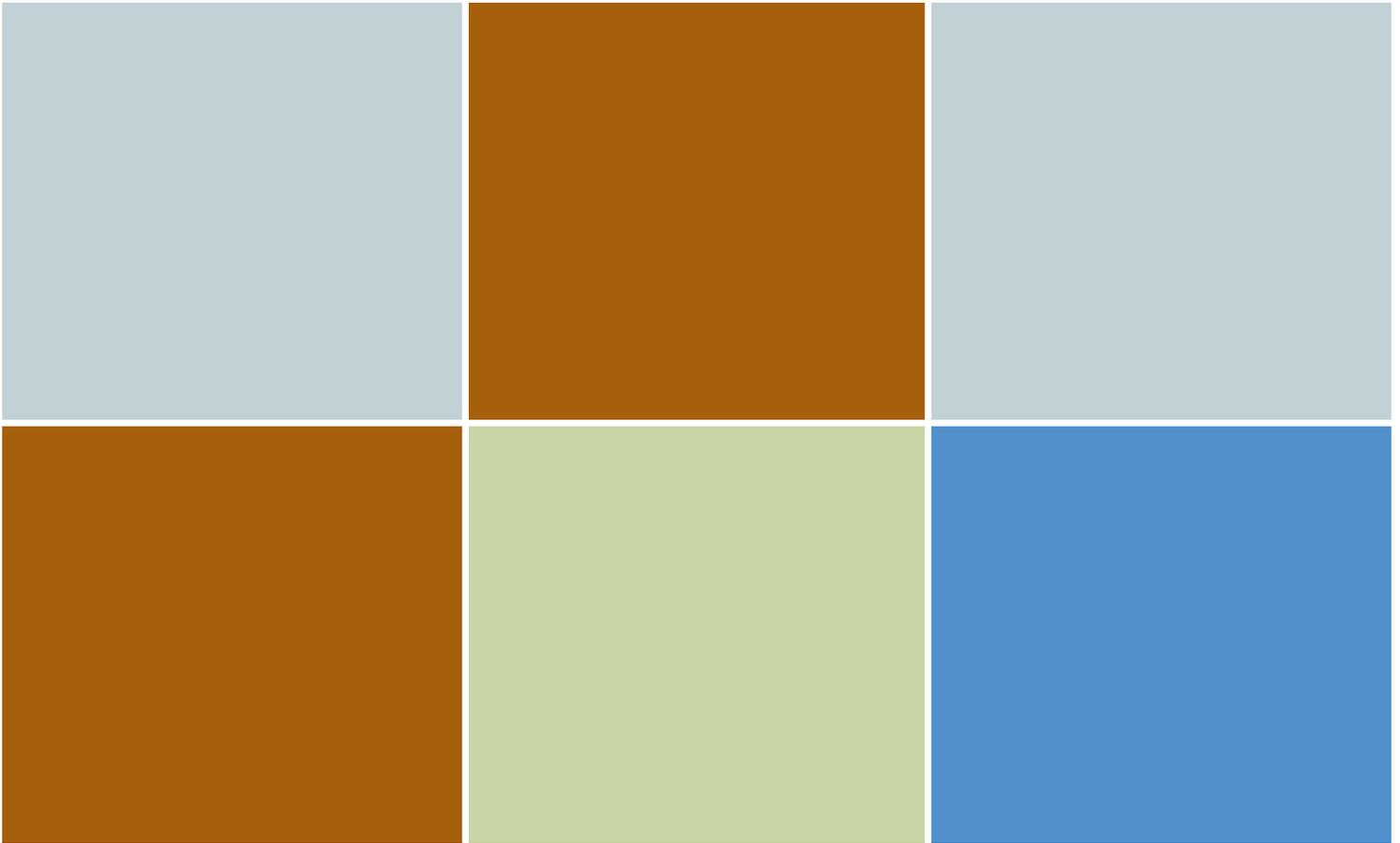


GM food and safety – state of play in the Nordic and Baltic countries



Report from a seminar organised by
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and the Nordic Council of Ministers
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Rapporteur: Sören Winge, science journalist

Summary

As the Swedish Minister for Agriculture, Food and Consumer Affairs, Ann-Christin Nykvist, said in her welcome speech, gene technology has been hotly debated, criticised and called into question ever since the first scientific reports on gene transfer were published over 30 years ago.

An international conference on the possible risks of gene technology was held in 1975. A heated debate ensued. According to its critics, using gene technology was akin to playing Russian roulette with the future of mankind. The claim of gene technology advocates, on the other hand, was that research could continue under safe conditions.

The seminar clearly showed that the situation hasn't really changed much since 1975. Whereas many people nowadays are on the one hand more favourably disposed to the applications of gene technology in certain areas, a wide difference of opinion has on the other hand opened up between the EU and the United States regarding GM-food.

According to both the Eurobarometer 2003 and Swedish studies such as the one conducted by Victoria Wibeck, many people are positive towards the use of gene technology to develop new medical products. On the other hand, there is massive resistance to GM food, not only in Sweden but also in other European countries. We can therefore say that the seminar was about the most challenged applications of gene technology. The resistance to GM food and GM crops among the general public in Europe has put considerable strain on the relationship between the EU and the rest of the world, especially the United States.

