

## **Chapter 15**

# **SWEDEN**

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### **Introduction**

During the last few years, scientific innovations in genetically modified (GM) crops and food have evoked strong feelings among the general public in Sweden. GM innovations have been met by a reflexive attitude, where risks have been calculated and consequences discussed by policy makers, non-governmental organizations and the general public (1). Ethical concerns have been mixed with epistemological considerations questioning the sources of information about gene technology (2). However, up until recently public debates on GM-food have been based on hypothetical scenarios since no GM-products have been available on the market. We now face a situation where the number of products containing genetically modified organisms (GMOs) is increasing on the European market.

In this chapter we analyse the social conditions for GMO issues in Sweden. We will discuss the political and legal system governing gene technology, media coverage and the public opinion as reported in polls and in focus group discussions. We will also analyse the market situation for labelled GM- and “non-GM”-products.

### **The Swedish political and legal landscape**

At present, there are seven political parties represented in the Swedish Parliament. The latest election for Parliament took place in September, 2006, resulting in a shift of power. The Social Democrats had to relinquish power after 12 years in government. The current Government is formed by a coalition dominated by the Conservative Party and including the Centre Party, the Liberal Party and the Christian Democrats. During the election campaign, GM-food was a minor issue, not even mentioned on most parties' internet websites. The relative political silence on GMO issues has continued after the elections.

Nevertheless, Sweden has a relatively long history of political attention to GMO issues, starting with the work of the Swedish Committee on Gene Ethics in 1981 (3). It is worth noting that GMO issues are currently mainly framed in the Environmental Code (4). The Code contains basic rules for the deliberate release, marketing and supervision of GMOs. The Environmental Code is supplemented by a number of regulations stipulated by the various GMO authorities and the requirements vary according to the organism and the activity involved. Swedish legislation emphasises that GMO utilization should be in accordance with the principle of sustainable development (5). The concept of sustainable development was first presented in 1987 in the Brundtland Report “Our Common Future” and highlights three fundamental components: environmental protection, economic growth and social equity. Sustainable development is defined as development that meets the need of the present without compromising the ability of future generations to meet their own needs. The main aim of Swedish regulation of gene technology is to protect human health and the environment, and to

ensure that ethical considerations are taken in account. GM-food and -feed fall under the EU legislations 1829:2003 on genetically modified food (6) and 1830:2003 on traceability and labelling of GMOs (7). These regulations are binding in their entirety and directly applicable in all Member States without prior incorporation into Swedish regulation. GM-food issues must harmonise with Swedish legislation on food as stipulated in the Swedish Food Act (8).

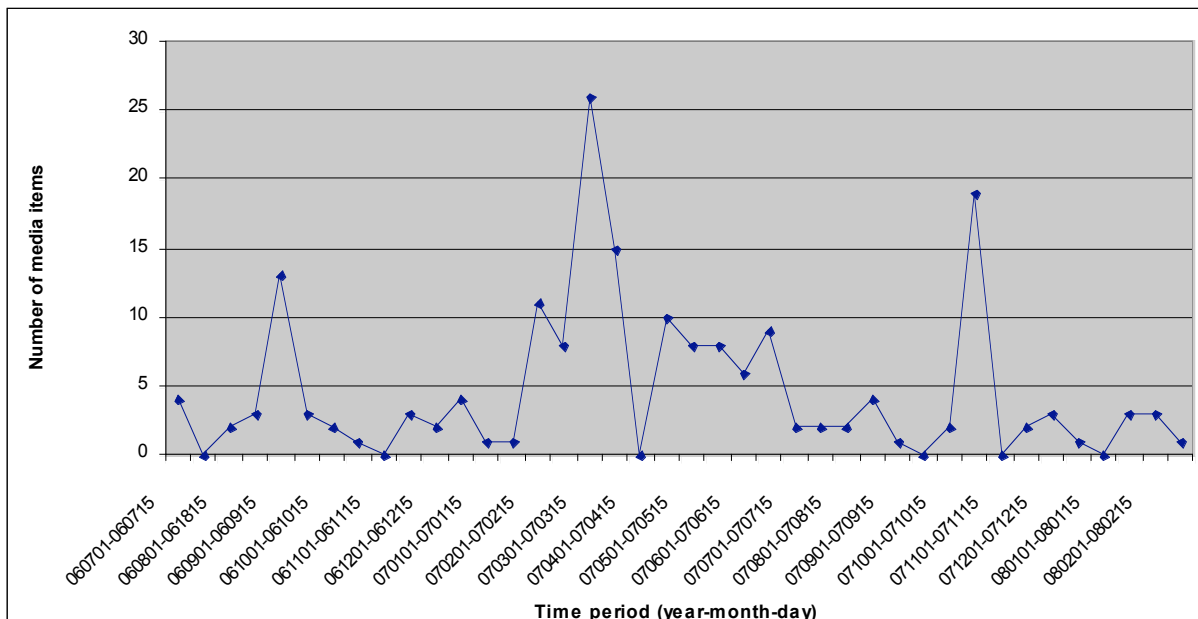
The biotechnology industry in Sweden comprises a couple of large companies, e.g. Bayer CropScience, Svalöf Weibull and Syngenta. Some GM-products have been developed in Sweden during the last few years, but only for industrial purposes.

