

## Chapter 13

# SLOVENIA

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### Background and history

Before Slovenian independence in early 90s, public debates were unknown and it was more than decade before they began to appear in the media. The first major debates on GMOs took place in 2002 when Slovenia became a member of EU and accepted the EU's umbrella act concerning GMOs, thereafter adhering to all relevant EU GMO regulations.

Joining the EU was also the trigger for public debates in which concerns about human health, morality ethics appeared. The first themes mainly involved labelling, to be replaced later by the possible effects of GMOs on human health and the environment. During the short history of GMOs in Slovenia, public debates becomes more and more frequent. Public opinion is antagonistic; no GMOs are cultivated and no GM-products are on sale.

### Political landscape

Recognising that GMOs have become a part of life, there have in the past few years been several GMO awareness campaigns in Slovenia aimed at demonstrating the value of the technology from laboratory to global agriculture. Ethical, moral, ecological and political aspects have been discussed, with great importance being attached to questions of GMOs in the country.

Since the break-up of Yugoslavia and the resulting independence of Slovenia, the Democrats have been in power continuously. None of the politicians had much to say about GMOs in the 1990s; social and economical growth, together with reforming the tax and salary systems, were much more immediate.

The current Government coalition, dating from 23rd November 2004, comprises four parties: the Slovenian Democratic Party (SDS), New Slovenia – Christian People's Party (NSi), the Slovenian People's Party (SLS) and the Democratic Party of Pensioners of Slovenia (DeSUS); their attitudes to GM-crops and -foods are shown in Table 1. Umanotera is not part of the government.

Note further that:

- (a) *Zares* ("For Real", a social-liberal opposition political party), offers the most extensive comments. They are negative toward GMOs as demonstrated by their petitions against the use of GMOs and their statements at press conferences, etc.;
- (b) the Slovenian Peoples Party expresses concern about the environment, how to assure sustainable development and the importance of preserving natural resources and biological diversity in order to provide the Slovenian market with healthy food. With

ecologically (i.e. organically) grown and produced food, there is assurance of tracking its origin. They do not approve of GMOs;

- (c) in September 2006, the New Slovenia-Christian People's Party (Nsi), a third political party, launched their policy on the coexistence of GM with conventional crops, probably in response to new laws proposed by the Ministry of Farming, Forestry and Food. The party would support such new legislation allowing coexistence albeit with strict regulations to ensure the protection of biological diversity: 30% of Slovenia's land is protected by Natura 2000, a European ecological network designed to safeguard the most seriously threatened habitats and species.

**Table 1: Attitudes to GM food of governmental and non-governmental parties**

<b>government and non government parties</b>	<b>attitudes to GM-food and -agriculture</b>
Slovenian Democratic Party	negative
Slovenian People's Party	negative
New Slovenia-Christian People's Party	neutral
Democratic Party of Pensioners of Slovenia	neutral
Umanotera - Slovenian foundation for sustainable development	negative

The other political parties have nothing about GMOs on their websites although they do promote ecological and sustainable farming. Two of them are members of the coalition and one is part of the opposition

With entry into the EU, Slovenia enacted the required GMO regulations (Management of Genetically Modified Organisms Act - official consolidated text, Official Gazette No. 23/2005). National responsibility for the enforcement of labelling, food safety and tracing of GMOs is divided between the Ministries of Agriculture, Forestry and Food, of Health and of Environment and Spatial Planning.

In 2006, the Ministry of Environment and Spatial Planning proposed a coexistence law. Several government departments, non-governmental organizations such as the Slovene Consumers Association, Umanotera, the Agricultural Chamber of Commerce of Slovenia, as well as organisations for sustainable development of countryside, were actively included in debates on the implementation of the EU regulations. In general, non-governmental organizations supported stricter laws on regulation that will exclude all GMOs and their products from Slovenia.

Debate continues around coexistence and the precautionary principle. A recent website survey suggests rather more cooperation among non-governmental and governmental organizations than hitherto.