GM crops are progressing by leaps and bounds in the world today. In 2004, acreage of GM crops increased by 20 per cent to 81 million hectares. In Europe, however, GM crops were only cultivated in three countries, although several applications are currently awaiting EU approval. "The fact that European companies are moving their field trials to the United States is not so strange," Paul Tenning said. His company, Syngenta, submitted an application nine years ago and is still awaiting approval by the EU.

Professor Sven Lindgren from the Swedish National Food Administration believed GM crops are impossible to stop. Development will continue, regardless of what we say. He also pointed out that hardly anything else we eat is as thoroughly tested as GM food.

Neither tests nor control systems have so far managed to convince the critics, however. Mikael Karlsson from the Swedish Society for Nature Conservation felt, for example, that it was rational for consumers to say no

to GM food when they hear about the risks and don't see any benefits.

If GM food is to have a future in Europe, it must gain the trust of the general public. The vast majority of delegates at the symposium agreed on this point. Otherwise, launching GM food is futile.

A key concept in the EU Member States is giving consumers as much information as possible to enable them to adopt a position. But, as the Head of the Secretariat of the Swedish Gene Technology Advisory Board, associate professor Gustaf Brunius, pointed out, the information issue is difficult to solve. The language is often so complicated that only experts can understand the content. At the same time, companies need confidentiality to protect their products from competitors.

Publishing information on-line is definitely not enough, Mikael Karlsson told the representative from the Swedish Board of Agriculture. Neither does it suffice to put tiny labels on products, which you need a magnifying glass to be able to read, Helena von Troil from Finland pointed out.

The climate for debate is hardly improved by the mixed messages conveyed by the actions we take and the words we choose to speak; a fact tellingly exemplified by researcher Kristofer Vamling. The Swedish Minister for Agriculture, Food and Consumer Affairs, Ann-Christin Nykvist, felt that the EU putting safety at the top of the GM agenda was both responsible and reasonable. But for others, the actions of the EU represented a stigmatisation of GMOs. Crops and food developed using gene technology must surely be exceedingly dangerous if we have to adopt special GM legislation for them.

Even though the debate on GM food has seemingly been at its most heated in Sweden and the United Kingdom, the Norwegian food producer Orkla, for example, has decided to sell only guaranteed GM-free products.

In Finland - "the Promised Land of the mobile telephone" - where people are fairly optimistic about technology, the general attitude, according to Helena von Troil, has been to wait and see, to not be the first 'to go out onto thin ice'.

Prior to EU membership, the Baltic States had neither a GM debate nor any expertise in this field, Olga Orlova from Latvia informed us. She wanted to see Nordic cooperation to build up expertise.

Producing and consuming safe food

The theme for the first day was: Producing and consuming safe food. After brief welcoming remarks by the day's moderator, professor **Sven Lindgren** from the

Swedish National Food Administration, the seminar was opened by the Swedish Minister for Agriculture, Food and Consumer Affairs, **Ann-Christin Nykvist**.

Addressing GMOs politically

Ms Nykvist was quick to establish that gene technology, and genetically modified food in particular, was a sensitive and hotly debated subject.

"To be honest, the matter of addressing GMO politically is far from easy. As a politician you should take all relevant facts and opinions into account. You should avoid getting stuck in one-dimensional thinking and instead try to find a balance that is acceptable to the general public, that satisfies the needs of the society and that is based on sound science and practical experience as well as the precautionary principle. Finding such a balance has proved to be particularly difficult in a field like gene technology, which has been debated ever since the first scientific reports on the transfer of genes were published over thirty years ago."

An international conference on the possible risks of gene technology was held in 1975 and a heated debate ensued. According to its critics, using gene technology was akin to playing Russian roulette with the future of mankind. GM advocates on the other hand claimed that the misgivings were unfounded and that research could continue under safe conditions. This was also the final conclusion of the conference.

"Since then gene technology has been used in millions of experiments by thousands of researchers all over the world," Ms Nykvist added. "In 1983 industrial production of human insulin by means of genetically modified micro-organisms was started, and many tons of drugs and vaccines are now produced using genetically modified organisms. A lot more is in the pipeline. This development has meant a lot for our possibilities to treat diseases and for our ability to produce efficient and safe drugs in sufficient amounts to satisfy the market. In fact some drugs would not be possible to produce at all without gene technology. In spite of this very extensive use of GMOs, there are no scientific reports showing any significant harm to human health or the environment. The general public also seem to have a positive view or at least accept gene technology as a tool in medical research and drug production," she said in conclusion.

The situation changes dramatically, however, when we broach the theme of the conference, namely genetically modified food (GM food). Despite genetically modified crops (GM crops) having been cultivated on a large scale since 1996 and notwithstanding all the experience from research and medicine, the general public in Europe already had a negative attitude when GM crops

were launched onto the market. For this reason - and since we cannot eliminate the potential risk of GM crops in any instance - the EU has developed far-reaching legislation in the area. No GM crop may be released onto the market without careful scrutiny and approval.