In sum, GMO issues are currently not prioritised in the political debate in Sweden. They are not issues that the political parties profiled in the latest elections. Nor have GMO issues been put forth by the political parties following the elections. As regards the regulatory situation, GMO issues are framed in relation to sustainable development. The deliberate release of GMOs is treated as an issue of ecological sustainability while GM-food and -feed are regulated by general food principles in the EU, mainly emphasising social sustainability related to human health.

### 3. Media landscape

The Swedish media coverage of GM-foods has been the subject of earlier studies, covering the period between 1973 and 2004 (9-11). Those showed a pattern of controversies since gene technology is framed as a value-loaded issue, even in news reports (9).

In the present study, we focus on the contemporary Swedish media landscape, i.e. media items published between July 1, 2006 and February 29, 2008 (see Chapter 4 and Appendix 1, page 15-15). A total of 185 items were found, an average of slightly more than nine items per month. The frequency of items was unevenly spread throughout the data collection period, indicating sudden rises of media interest in GMO issues, immediately followed by declines (see Fig. 1).



**Fig. 1. Monthly frequency of GMO items in Swedish media (1.7.2006 - 29.2.2008)**

The pattern found in Fig. 1 indicates that media coverage of GMO issues is *event-driven* rather than *opinion-led*. When an event related to GM-foods takes place, it is typically first reported by the national news bureau (*Tidningarnas telegrambyrå*) and subsequently recirculated in more or less the same form in the national and local media. It is also worth noting that the number of articles in each “peak” of the diagram above is relatively small, thus indicating limited media interest in GMO issues.

The following events were represented by the peaks (10 or more entries) in the diagram:

- September 2006: The Swedish Food Administration found non-approved GMOs (LL 601) in a shipload of American long-grain rice, arriving in Stockholm. The rice was subsequently destroyed or returned to the US;
- February 2007: GMOs were found in non-labelled rice sold by a Swedish retail chain. The rice was immediately withdrawn from the shelves;
- March 2007: The EU approval of GM-corn was debated when a research report claimed that such corn could imply health risks for humans. The credibility of the research report subsequently became the focus of debate;
- April 2007: Sudan stopped American millet aimed as food aid to the Darfur province, claiming that it was genetically modified. This was denied by American authorities;
- October 2007: There were reports of a growing market for GM-foods. An official report from three national agencies stated that GM-crops may constitute a threat to biodiversity, and hence contradict one of the national environmental quality objectives. There were also reports about new rules from the Swedish Board of Agriculture which aim at stopping inadvertent spread of GMOs in the fields.

These news reports were seldom followed by public debate. At times, representatives of environmental NGOs (in particular Greenpeace) published debate articles, but they were not taken up for continued media debate by the general public.

In investigating the origin of the media items, it is obvious that local and regional papers are the main forum for publication, with the Swedish public service radio also relatively well represented. The tabloid papers offer almost nothing on GM-food. The stories reported by news bureaus amount to no more than 5% of all items investigated. A large portion of the reports in local and national news papers, radio and television are based on the reports originating from news bureaus. It was also evident from the analysis that, even though some of the major news stories have an international origin, the majority of media reports on GM-food are framed as either a national or a local issue. Debate articles constitute a little more than one fourth of the corpus with the majority of the articles presented as news reports.

