EFSA Stakeholder Consultative Platform, by five NGOs, and was a necessary counterbalance to the mass of "advocacy science" placed before the Panel by applicants for GMO consents.'

5 Conclusions

Participants said they appreciated the EFSA initiative that made open dialogue on scientific and procedural matters possible. Overall the atmosphere was constructive and positive and given the short time frame, the most important detailed information and points of view were shared. In a general sense, it was acknowledged that progress has been made in understanding the differing positions on the GMO authorisation procedure and the GMO public debate.

At the end of the meeting, one of the NGOs said, 'many concerns raised during the meeting are closely related to how the EFSA's opinions are presented'. It was suggested that better communication of its scientific opinions is of particular importance to ensure that risk managers have all the information necessary on which to base a decision and may at the same time lead to increased trust in the overall process.

EFSA said it had learned a great deal from the dialogue and realised that in some areas of the risk assessment it would be useful from the point of view of informing the public and stakeholders if more explicit explanations were given on assumptions, on consideration of uncertainties and on how conclusions are reached. EFSA promised delegates to address these matters together with the Scientific Committee and Panels.

The NGOs however urged EFSA to go further and re-evaluate all its published opinions based on the points raised by the NGOs themselves. 'No further opinions should be delivered as long as the outstanding basic questions are not resolved,' they insisted.

EFSA did not agree to the above demand as it stands by the scientific quality of its adopted opinions. Increasing transparency will not change the scientific views of the Panel's experts. However, there were a number of other points on which EFSA was prepared to consider action as a direct response to the requests of the NGOs.

For example, while the Authority would continue to deal with all requests for access to documents according to the norms established in Community legislation, it would at the same time look into the practicality of providing easier access as requested.

EFSA would monitor the issue of Declarations of Interest more closely and seek ways to streamline and improve the guidance given to experts on how to complete them.

However, there were inevitably some issues that could not be agreed between EFSA and the NGOs, and so it was felt that a follow up meeting on scientific issues related to risk assessments may be a useful future initiative.

6 Closing the meeting

In closing the meeting the Chairman mentioned that he had indeed personally learned a great deal from the meeting and expressed the hope that others would feel they also had benefited from the experience. He thanked all of the participants who had contributed to the constructive discussions.