"This is multi-purpose legislation," Ms Nykvist went on. The main purpose is of course to protect the consumer, animals and the environment. Another important reason is to give consumers the right and the opportunity to make an informed choice. This opportunity to choose is very important to us in Sweden. At the same time it is important to be able to take advantage of the opportunities of the new technology to improve the income of farmers, the quality of the food and the environment where this can be done in a safe and ethically acceptable way.

The Minister emphasised that the competent authorities in Sweden have tried to disseminate balanced and neutral information on GMOs for many years so that every consumer can adopt his or her own position. Unfortunately, this has not been entirely successful. The very fact that there is special legislation on the issue has stigmatised GM products in many people's eyes. It is not so strange that many feel all this legislation only goes to prove how hazardous GMOs are. The distrust of GMOs in the food chain is very much alive in Sweden as in the rest of the EU, even though she felt she could see certain signs of Swedish consumers becoming less suspicious.

Cultivation of GM crops is steadily increasing in the rest of the world. Last year, 81 million hectares were used to grow GM crops; a 20-percent rise in just one year and many of the 8.25 million GM crop growers in 17 countries were small-scale farmers in the Third World. Over the years, billions of meals containing GM food have been served without any serious negative effects having as yet been reported.

"This shows that GM crops and GM food are becoming increasingly common outside the EU. They seem to be here to stay. This means that effective strategies for how GM crops and conventional crops are to co-exist are urgently required. Otherwise, the EU risks becoming isolated with trade conflicts and brain drain as a result."

So what of the future? "The fact that the EU has put safety at the top of the GM agenda is both responsible and reasonable. We have listened to public opinion, which I think is the only acceptable way of doing things in a democratic society. I think this should be the case also in the future. However, as new facts, new experiences and new opinions emerge, we have to be open to them as well. I really hope that the current negative attitude to GMOs in Sweden and the rest of Europe

does not deter researchers in these countries from conducting GMO research. This would be disastrous.”

But Ms Nykvist refrained from making any forecasts of how GM legislation or the treatment of GM crops and GM food might develop in the future. “I am quite sure we will change our attitudes in this area in the future, in one direction or the other.”

With these words, the Minister welcomed the participants to Stockholm and to two days of debate on a difficult subject.

Setting the GM food scene in a EU context

Katja Neubauer, responsible for biotechnology issues at the European Commission, presented the EU perspective on GM food. Having outlined the regulatory framework, which came into force on 18 April 2004, Ms Neubauer admitted there were still a number of problems and questions. One problem is the lack of support from the Member States in GM issues. None of the five proposals so far put forward by the Commission has gained a qualified majority. Only four Member States have consistently voted in favour, whilst seven have consistently voted against and two have abstained. The positions adopted by the other Member States have varied from case to case. The decision has therefore been left up to the Commission.

This caused a short debate after her presentation. **Paul Tenning** from the company Syngenta and **Stephen Wessels** from the Danish Toxicology Centre wondered what the reasoning of the Commission was when only four countries voted yes and seven voted no.

“Someone must take the responsibility and it has to be the Commission,” Ms Neubauer replied. “The situation would have been completely different had there been an absolute majority against the proposals. The only alternative would then have been to let the proposal die or amend it.”

In November 2004, just 77 GM-labelled products on the market in ten EU Member States, most of them in France, Germany, The Netherlands, The Czech and Slovak republics. At the same time, Greenpeace had published a report entitled “There is no market for GM-labelled food in Europe”. Eight of the twelve new applications for GM crop approval that are currently making their way through the EU’s regulatory system concern maize, two concern cotton, one rice and one sugar-beet.

Ms Neubauer also discussed the information problem, especially the conflict between the right of the general public to receive as much information as possible and the need of enterprises to protect their products and market shares by not divulging information that can be used by their competitors. She was also

worried about the fact that consumers have up to now been so dismissive of GM food. This means that such products cannot reach the shops.

GMOs in the new Member States – a Baltic example; Where is Latvia and where to go?

There has been considerable opposition among consumers to GM food in the ‘old’ Member States, but how one of the new Member States looks upon the GM issue and the EU regulatory framework was outlined by **Olga Orlova** from the Latvian Food Centre. She told us among other things that genetically modified food was a new issue for the Baltic States and that there have been a number of teething troubles in connection with the EU regulatory framework coming into force in her home country.

“Latvia has for the moment no GM experts and no practical experience of GMO. We had never had any GM legislation until we joined the EU. The regulatory framework looks very nice on paper but a great deal of work remains to be done before it can be implemented. The important issues for us now are to identify where there are gaps in our knowledge. Like our Baltic neighbours, we need to build up both knowledge and an efficient control system. We have established the framework but we need technical capability and knowledge.”

“I believe that cooperation with Sweden and the other Nordic countries would be of great help to us as we try to build this up. If we are to reject applications, we must be able to present scientific explanations as to why.” GM food is as yet a relatively unknown issue for the general public in Latvia. “When I ask someone what they think, I never get an answer.”