Given that tendency for publishing items as news reports, one might assume that their tone would be more or less neutral. The ethical code for journalists states that news reports should be correct and that all parties should have a say (12). A large proportion of the reports (34%) tell a news story in a relatively neutral way, without taking sides for or against gene technology as such. Nevertheless, analysis also shows that almost half of the total number of items had a negative tone. Only 17% of the media items studied were coded as positive. We conclude that issue of GMO still appeared to be controversial, as is shown in the large proportion of value-loaded articles. However, compared with the results of the earlier studies

mentioned above (9, 11), the perspective of controversies was less prevalent in the present study. This analysis is based on the full texts of the media reports; using only the headlines would have resulted in many more items being classified as negative.

In sum, media attention to GM-food has been relatively low during the period of the study. The media reports usually assume that lay people are acquainted with GM-food (13) with explanations of the technology seldom provided.

### **Swedish consumer opinion**

Even though there is currently a lack of public debate on GM-foods in Sweden, opinion polls indicate that the overall opinion remains negative. Comparison of the 2002 Eurobarometer poll with that of 2005 shows declining support for GM-foods among Swedish customers: opponents of GM-foods rose from 42% to 68% although only 28% of the Swedish informants claimed that they would definitely or probably not buy GM-foods (14). This might indicate that the correlation between opinion on GM-foods and purchasing behaviour is rather weak.

In 2006 and 2007, several national polls were conducted in Sweden. In January 2006, the paper *Lantbrukets affärstidning* (a business paper for farmers) published the results of telephone interviews with 1,000 Swedish farmers owning more than 20 hectares of land. Their opinions with respect to GM-crops and -food were mostly negative: 74% did not want to grow GM crops, 64% did not want to eat GM-foods and 68% said they would not give GM-feed to their animals (15). This poll was criticised by the Centre for Biotechnology, who found contradictory results in a February 2006 poll based on a mail questionnaire to 1,000 farmers owning at least 2 hectares of land: 46% of respondents, and 65% of those owning at least 50 hectares of land, said they were positive towards growing GM-crops (16).

In March 2006, Greenpeace conducted a survey about attitudes to GM-feed among 515 consumers. The majority of the respondents (93%) wanted meat products from animals given GM-feed to be labelled while 68% said they would not buy meat from such animals (17). Similar trends were found in a minor survey of 100 Swedish consumers who asked for labelling of both GM-products and meat products from animals fed with GM-feed (18).

Several Swedish consumer organisations engage in the area of GM-food (19-20). The Consumer Organisation Stockholm has conducted surveys since 1998 on consumer attitudes to genetically modified food (20). The results of phone interviews of about 500 consumers in 2007 indicate that the opinion towards GM-food has become slightly more positive over the years. In 2007, the majority of the respondents (61%) said they would not buy GM-food while 38% answered “yes” or “yes, perhaps”. The last figure has increased since the survey was first conducted in 1998; moreover, 70% of the 2007 respondents regarded it as important that GM-foodstuffs were labelled, a decline from 1998 when the proportion was 83%. Another consumer organisation, The Swedish Consumer Coalition, has campaigned against GM-foods for several years, arguing that gene technology threatens democracy, only benefiting large multinational companies.

Finally, an experimental study published in *Nature Biotechnology* in 2007 indicated that the subjects showed some willingness to buy GM-products if they were produced in a more environmentally-friendly way than their conventional counterparts (21). This study has some limitations: for instance, the results were based on a small number of participants in the southern part of Sweden, a region where large biotech. companies are situated and field trials

of GM-crops are conducted. Furthermore, the method entailed selling conventional products falsely labelled as GM at market stalls along the road. We would assume that customers buying food items from such market stalls are often people who have an interest in environmental issues and who deliberately look for organic and regionally-produced food.

In sum, even though the above-mentioned studies cannot be generalised to the whole Swedish population, they do indicate that the public opinion about GM-foods is relatively negative. There are, however, indications that such negative opinion is not absolute. It is plausible that under certain circumstances, e.g. if environmental benefits could be demonstrated, there would be willingness among consumers to buy GM-foodstuffs.