## Retail food sales in Slovenia

The aim of the retail research was to identify any GM-labelled and well as GM-free-labelled products offered for sale together with labelling, prices, supplementary information, and the position and prominence of products on the shelves. Requests for cooperation with the project were sent to the appropriate people in three main Slovenian retail chains (Mercator, Tuš and Hrđi); all accepted the invitation. Store visits were undertaken in different parts of the country, in larger and smaller cities, and in villages. The most widely represented retailer in Slovenia is Mercator, followed by Tuš and Hrđi; most visits were made accordingly made to Mercator. The largest cities with the most consumers are Ljubljana, Maribor and Celje.

During the period 01.12.2006 - 30.03.2007, 55 stores were visited, most of them (36.4%) supermarkets.

Local management responses to questions were as follows:

1. What is your current policy on the sale of GM-labelled products?

**Answers:** (i) there are none; (ii) none that I know of; (iii) we have none; (iv) they are on the shelves with other foodstuffs;

2. What is your future policy on the sale of GM-labelled products?

**Answers:** "We do not know, We do not know yet, We are not yet familiar with the matter with it, Not for the time being...";

3. Do you have products labelled non-GM, GM-free?

**Answers:** "No" from all respondents;

4. Do you have products labelled non-GM, GM-free having similar (unlabelled) conventional equivalents available?

**Answers:** "No" from all respondents;

5. Are GM-labelled goods displayed together with their equivalent conventional counterparts?

**Answer:** "Yes, always" and "In some cases". They also commented: "Anyway, we do not know which products contain GM";

Clearly some of these answers are contradictory and reflect the fact that retailers actually do not know whether or not GM-products are present in their stores. Some of their answers are clearly hypothetical and conjectural;

Because all answers were negative with respect to GM-labelled products, the survey was not pursued further.

Asked an open question about their opinions of GM-foods, replies included:

- “they should be labelled if they contain GM”;
- “we don’t have GM products yet; we have not yet been informed about them”;
- “I support the labelling of products”;
- “there is not enough information”;
- “I would rather we did not stock these products”;
- “I would rather these products did not exist”.

The local managers surveyed complained that they did not receive enough information from their head offices; they had also asked their upper management to tell them more about GM-products but the only source for them is the media. Most of the local managers in the survey were not comfortable when questioned by customers about products containing GMOs.

It is clear that local managers and retailers are not well informed by higher management and employees do not know whether or not they are selling products contain GMOs, or how they are or should be labelled. Similar results were encountered during later surveys. Clear documentation about the sale of GM-products is not available in stores. Local managers were negative towards such products and most said either that they would rather not have them but, if they are to be on sale, they should be correctly labelled.

Retailer opinion remained constant throughout the survey, with no sign that they were becoming better informed as time progressed. Information for consumers about GM-food was also very limited with none visible in any of the supermarkets and or on their websites.

EU Regulation (EC) No 1830/2003 requires mandatory labelling of products made from GM-sources. During our investigations no labelled GM-products were found in retail food stores but there were products carrying labels indicating that the product does not contain GMOs. Some examples (translated) were:

- *genFREI* (labelled in German: of German or Austrian origin);
- GMO-free-tested;
- made from non-GM-soya;
- (BIO) GMO-free;
- soya: non-GM, grown organically;
- 100% vegetarian, non-GM.

Slovenian legislation on labelling, presentation and advertising of foodstuffs is based on EU directive 2000/13/EC which prohibits the use of information that would mislead the consumer. According to the EU directive and the Slovenian National Food Administration, labelling must not suggest that a particular foodstuff possesses special characteristics when in fact all similar foodstuffs possess such characteristics. In first survey period, 10 GM-free -labelled products in 9 shops were found; in the second there were with 13 GM-free items in 17 shops. No GM-labelled-products were found in either survey.

	01.12.2006 - 30.03.2007			01.04.2007 - 31.03.2008		
Retailer	Mercator	Tuš	Hardi	Mercator	Tuš	Lidl
No of visits	3	3	3	8	5	4

## Public opinion

### *Telephone opinion poll on GMOs in 2002 (1)*

Of the people responding, 65% had heard of them but did not know the exact meaning of “GMO”; 50% said they were “familiar with the term” Those against growing GMOs in Slovenia totalled 69%; 40% had an idea of possible advantages and disadvantages of GMOs expressed as:

- advantages: enhanced yield, scientific progress, pest resistance;
- disadvantages: illness, release into the environment of GMOs in trial plantings, interference with the balance of nature, manipulation of farmers, consumers by corporations, etc.