What does Finland think of GM food?

In contrast to Latvia, Finland has been a member of the EU for ten years. **Helena von Troil** presented the Finnish view on GM food. She is the Secretary-General of the Nordic Committee for Bioethics.

“Finland is the Promised Land of the mobile phones and we have considerable technical optimism in our country,” Ms von Troil said. “Despite this optimism, the public’s attitude to GMOs and GM food in Finland has been very much a ‘wait-and-see’ one.”

“The Finnish attitude to GM food can be summarised in three short sentences,” she went on. “Firstly, we are pragmatic, which means our authorities argue as follows: Finland is a member of the EU. We have adopted the legislation. So we should accept safe GM products on the market.”

The public debate on GMOs in Finland began in earnest at the beginning of the 1990s. Between 1992 and 1997, the debate was pursued almost entirely by

the media and was dominated as far as content was concerned by international news. The general public knew little about GM food. But the shape of the debate changed radically in 1997, when the Opposition entered the stage. And although the debate wasn't perhaps as fierce as in Sweden and the UK, it was fierce enough for the Finns and dominated by safety aspects. Since 2002, experts have led the debate and expressed their views via, e.g., several websites.

"The other trait of Finnish character is: Let's wait and see," Ms von Troil added. "In Finland, we have very few organised consumers, so I don't believe we really know what they think. According to the Eurobarometer 2002, there was support for GM food in Finland, Spain, Portugal and Ireland but on the whole, I believe that Finnish consumers are just as confused as those in all other countries. It is true that the Finnish consumer organisation Suomen Kuluttajaliitto has made a statement on GMOs creating the impression of trying to calm the consumers, but if you look more closely at this and other statements, you can see that they don't go into too much detail."

"The food industry and food trade praise the third Finnish characteristic, which is: 'Don't be the first to go out onto thin ice'. Existing policy statements from the food industry or food trade don't actually say that much. The supermarket chain Kesko ends its statement on a rather positive note and seems to be opening the door to GM food. I don't know for sure, but I am fairly certain that the Finnish animal feed industry already uses feed containing GMOs. But there is not much debate about that in Finland."

She could imagine companies pursuing the following arguments to get GM food out onto the market:

- Be careful and only go out on the ice where the water is shallow.
- Try one or two clearly labelled products.
- Maybe the ice will hold and consumers appreciate the possibility to choose.

"But I don't think labelling GM products is sufficient. A tiny label which you need a magnifying glass to be able to read is not enough. Consumers need more information," Ms von Troil said in conclusion.

"Why should we consumers always be the first to go out onto the ice." We have not asked for GM food. We don't see any benefits, only risks," **Bengt Ingerstam** from the Swedish Consumer Coalition said. "Someone has to be first to go out onto the ice," moderator **Sven Lindgren** replied.

Orkla's attitude to GMOs – how to deal with suppliers

Orkla Foods is a Norwegian company with food producing facilities in 14 countries. Orkla has a restrictive attitude to GM food. How this works in their contact with food suppliers was outlined by **Anja Åkerlund**, the company's advisor on food legislation issues.

"Our starting-point is that although gene technology makes it possible to develop new raw materials, products and processes, consumers basically have a negative attitude to GMOs in food. Orkla's policy is, therefore, to sell only food developed using traditional methods and not with the help of gene technology. This applies to raw materials, ingredients, additives and flavourings and - if technically possible and financially feasible - processing aids. Furthermore Orkla supports the use of conventional feeds. Our main principle is that consumers and customers must be able to trust our products."

Before Orkla could consider changing its attitude and start to sell GM food, a number of criteria must be fulfilled:

- The products must be proven to be safe for humans and the environment.
- The products must be accepted by large consumer and customer groups, which is currently not the case.
- The products must offer significant advantages for customers and consumers, which is again currently not the case.
- Finally, the products must be pre-authorised by the Orkla Executive Board and be clearly labelled before the company could consider selling them. Individual subsidiaries in the Orkla group are hence not allowed to make any such decisions.

She then outlined Orkla's contacts with the suppliers and the questionnaires each producer was obliged to fill in. The supplier must guarantee on the questionnaire that every product supplied to Orkla does not contain GMOs or has not been produced using GMOs and that the products therefore need not be labelled. The supplier also undertakes not to change the GM status of the products without Orkla's prior consent.

Helena von Troil wondered which type of consumer surveys Orkla had conducted. "We haven't conducted any consumer surveys, but we do know what they think," Ms Åkerlund replied.

Katja Neubauer wondered how Orkla's guarantee system affected prices. "Not at all" was Ms Åkerlund's response. Katja Neubauer also wondered whether Orkla really could put enough products on the shelves that were guaranteed to be free from GMOs. "At the moment, we can, but it's becoming more and more difficult. So we are aware that at some point we might find it very difficult," Ms Åkerlund replied.

When asked how this GM policy affected Orkla's market share, Anja Åkerlund said she was unable to give any figures.

GMOs and sustainable development

One person who is very critical of GM food is **Mikael Karlsson**, chairman of the Swedish Society for Nature Conservation and vice-president in the Environmental Association of Europe. The title of his talk was GMOs and sustainable development.