### **Labelled foods on sale: shop surveys and interviews**

Products labelled as containing GMOs or ingredients already on sale in Europe. The EU legislation (2001/18/EC on deliberate release) on GMOs ended a moratorium with new GM-products again considered for commercial authorisation. This section focuses on the availability of GM- and non-GM-products for consumers in Swedish food stores and supermarkets

In Sweden, retail food sales are dominated by three large chains: ICA, Coop and Axfood. They are currently sceptical about GM-foods but state that GM-products may in the future appear on sale in stores (22-24). Sweden also has an expanding market for low-cost retailer chains, e.g. Citygross (Swedish), Lidl (German), Netto (Danish), etc., as well as ethnic stores. Based upon the number of retailers and the Swedish pattern of grocery retailing we have conducted shop surveys which covered the three large retailer chains, low-cost retailer chains as well as ethnic stores. In order to encompass the whole range of enterprises, shop surveys have included a variety of retailers, from large supermarket chains to corner grocery stores, in different types of cities. We conducted shop surveys every four months, starting in December 2006 and ending in December 2007. For further details of methodological considerations, see Chapter 3 and Appendix 1.

The prime objective of the shop inspections has been to record GM- and non-GM-labelled products offered for sale. We have focused on:

- labelling characteristics;
- information/advertisements about the GM- or non-GM-labelled product;
- location in store.

#### *Product categories*

Our surveys have focused on products which contain, consist of or are produced from GM-maize, -soy bean and -rapeseed. Within these categories, we have included a wide range of product categories such as dairy products, cereals, beverages, spreads, confectionary and pre-packed food, cooking oils, etc.

#### *GMO-labelled products*

We found no GM-labelled products for sale in the shops in our study. However, there does exist one GM-product on the Swedish market: Kenth Beer containing GM-maize. According

to Kenth Persson, the owner of the brewery producing the beer, the idea of a GM-beer was originally suggested by the Centre of Biotechnology, an information office sponsored by different biotech. companies. It was introduced to retailers in 2003 but was soon taken off the shelves as the result of a pressure group campaign. The target for the beer is now restaurants where it has been more successfully introduced (interview of October 10, 2007). Kenth beer was also available for tasting at a stand at the Food and Drink Expo 2004 exhibition in Birmingham, UK. Passers-by and visitors to the booth were invited to sample it. Of about 2,000 people so invited, only 12 refused on the grounds that it contained a GM-ingredient.

#### *“Non-GM”-labelled products*

Negative labelling such as “non-GM” or “GMO-free” is prohibited in Sweden (25). The Swedish legislation is based on the EU directive 2000/13/EC on the approximation of the laws of the Member States related to the labelling, presentation and advertising of foodstuffs. The directive prohibits the use of information that would mislead the consumer. According to the EU directive and the Swedish National Food Administration, labelling must not suggest that a particular foodstuff possesses special characteristics when in fact all similar foodstuffs possess such characteristics. Nevertheless, we found non-GM-labelled products in 12 of the stores included in the study.

In each case we found up to 48 non-GM-labelled products over the whole period of the project equating to a total of 63 different products when summarising products in all stores; most were from soy beans and the most common product group was soy beverages. The non-GM information appeared in some cases in the list of ingredients, but more frequently as a text or a symbol on the package.

Our shop inspections showed that most of the non-GM-labelled products were located together with their unlabelled counterparts. However, the most common location for soy beverages was among low-lactose products which may indicate that the soy beverages are seen as health or allergy products. The non-GM-labelled products were located in eye-level as well as on the upper and lower shelves. Consumer attention was in no way drawn to the GMO-free products.

#### *Interviews with retailer personnel*

In addition to the shop surveys, we have interviewed 14 store and purchasing managers about the presence of GM- and non-GM-labelled products in their stores. The interviews were structured by a agreed questionnaire. Questions concerned their GMO policy, availability of GM- or GM-free-labelled products in the store, exposure of such products, consumer information and market shares compared to conventional counterparts.

All interviewees expressed uncertainty about whether or not GM- and/or non-GM-labelled foodstuffs were available in their own stores. Only one respondent knew that they had GM-labelled products in their portfolio. That respondent worked for a retailer chain selling US imported products but, due to a lack of consumer interest in GMO products, no such products were in effect marketed by the company.

Other common answers were: “no idea”, “I don’t think so”, “I wouldn’t be surprised”, “don’t know” and “no”. Two interviewees, both managers of ethnic stores, were not familiar at all with the concept of GMOs. Since we identified several non-GM-labelled products in a

majority of the stores, we conclude that knowledge is limited among both store and purchasing managers about the availability of GM- and non-GM-labelled foodstuffs.

When asked about their GMO policy, most of the interviewees said they had no local policies. The managers of stores belonging to retailer chains referred to the central administration as responsible for policy issues. However, most of the retail chain managers were uncertain whether a central GMO policy actually existed. Only one was aware of a such a policy but did not know its content. One respondent mentioned that the local stores cannot choose their own products as market decisions are taken by managers at head office.