The majority (73%) said they would never buy food containing GMOs, while 43% very clearly thought that the government should intervene to forbid their use. Even people who said they would buy the GM food are actually against their cultivation. Nearly half (48%) wanted more information about GMO.

### *Attitudes of Slovenian inhabitants towards consuming GM-food; Institute of Public Health, Republic of Slovenia (2004)*

A 2004 a telephone survey made by Institute of Public Health (2) included 978 respondents. Again, the main findings revealed a negative attitude towards GM-foods, a finding similar to that reported in 2002 in *Europeans and Biotechnology* (3).

The majority of Slovenians described GM-food as risky, useless and morally unacceptable; most think it is unsafe and a majority of people said they would never buy GM-food. However, most of the respondents *would* buy GM-products if they contained less pesticide residues than non-GM-food.

In summary, the results show that younger people (under about age 30) have a more optimistic view of GMOs than others but people with higher education disapprove more often than those without.

### *75% of Slovenians would never buy GM food; Consumer's Association (2007)*

In December 2007, the Slovenian Consumer's Association reported that 75% of Slovenians would never buy GM-food (4). In that study, 1,097 respondents (62% women and 38% men, mostly 15-30 years old and having completed secondary school) from the whole of Slovenia were included. The questions were first checked out in focus groups and then used in the questionnaire which included 35 specific questions.

Any mention of GMOs prompted 80% of Slovenians to think of maize, soya and tomato. Half of the respondents (49%) thought the advantages of GMOs were low prices and less pesticide

residues. Nevertheless, 43% said they worried about the influence of GMOs in nature, with 51% believing they would have a long-term influence on human health. Most (85%) Slovenians worry that there has been no long-term research on GMOs. When asked, 80% would never buy meat if they knew that animals had been provided with GM-feed. Nevertheless, according to Ministry of Agriculture, Forestry and Food, about 80 % of all feed in Slovenia contains GM-ingredients from soya. Almost 60% respondents believe that Slovenian food is safer than imported. The majority (75%) of those interviewed would never buy GM-food and 85% said they did not have enough information.

### ***Public views on GM-food***

Fieldwork was carried out between December 2006 and March 2007.

We set out qualitatively to analyse respondents' reactions to GMOs based on 14 focus groups (each with six participants) segregated by age and education level (four groups of primary school students, three of secondary school students, three of university undergraduates, three groups of students in residential boarding schools; one pilot focus group was used to pre-test the questions). The final format was based on experience with the pilot focus group.

The results showed that everyone in the survey expressed both positive and negative views about GMOs. The first thoughts to emerge amongst elementary school students were: mutations, changing food, food from cans, artificial food, capsules and food that cannot rot. Meanwhile, high school students connected GMO with genes, mutations, improvement of something, Russian apples, butterflies, Hiroshima, Chernobyl, tomatoes, carrots, G. Mendel, etc. Most of them had never heard about GMOs. Students in residential boarding schools believe that GM-food is: artificial, Chernobyl, something that is unhealthy, bigger apples, chemicals, etc.

College students were quite certain that the main problem with GMOs is their impact on human health. Despite that view, they would buy these products anyway if they were cheaper while the younger pupils said they would never buy them. Students in residential boarding schools were divided on their willingness to buy; those with a more radical view against products that contain GMO versus those who are prepared to buy GM-food

Younger students had a more radical view than college and high school students. High school and college students thought that the production of GM-food should be forbidden immediately unless it would be cheaper. Nevertheless, they realised that could lead to irremediable consequences for trade. All groups thought that the only trustworthy sources of information are professors and scientists, and that they never trust the media. They share divided thoughts about accessibility of GM-products in Slovenian stores.

We conclude that students with higher education are better informed and are more positively inclined towards GMOs than those with lower education attainments (5).

### **Media analysis**

The Slovenian media is generally negative toward GMOs, with no obvious change of views from 2006 to 2007.