"Consumers are in general not afraid of gene technology." But if they hear about risks and see no benefits, it is rational to say no. Claims like "GM food is safer than water" are clearly not scientific. Saying that something is safe because we have eaten or used it for a couple of years without noticing any adverse effects was a conclusion he was unwilling to support. History can teach us valuable lessons about such mistakes from many other fields.

He emphasised that risk assessment is a very difficult area. "We know that gene flow is often a fact. We know that inherent properties may change. A decrease in biodiversity has been shown in field trials with some GM crops. We cannot say there are no risks with GM crops while at the same time saying we value biodiversity," he concluded. There is considerable uncertainty in general as to the risks and the scientific community is divided on this. And complexity will probably increase if we get GM crops with special qualities such as nitrogen fixation or frost tolerance.

Trust was a central concept revisited by many of the speakers during the course of the conference. Mikael Karlsson feared that mistrust may increase if GMOs are mixed into the food chain or if GMOs are depicted as the ultimate solution to eradicating malnutrition and poverty. "Take golden rice as an example. It might be beneficial, but opinions are divided even among Chinese rice and rice cultivation experts," he said and showed a few examples of conflicting statements on risks and benefits.

"The present situation where the European Commission is approving GM crops in opposition to broad public opinion is definitely not improving people's trust," he concluded.

Second-generation GM crops

The last talk on the first day of the seminar was given by **Paul Tenning**. Representing the seed company Syngenta, he presented the producers' view on GMOs in food. Since the first generation of GM crops is already grown all over the world, Paul Tenning had been asked to talk about second-generation crops and what is in the pipeline in the foreseeable future.

As the Minister for Agriculture, Food and Consumer Affairs said in her opening address, the cultivation of GM crops is increasing rapidly throughout the world. The United States, China, Brazil and Argentina are the biggest producers. In Europe, however, the situation is entirely different. In 2004, GM crops were only grown in three European countries; maize is grown in Spain and Germany and soja beans in Rumania. A number of new applications have been submitted and are awaiting approval. Most of these are for maize but some are for potato and oil-seed.

"The EU's moratorium has unfortunately led to very few GM crop field trials being performed in Europe. And field trials in Europe are becoming fewer and fewer, whilst they are increasing in the United States as European companies move their field trials to the other side of the Atlantic. Obtaining a permit here is quite simply too expensive and too complicated."

He presented a number of GM crop projects that are under development in the Third World. Above all, this is a question of developing crop-types that are resistant to various pests but one project is aiming to develop a plant that produces medicine. Several of these projects are still in such an early stage of development that only unsubstantiated findings can be presented.

"The debate on GM crops and GM food in Europe is not just an internal matter for the EU," he concluded. It also affects countries in other parts of the world with which we trade. "Take Thailand, for example, a net exporter of rice to France. Thailand wants to use golden rice. If France says no to GM rice and stops importing rice from Thailand, it will impact trade policy. The acceptance of GM crops by European countries is vital to many developing countries."

He saw no reason himself why GM crop couldn't be accepted in Europe as long as scientifically well founded risk assessments showed that they were safe. The Third World has been thrown into confusion by the United States approving GM crops whilst the EU continues to be sceptical.

Katja Neubauer brought up the issue of why the number of field trials of GM crops was decreasing in Europe. "Of course, we are moving our field trials to the United States when we can't obtain permission to perform them in Europe," Mr Tenning replied. "We submitted an application nine years ago and we still don't have a permit."

"It is interesting to hear about the substantial work that has been done in this area within the EU," moderator **Sven Lindgren** said as he summed up Thursday's programme. "We still have an unsolved problem. At the same time as we must ask ourselves how long our politicians can bear the burden of rejecting the possible

benefits of this new technology, we must concede that the broader general public has not been willing to accept GM food. My opinion is that most of the products we eat have never been tested as carefully as GM food has. And the use of GMOs will continue, irrespective of what we think. The development is impossible to stop.”

Communicating scientific results

The theme of the second day was: Communicating scientific results. “A successful introduction of GM food onto the market is dependent on acceptance by the general public,” the Head of the Secretariat of the Swedish Gene Technology Advisory Board, associate professor **Gustaf Brunius**, said, as he welcomed delegates to the day’s programme in his capacity as moderator.

“The politicians and authorities responsible have stressed the fact that the general public must have access to the information consumers need to be able to adopt their own position. But giving the general public access to information is not an easy task. The language is often so complicated that only experts understand the content and companies need confidentiality in order to protect their products from their competitors. One question that many consumers are asking themselves is whether the new products entail any benefits for the general public or whether it is only the producers who profit from them.”

Traceability, detectability and analytical trust

The day’s first speaker was **Sissel B Rønning** from the Norwegian National Veterinary Institute, who presented rules and methods of tracing GMOs in food. She pointed out that GMOs and products containing them should be traceable throughout the food chain; from production via distribution to the supermarket shelves. She discussed the differences in opinion between the United States and the EU and the strong opposition in the United States to the requirement for traceability of GMOs. This is required in the United States merely to protect human health and be able to assess any risks.