All but one of the interviewees agreed to contact us should they introduce GM-labelled products; none did so. A follow-up set of interviews in February 2008 showed no changes in GMO policies or consumer responses. No GM-labelled products were introduced onto the market during this period.

### *Summary*

Adding together all our store survey results and interviews shows that the GMO issue seems to be little discussed and debated. Tracking GM-labelled products via shop surveys in different stores and in different cities over a 12-month period shows clearly that GM-products are rarely found to be on the Swedish retail market. Products labelled “GMO-free” seem to be on sale in all types of Swedish food stores, although formally they are prohibited and the store managers are seldom aware of them. There are no specific campaigns advertising products as GMO-free and the products themselves are often located beside their unlabelled counterparts in the stores.

### **Focus Groups**

As noted above, public opinion towards GM-food in Sweden is mostly negative. Earlier studies of the public understanding of GM-foods and its labelling undertaken in the 1990s and early 2000s indicated that consumer scepticism was linked to moral, existential and epistemological issues about trust and people’s sense of agency (26-29). In the light of the recent approvals of GM-products and field trials in the European Union, together with the relative political and mass media silence on GM issues in Sweden, we found it relevant to explore again the understandings and representations of GM-foods among Swedish lay people.

To secure a qualitative understanding of consumer interest in and attitudes to GM-food, we set up four focus groups. They were internally homogenous but differed in terms of participants’ age, gender and levels of education. For further explanations of methodological considerations, documentation and analysis see Chapter 5, page 5-2) and the Appendix to this chapter (page 15-15).

The focus groups were structured around the following themes:

- risks and possibilities related to gene technology;
- information and trust;
- participants’ willingness to buy GM products.

*Genetic engineering – risks and benefits*

Benefits and risks related to gene technology were a constant theme running through the focus group discussions. The participants were mainly preoccupied with risks. Not every group was able to identify any benefits at all. The concerns were described as related directly to the technology and its consequences: for instance, the risk of dispersion of GMOs to natural habitats, pest resistance, dangers to human health and exploitation by large companies. Benefits were focused more on the applications of the technology, e.g. the possibility of decrease the amount of pesticides, greater productivity and famine reduction in the world. Since the risks are of a more general character, relating to gene technology in general, they were invoked as counter-arguments as soon as a participant argued for a benefit.

*Risks - a matter of human and nature relations*

The focus group participants agreed on most of the risks such as pest resistance, dispersion to natural habitats and conventional crops. The participants' concepts of risks fell back on the ecological dimension of sustainability; when talking of risks, the participants focused on environmental risks and fears against a background of other aspects of sustainable development.

In this context, intense discussions developed about concerned whether or not genetic engineering should take place at all:

**Moderator:** *What comes to your minds when I say “GMO” and “genetically modified organisms”?*

D: *Disgusting*

A: *Umm...*

B: *Amazing opportunity to feed the world population if used in the right way.*

D: *But there is a risk of dispersion and genetic modifications of things you had not expected.*

B: *We have genetic modifications in nature all the time. It is a part of natural evolution. Now it happens to be humans developing it, but it is still the same principle.*

D: *But I still believe that if it evolves in one way and we start to cut in that, it will result in unexpected consequences that we cannot*

B: *But it is not decided by nature. Mutations and (inaudible) happen randomly.*

D: *Yes, but I still believe that it is on other conditions than when you as a human start to fix...*

(age range 30-60, university graduates)

The example illuminates a problematic relation between humans and nature, and the extent to humans (and human activities) are part of natural systems. In other words, the participants' arguments started from the assumption that there are moral boundaries and a normative system of right and wrong actions with which mankind need to comply. There was no agreement on whether gene technology is an extension and development of existing technologies or if it should be considered as a new technology bringing up new dilemmas of

human interference with nature. This type of argumentation usually rests upon the premise that nature is conceived of as inherently good (30). Since gene technology is conceived of as unnatural, it is consequently also regarded as non-acceptable.

The discussions on human activities in relation to natural changes were rich in associations and analogies. Comparisons with movies such as *Jurassic Park* and several examples of the introduction of new species indicate that GMOs were compared to something for which mankind has lost control. The ethical dimension of most analogies did not concern gene technology as such but there were risks associated with consequences of producing GM-food. The effects of GM-food were compared to the use of pesticides, colouring matters and other additives in foodstuff, heavy metals and preservatives. Every analogy was followed implicitly or explicitly by discussions on risks for human health. These analogies thus indicated that the participants associated GM-food with negative health aspects.