The most influential among eight daily national and regional newspapers, and one weekly review out of 28, were logged for items of GMO interest; the titles were chosen because of their circulation and the number of hits on their website home pages. The national daily was *Delo*, the regional *Večer* and the weekly *Jana*.

***Historical time line***

<i>Year</i>	<i>Delo</i>	<i>Večer</i>	<i>Jana</i>
2003	22	14	2
<i>High spot in mid-year: EU legislation allowing distribution of GMOs in the EU</i>			
2004	21	27	1
<i>High spots in March/April: presence of GMOs in Croatian chicken sausage</i>			
2005	19	10	0
2006	17	18	1
<i>High spots: national regulations; GM rice in imports in three Member States</i>			
2007	24	15	2
<i>High spots in May, June and September: one of the pressure groups started a campaign "Without GMOs"; draft law on coexistence twice rejected</i>			

These data are summarised in Appendix 1, Fig. 1 (page 13-12).

***Media analysis (01.01.2003 - 31.6.2007; i.e. before the present project started)***

The subject matter in the 133 articles published in that period in *Delo* (74), *Večer* (56) and *Jana* (3) were categorised under ten headings:

1. consumers;
2. farmers;
3. retailers;
4. biotechnology and seed trade;
5. food industry;
6. health;
7. environment;
8. politics;
9. ethics;
10. social.

The most frequent theme was political (58% of all items in, 45% in *Večer* and 76% in *Jana*), particularly:

- setting up the legislation on the national and European levels;
- work of the EU Commission and the problems with which they are dealing;
- political strategies;
- the response of the main producers of GMOs;
- prohibition of imports;
- others.

The food industry was less commonly discussed (4%, 14% and 0%, respectively, for the three titles); ecological topics comprised 3%, 5% and 33%, respectively. Articles on health, ethics, farmer opinion, consumer views and GM-technology itself were less frequent..

There was little information about the possible impacts of GMOs on people, the environment and animals; the newspapers selected were very weak as far as science was concerned so the average Slovenian reader may not be well-informed if reliant on the media for information.

***Media analysis 01. 07. 2006 - 31. 12. 2007 (i.e. during the present project)***

During the course of the project, 60 articles were published: 29, 28 and 3, respectively, for *Delo*, *Večer* and *Jana*. The overwhelming majority (69%, 46% and 100%, respectively) were critical of GM-technology; only *Večer* published five positive articles. Most of the items were on political themes, and on health and environmental issues in relation of setting up the new regulations.

Concerns about risks were high, being mentioned in 41% of items in *Delo* and 39% in *Večer*; in the latter, 14% of the articles were balanced between risks and benefits. In *Jana* all the articles dwelt on risks.

A more detailed analysis of media articles from 01.01.2003 – 31.12.2007 are presented in Appendix 1, Figs. 3-5 (pages 13-14 and 13-15).

When purchasing food products Slovenian consumers favoured:

- “natural” foods (equated with organic production, grown without use of “non-organic” pesticides);
- food of Slovenian origin;
- avoiding food containing additives.

Older participants appeared more concerned with their health and were more aware of the meaning of healthy and quality nutrition. Most of the participants of the group conversations approved of “natural food” produced without the use of crop sprays, added hormones or other growth accelerators. Those least concerned with this issue were the participants from the group FG4.

People placed the greatest trust in food grown and processed in Slovenia. Slovene products are believed to be healthier, of better quality and, in addition, they ought to contain fewer additives. This was especially true for that small proportion of the participants who were more highly educated, took better care of their health and generally avoided highly processed foods.

### **Focus groups on GMOs**

Four focus groups were organised with participants who themselves buy food for their own or the families' consumption, or directly influence food purchase. The groups were homogeneous with regard to age (20-30 years or 30-60 years) and education (high school or college degree). Participants of both genders were recruited using our own social networks in combination with a technique called "rolling snow balls", a standard method in social science in which a person is identified is recruited who suggests another...and so on.

We were interested in the criteria consumers use when in buying food, how much attention they dedicate towards labelling, what they know and what their opinions are about GM-foods; all have an influence determining the consumer's preparedness to buy GM-food. The focus group discussions helped us to understand this consumer-GM-food relationship and to elucidate reasons for the willingness (or lack of it) to buy GM-food.