“But the American attitude against registration has changed after the 9/11 attacks. The Americans have become much more aware of how vulnerable the country is to terrorist attack.”

She presented different analytical methods and ascertained that some technical and political issues still need to be solved before GMOs in food can be reliably traced, despite all the important steps taken in recent years.

Role of science in risk

assessment and management of GMOs

Ib Knudsen, advisor in food safety and toxicology at the Danish Institute for Food and Veterinary Research, outlined the role of science in risk assessment and risk management. He presented several cases in which the European Food Safety Authority’s (EFSA) scientific panel on GMOs had come to entirely different conclusions to those drawn by individual scientists. Mr Knudsen, who has himself worked on such panels for many years, then outlined how a scientific panel works. Since GMOs affect so many areas, it is important to have experts in many different fields on the panel.

An important reason behind the advent of the EFSA was the need of the European Commission for a body to enable it to negotiate with strong national authorities in the wake of the outbreak of mad-cow disease (BSE) and toxins. He was quick to stress, however, that the EFSA was neither part of the Commission nor accountable to it.

The fact that the EFSA Scientific Panel on GMOs consists of up to 21 experts in different fields and from varying scientific cultures is very important as is the ability of the experts to pursue broad discussions without becoming embroiled in minor technical details. The final opinion of a panel reflects a balanced interpretation and assessment, based on consensus among the experts. Such an opinion has never been dismissed by external experts. He did not wish to overemphasise the role of scientists, however. “When the experts say they are in the driving seat, I believe this to be an illusion. The experts might turn the steering-wheel, but the steering column is not connected to the wheels.”

Perceived risk and benefit

– the dialogue with consumers

The dialogue with consumers was the topic of the talk given by **Kristofer Vamling**, a researcher from Plant Science Sweden AB, under the heading “Perceived Risk and Benefit”.

“Gene technology has been much debated right from the start. The media stoked the fire still further with sensational headlines about alleged risks. Trust in gene technology in Europe was further damaged by BSE and dioxins.”

“Today, authorities and companies have low credibility in the eyes of the general public. Gene technology is seen by many as a tool for large multinational companies. The industry has been slow to react and is unfamiliar with public relation activities. It is this debate - or crisis if that’s what we want to call it - that is the background to my talk.”

“The industry’s first reaction when criticism surfaced was: ‘Acceptance will come. It will blow over. People will gradually come to accept GMOs, so there is no need to do anything.’ The industry’s next move was to spread the message that gene technology was both powerful and quick. If the idea was to spark positive reaction, it failed miserably. Instead, the critics interpreted this message as a signal of imminent danger. Stressing that gene technology was actually nothing new didn’t work either. The general public had a completely different picture. Believing that people would accept GMOs with more knowledge didn’t help either. More knowledge about the benefits and drawbacks did not result in more understanding.”

“Claiming that gene technology would save the Third World from hunger didn’t help either since the agriculture of developing countries is hardly the focal point of the R&D activities conducted by large multinational companies.”

“The dialogue with the general public has been constantly polarised. Emotional arguments have been pitted against rational ones; the multinational against the local; the natural against the artificial; the ethical against the unethical.”

To illustrate the power of words, he showed a number of alarmist articles from the UK on monster food, alleged secret plans to combine GM seed with conventional crops. One scandalous article even implicated Prince Charles! In such an inflamed debate, it is a question of choosing one’s words with the utmost care. Instead of genetically modified organisms, many critics use the negatively charged expression ‘genetically manipulated’ or just ‘GMO’. Other examples of emotively charged concepts are GM crops, gene food or ‘Frankenfood’, the latter with its association to Frankenstein’s monster emphasising that GM food is something horrifying. ‘Contaminated’ by GMOs is used instead of ‘traces’ of GMOs when someone wants to scare people.

“In order to have an objective debate on these sensitive issues, it is important to be honest about both the opportunities and limitations and to show respect for the other side’s view. Respect the views of others and present your own. And remember that it is impossible to prove that something is 100-percent certain,” Mr Vamling said in conclusion.

Public perceptions of GM food

Viktorija Wibeck from Linköping University was supposed to present a survey on how the general public views GM food. But since she had fallen ill, her speech was read out by Dr David Carlander from the Swedish National Food Administration.

In the Eurobarometer 2002, people were generally

more optimistic about biotechnology than they had been in 1999. At the same time, the study also showed that biotechnology awakens strong emotions in the general public. While many were positive towards the medical applications of gene technology, GM food was seen as both unnecessary and hazardous to society. GM crops could be judged as moderately more useful but still risky. The Eurobarometer 2002 also surveyed European people’s attitudes to buying and eating GM food. Two important conclusions: Lower prices were seen as the least important argument in favour of GM food. There is probably a significant discrepancy between what people say and how they actually act when they are standing in the shop. The fact is that the majority of European consumers say no to GM food, but the arguments they use are of vastly different types:

- Some say no for ethical reasons.
- Others stress the importance of being in control of what we eat and feel that gene technology diminishes our control options.
- Many feel that gene technology is unnatural. It interferes with nature in a way we shouldn’t.
- Many consumers see no benefits of GM food, which only helps large multinational companies to earn even more money.