#### *Benefits – local and global*

When participants were asked about their associations when they heard “genetically modified organisms”, three groups mentioned global food supply and famine reduction. The discussions revolved around whether gene technology could become a solution to famine reduction or not. Some participants argued, as in the following examples, that biotechnological interventions could become a tool for securing the livelihood of a growing world population:

B: *“One advantage we have as human beings is that it is possible to develop crops that are more tolerant to frost or more resistant to pests, it is a way of reducing the amount of pesticides used....It is almost in the same class as the green revolution that fed many hundreds of millions of people.”*

(age range 30-60, university graduates)

B: *“...That is the core, to nourish more people. There can hardly be any other advantages”*

(age range 20-30, high school graduates)

In the first quotation, the respondent mentioned several benefits of genetic engineering but ends with an analogy related to famine reduction. The quotation expresses what is more explicit in the second quotation: the purpose genetic engineering is to provide food security – to produce sufficient food for the world’s population. Genetic engineering as a solution to food shortage is thus argued to contribute to a socially sustainable development. On the other hand, it was argued that food supply issues cannot be solved with genetic engineering, since gene technology enables exploitation of large companies at the cost of small-scale agriculture. In this respect, gene technology was not perceived as contributing to social sustainability.

Among those participants who argued in favour of gene technology, there was a general agreement that applications of genetic engineering are of more interest to others than to themselves. Benefits for consumers in developed countries were not considered as a primary goal of GM-food but rather an opportunity to nourish more poor and starving people. Thus, the benefits were considered to be global rather than local and personal.

*Information and trust*

Regardless of whether the participants argued that genetic modification of crops and food is a risky enterprise, or if they emphasized the promises of gene technology, they all agreed that it is important for consumers to be given proper information about GMO issues. All groups discussed this topic although with different foci. An assumption made by all of them was that there is a lack of information given to the public. Several participants mentioned independently of one another that they considered themselves to have little knowledge of GMOs. When reviewing the Swedish public management of gene technology, the Swedish National Audit office found no united efforts to canalise and to manage GMO questions from the authorities (31). The National Audit office concluded that GMO information to the public needs to be coordinated. The multiplicity of information sources seems to result in the perception among the participants that there is no information available. Even though there is a plethora of information on gene technology, Swedish agencies seem to have failed in their communication strategies.

A prominent result from the focus group is that the participants demanded more information. Regardless of their standpoints, in favour or not in favour of GM-food, the participants sent a clear message: there is too little debate on GM-food! The results of the media analysis and the analysis of the political debate are thus mirrored in the focus groups: the public discourse of GMO issues is relatively silent in Sweden today.

Communication is a troublesome factor in the relationship between science and the public. While the focus group participants pinpointed university scientists as the most trustworthy actors, scientific research was often perceived as difficult to understand and in need of simplification. In discussions about information, all the groups talked about different sources and their differences in trustworthiness. According to the participants, the most reliable and accurate way of informing consumers about GM issues is through non-commercial public services, with a national authority as the source of the information.

*Labelling of GM-food*

The issues of information and trust are related to the issue of labelling. Most participants said they looked for symbols and trademarks when buying groceries. All of them supported the labelling of GM-food since that was considered to be a consumer right. Earlier research has shown that the ability to control one's own food choices is crucial to consumers (2). To serve its purpose the location of the label is important:

**Moderator:** *Do you know if you have bought a GM-labelled product or one labelled as not containing GMOs?*

D: *No*

A: *No, nothing you*

B: *I am bad at reading such things (D: No, I don't think so) .I usually just pick unfortunately*

C: *Not that I can remember (D: no) or have thought of.*

D: *One would have noticed it, if one had seen it. (2 s pause) If it is easily visible but otherwise I suppose there is no point.*

(age range 30-60, high school graduates; underlining indicates overlapping statements)

Respondents assume information will be easily visible. Since when shopping most participants look for symbols and trademarks; that is also where they might expect to see information about GM. However, EU regulation 1829:2003 stipulates it should be in the list of ingredients. Our focus group data prompts one to question if consumer rights are best met by providing information about GMO where hardly nobody notices it; on the other hand, if consumers were sufficiently interested, they would find what they wanted to know.