Ms Wibeck, who has herself written a doctoral thesis on the subject, felt that the opposition to GM food was motivated by emotion rather than based on a rational calculation of the risks and benefits. When rational and emotional arguments collide, the latter tend to take over.

Many also believe that development has gone too quickly and feel they have lost control. Then there are critics who fear that gene technology could be used to change man and create an elitist society. Many are also worried about the irreversibility of gene technology. The fact that gene technology is invisible also scares many people. These critics assume that invisible is dangerous and that scientists are developing this technology in secret and trying to conceal their findings from the general public. Even though labelling is a generally expressed requirement, many people still question the existing information and the honesty of those who spread it.

Ms Wibeck’s conclusions were the same as many of the other speakers, namely that it is all about trust. For GM food to be generally accepted in Europe, we must create trust for it among the general public.

Public access to information – authority policy and a legal case

The general public’s access to information was the

subject of the talk given by **Gabriella Cahlin** from the Swedish Board of Agriculture. There isn't actually a lack of information since every application contains plenty of material. Indeed, a single application might arrive at the Board in several large boxes. And the problem is not only how to make this information comprehensible for the general public and not just for experts but also what we are allowed to release.

"We must check with the applicants if part of the information should be kept secret for reasons of competition. We then have to make our own decision as to what to publish."

To illustrate how complicated such an assessment might be, she gave two concrete examples. In one of these, Greenpeace had requested to see the applicant's risk assessment, a summary of the toxicological studies on rats and the basic data for another four toxicological studies. Greenpeace was allowed to see the first two but not the last one, since it was considered that publication of these studies might have a negative impact on the applicant's competitiveness. Greenpeace organised a protest demonstration outside the Swedish Board of Agriculture with large banners proclaiming the words "Monsanto country". Needless to say, the demonstration received major media coverage. Greenpeace has appealed the matter to the supreme administrative court so we still don't know how this all will end.

Informing the public – challenges and pitfalls

In Friday's last talk, journalist Folke Rydén spoke of his work with the film project "Life at Stake", two films about the new biology, and on the pitfalls of trying to inform the public about such a complicated and sensitive subject in a way that is both popular and easy to comprehend. The following facts from a gallop poll conducted by the Discovery Channel in 2002 were the starting-point for the film project:

- Only eight per cent of those asked felt they really understood the development in genetics. Eighty per cent agreed that new genetics would cure most diseases in the future. Many are therefore optimistic about the opportunities created by gene technology although very few know much about it.
- A majority of those asked were tentative and felt that genetic research on humans was interfering with nature and hence could be dangerous. Sixty-two per cent felt that legislation was not keeping pace with development.
- If there was a genetic disease in their family, 80 per cent of those asked said they would get themselves tested to see if they too were at risk.
- Fifty-eight per cent of those asked did not want to eat GM food, whilst 66 per cent said yes to the develop-

ment of GM crops if it made the production of medical products cheaper.

After providing this background information, Mr Rydén then talked about the second film which was about food and the environment.

"The key issue was how we should make this film in order to catch the audience's attention and make them realise that this is an important issue, that it deals with life and what we eat or don't eat. People in the United States eat GM food whereas Zambia has said no and Swedes in general are sceptical. The Chinese seem fearless. In China they are running field trials with a new GM hybrid rice. You get different answers depending on which experts you ask."

"It is very difficult to achieve a good balance when 100 hours of material is to be edited down to two one-hour films," Mr Rydén said in conclusion. He admitted that he perhaps should have used the concept of 'genetically modified' food rather than 'gene food' or 'genetically manipulated' food. "An important principle was that everyone has the right to put forward their own arguments, whether you agree with them or not. Our aim was to inform and educate. The response was good, but of course we don't know whether the message hit home and the general public now understands gene technology better than before."

In the film, Mr Rydén holds a biscuit in his hand, baked using genetically modified wheat, but he doesn't reveal whether he ate the biscuit or not. "Did you eat the biscuit?" **Ib Knudsen** asked. "Yes, I did," he replied. "I wasn't afraid. But to be honest, it didn't taste very good."

Concluding debate

In his summary of the two days of talks, moderator **Gustaf Brunius** ascertained that the information problem was both difficult to solve and important. The existing information is often written in scientific language, understood only by experts. We need other ways of informing the public. He also stressed that we can never escape the key issue here, namely trust. If GM food is to have a future, it must be accepted by the general public. He also emphasised the cultural dimensions of the issue.

The seminar ended with a short plenary debate. "We know we can develop genes artificially, genes that produce some kind of material and that don't exist in the natural environment. What's your view of these?" **Sven Lindgren** asked.

"I would consider an artificially made gene to be more dangerous than a gene we have isolated in the na-

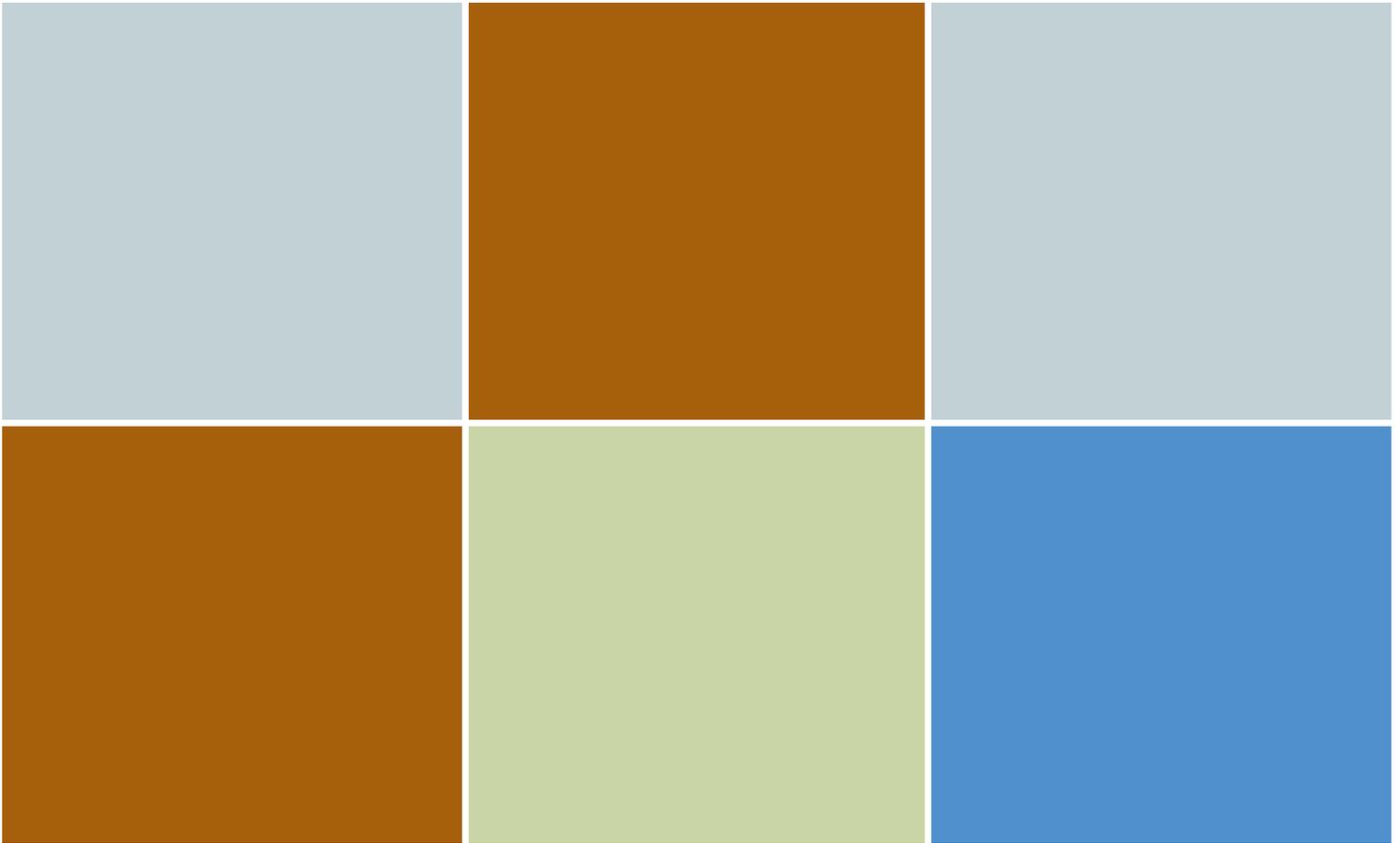
tural environment. But we must perform the same risk assessment whether it concerns an artificially produced gene or a gene we have isolated in the natural environment," **Kristofer Vamling** replied.

"The key word is trust. The only way ahead must be to build up trust and extend public participation. From this point of view, it is disappointing to hear that the Swedish Board of Agriculture's participation in the public debate has so far been limited to publishing some information on-line. They should be much more active," **Mikael Karlsson** said.

"It is a mistake to differentiate between scientists and decision-makers. I believe we should combine risk assessment and risk management. This would allow the whole process to flow more smoothly and increase trust," **Ib Knudsen** said. "I agree," **Sven Lindgren** replied. "This is how we work at the Swedish National Food Administration."

"I have great difficulty accepting patents in the field of gene technology." "Patents on what?" **Mikael Karlsson** wondered. "If we didn't have a patent system in gene technology, companies would be even more secretive and still less information would reach the general public," **David Carlander** from the Swedish National Food Administration replied.

In his closing comments, **Sven Lindgren** concluded that the technologies are not inherently dangerous. It's our way of using them that creates problems. He also established that GM products on the market are above all of interest to primary producers and that the immense expense of the safety system for GM products throws doubt on whether the market can actually bear the costs. In conclusion, he ascertained that no food product on the market had been tested as thoroughly as GM products and that their international use will continue, regardless of our opinion.



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