### *Willingness to buy*

How would consumers respond if GM-products were available in Swedish stores? How do consumers perceive such added values, as health and environmental benefits?

In general, participants claimed that the goal for applications of gene technology must first and foremost be to reduce famine. They would *not* buy GM-food if it were healthier since it was not considered natural and therefore not of good quality. A healthy food product was had to be GM-free, partly because of risks perceived to human health and partly because GM-food was not considered as natural. A few participants would consider buying GM-foods if they were produced with fewer pesticides than their conventional counterparts. Some participants would not buy GM-food if they were produced in an environmentally friendly way since they claimed that organic farming, for example, would be even better for the environment.

According to the Eurobarometer 2006, 25% of European consumers would definitely not buy GM-foods even if they were produced in a more environmentally friendly way, contained less fat or were cheaper (14). The participants in the Swedish focus groups seem to be a little more willing to buy GM-food if it were cheaper but low price was seen as an added value, not as the main reason for choosing GM-products. To be acceptable, GM-food must also prove useful in reducing malnutrition and starvation.

### *In sum...*

Our focus groups provided a somewhat scattered image of the participants' perceptions of GM-food. Some of the participants were relatively indifferent to GMO issues. Others expressed negative views while a third category pointed to possibilities associated with gene technology. It is worth noting, however, that every time someone suggested a possibility, counter-arguments were heard emphasising dimensions of risk. The risk arguments were not criticised in the same way as the benefits were.

Benefits were associated with food supply and seen by some as a tool to reduce malnutrition and starvation. The purpose of genetic engineering was assumed to contribute to food supply on a global level rather than provide consumers with additional consumer benefits in terms of health and environmental values, or lower price. Discussions about risks seemed to be a matter of human and nature relations based on different assumptions about the extent to which humans may interfere with the nature.

According to the participants, information including labelling was the most important aspect of GM-food since it directly concerns consumer choice. The participants called for more information by trustworthy informants.

## Concluding discussion

Analysing the Eurobarometer data from 2002, the Swedish research team suggested that GMO issues were in the process of becoming “de-mystified” in the public debate (13). Our findings support this hypothesis. They suggest that GM-foods have increasingly become one among many societal issues debated from time to time, but not necessarily framed as a particularly existential or ethical issue. The public debate is overall very subdued in Sweden. Media coverage is event-driven rather than opinion-led. A relatively small number of media reports were published during the study period (July 1, 2006 – February 29, 2008). A few debates were initiated but, after the initial one or two articles, the debates tended to fade out. A limited number of actors participated in the debates. Almost all debate articles were written by a few spokespeople from environmental organisations or by representatives of the biotech industry. The political debate has also been conspicuous by its absence. During the study period it was obvious that GMO issues have not been profiled by the political parties. As regards consumer attention to GM-food, retail store managers said in interviews that they had not experienced any particular consumer interest either about GM-labelled or “GMO-free”-labelled products.

The discourse about GM-crops and -food has a turbulent history marked by controversy. There has been mistrust between experts and lay people who may interpret gene technology risks and benefits different ways (26). Controversies over GM-crops and -foods have often departed from different standpoints as to whether or not gene technology will be a tool or an obstacle in national and global efforts to achieve economic, ecological and social sustainability.

From the focus groups results, the main objective for GM-food should be to contribute to a sustainable development, socially as well as ecologically. There was however much suspicion that this objective could actually be met through development of gene technology methods which were regarded by many of the participants as an unnecessary interference by humans in natural processes.

Nevertheless, some studies do indicate that added values in terms of environmental benefits might constitute an incentive for people to buy GM-products (20-21). The history of the Kenth beer demonstrates that, in spite of protests from environmental organizations, people are willing to buy GM-labelled beer in restaurants. Our focus groups indicated that under certain circumstances, people may consider buying GM-foods.

Thus, even though the Swedish public opinion as reported in polls and focus group data is still predominantly negative, we conclude that there are tendencies of towards public acceptance.

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## APPENDIX: METHODOLOGICAL CONSIDERATIONS

In this appendix we present methodological considerations of the Swedish study. For an explanation of general approaches see Chapters 3-5, dealing with products on sale, the European media and focus group studies, respectively.

### Media landscape

In the present study, we have focused on the contemporary Swedish media landscape, i.e. media items published between July 1, 2006 and February 29, 2008. To identify relevant items, all articles related to GM-foods included in the press archive services Mediesök and Presstext were included. These two archives together cover 65 media sources, including Sweden's largest national newspapers, a number of local newspapers, the largest tabloid papers, the national radio news, and journals on specialized issues, e.g. science, technology, economics etc. In addition, we have searched the archives of two TV stations – Sveriges Television (the national public-service station) and TV 4 (the largest commercial station) – as well as of the national Swedish radio.

The tone of published news reports was analysed. The category “negative” included items coded as slightly negative, negative or very negative. To be classified as negative, an item had to fulfil one or more of the following criteria: i) values were explicitly expressed, ii) value-loaded words were used, iii) opponents of GM food were given a more prominent position in the report than the advocates




### In-store surveys

In order to record and analyse aspects of possible introduction of GM-food we have conducted in-store surveys. Recognising the Swedish pattern of grocery retailing, the surveys covered the three large retailer chains, low-cost retailers and ethnic stores (Table 1). To cover the whole range of enterprises, the surveys have included different sizes of retailers, from large supermarket chains to corner grocery stores in a variety of locations.

We have selected shops in a large city (approx. 1 million inhabitants), in two middle-sized towns (approx. 125,000-140,000 inhabitants) and in one small town (approx. 16,000 inhabitants). In selecting our study sites, we have striven for a proper representation of social variables such as the number of inhabitants in the area where the shop is located, inhabitants' average level of education, average level of income, unemployment rates and age structure. At the start of the project, the total number of shops was 15. During the project time, three stores closed down. We conducted shop inspections every four months, starting in December 2006 and ending in December 2007.

**Table 1. Overview of selected towns and shops.**

category of town	amount of inhabitants/region	type of market/shop	no. of shops	no. of shop inspections
	~1 million inhabitants; central Sweden	large supermarket	1	4
		middle-sized supermarket	1	4
		ethnic store	2	4 resp.1

medium 	~140.000 inhabitants; central Sweden	large supermarket	1	4
		middle-sized supermarket	2	4
		small supermarket	1	4
		ethnic store	1	1
medium 	~125.000 inhabitants; central Sweden	large supermarket	1	4
		middle-sized supermarket	1	4
		ethnic store	1	2
small 	~16.000 inhabitants; central Sweden	middle-sized supermarket	2	4
		ethnic store	1	4
<b>total</b>			<b>15</b>	<b>52</b>

### Focus groups

The understanding GM-foods by lay people in Sweden was explored in four focus groups, organised to provide a qualitative understanding of consumer interest in and attitudes to GM-food. The focus groups were internally homogenous but differed between themselves as regards of participants' ages, gender and levels of education (see Table 2).

**Table 2. Organisation of focus groups.**

age	education level	number/gender	length of session
group 1, 20-30	high school	1 woman, 2 men	45 min
group 2, 30-60	high school	2 women, 2 men	24 min
group 3, 20-30	college/university	2 women, 1 man	52 min
group 4, 30-60	college/university	3 women, 1 man	50 min

To ensure that participants would be able to take active part in the focus group discussions, they were recruited among regular grocery shoppers. They knew beforehand that they would discuss food. However, since we did not want them to gather information before the session, they had not been told that the subject was specifically genetically modified food. Not telling them the exact purpose of the interview was also a way of exploring what was at the top of their minds when asked to discuss their food purchasing habits and their perceptions of labelling in general. An interview guide was designed to meet the specific goal for the project. The participants were to a large extent given time to explore the subject without the interference of the moderator.

### *Documentation and analysis*

The focus group conversations were recorded and subsequently transcribed verbatim. Overlapping speech, emphasis and pauses were noted. Personal names and names of towns have not been transcribed to preserve participants' anonymity. The quotations provided in this section have been translated into English and adapted to the conventions of written language.

The data were analysed according to principles of thematic content analysis (1). We started by reading through the transcripts with the aim of getting a general impression. As a second step, the discussions were categorised, i.e. text segments dealing with the same topic were brought together with the categories were subsequently coded. This procedure led to the identification of overarching themes that summarised the content recurrently expressed in the discussions.

In addition to the content analysis, we conducted an analysis of analogies, a communicative resource frequently used in the discussions. By identifying and analysing analogies, conclusions can be drawn about how the phenomenon of GM-food was understood and explained in the groups. Conclusions can also be drawn about how the issue was argued, i.e. whether it was regarded as similar to or as different from other phenomena which were experienced as either positive or negative.

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