Consumers in Slovenia are aware of GM-foods are coming onto the European market; their willingness to consume them became clear during the discussions.

Most people said that they were not well enough informed and would like to know more although a few individuals were familiar with the subject, and did understand the basic principals of gene technology and the main characteristics of the GM-foods. It was mainly the better educated participants, and those who professionally or otherwise involved with food and nutrition, who mentioned useful aspects of GM-plants. The more poorly educated participants very often confused gene technology with plant breeding and GM-foods with intensive farming. There was clearly a low level of information and knowledge about GM-food among the respondents.

The less well educated gained most of their information from tabloid newspapers, the Discovery Channel and the internet. They did little to keep themselves informed, often feeling that "genetically modified foods were remote from them" and partly because of a lack of trust in the media accounts; they were bothered by the vagueness of the reports coupled with a lack of information on the long-term consequences of such food on their health and on the environment. They considered the reporting of this topic as mainly negative, most probably because of the public's susceptibility to negative information.

The participants also had doubts about the objectivity and impartiality of the scientific community because of the way research is funded. The scientific experts were reproached for not coming to any agreement on their attitudes towards GM-foods. The less well educated felt that coverage of GM-foods was often too technical to be understood by the general public. Most people would place the greatest trust in consumer groups such as the Consumers' Association of Slovenia.

The vast majority were not familiar with European legislation on obligatory labelling of GM-

foods. Some were of the opinion that such food has not yet appeared in the Slovenian market while the others have guessed that such food is indeed present as ingredients in individual products. The less educated participants were convinced that a large proportion of vegetables, meat and fruit in Slovenia are already GM. However, some people in that category, as a result of curiosity and a desire to try new kinds of food, sincerely doubted whether GM-foods are really as bad for health as others tended to believe and as it is presented in the media.

Labels saying that a “product does not contain GM ingredients” (“GMO-free”) are generally not held in high regard, the majority believing them to be primarily a marketing ploy.

There was a widely-held opinion that those benefitting most from GM-foods will be the producers and suppliers, or large multinationals; there will be little direct benefit for the consumers. Some participants expressed doubts about the control procedures in place.

Strong psychological opposition to GM-food could be sensed among many of the participants who described it as “artificial” and not “real food”, believing it to mean interfering in the laws of nature. Besides such psychological resistance, the main reason for rejecting GM-foods among the participants was uncertainty about the long-term consequences of such food for their health, for the environment – for the future generations. There was also conservatism and the neophobia among a majority of buyers. Taken together, all those considerations raise doubt, mistrust and fear of GM-foods in the minds of the consumers.

A detailed analysis of the focus groups is set out in Appendix 2, page 13-15.

## **Conclusions**

1. Slovenia has fully implemented EU GMO regulations.
2. Slovenia has and continues to adopt a cautious approach. The major debates started when Slovenia implemented the EU umbrella act on the use of GMOs. Three major points for discussion were: strict control of GMOs, adhering to the precautionary principle and better cooperation between the government and the wider public.
3. The quoted opinion polls (1, 2, 4, 5) show that Slovenians have obviously negative attitudes towards GMOs. The overwhelming majority of respondents would buy GM-products if they were cheaper than conventional food. We therefore conclude that price is a crucial factor in the accepting GMOs.
4. Media analysis showed the predominant theme with respect to GMOs to be political, with no information about the nature of GMOs and their coexistence with conventional crops. Scientific findings were noted but a paucity of information can mislead the public.
5. Staff in the retail food stores wanted more information about GM-products from their managements. The results of our questionnaire to retailers show a continuing negative attitude toward GM-products.
6. Consumers in Slovenia are aware of GM-foods coming onto the European market. Most people felt they were not well enough informed and would like more definite information and knowledge, with a fair proportion concerned about intruding into natural laws. But the main reason for rejecting GM-food at present is a lack of knowledge and understanding of the long-term consequences on health, the environment and future

generations which creates doubt, mistrust and fear. If they could be confident about the health aspect, many people would be prepared to try GM-foods even with their existing ethical or moral reservations.

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APPENDIX 1: MEDIA ANALYSIS

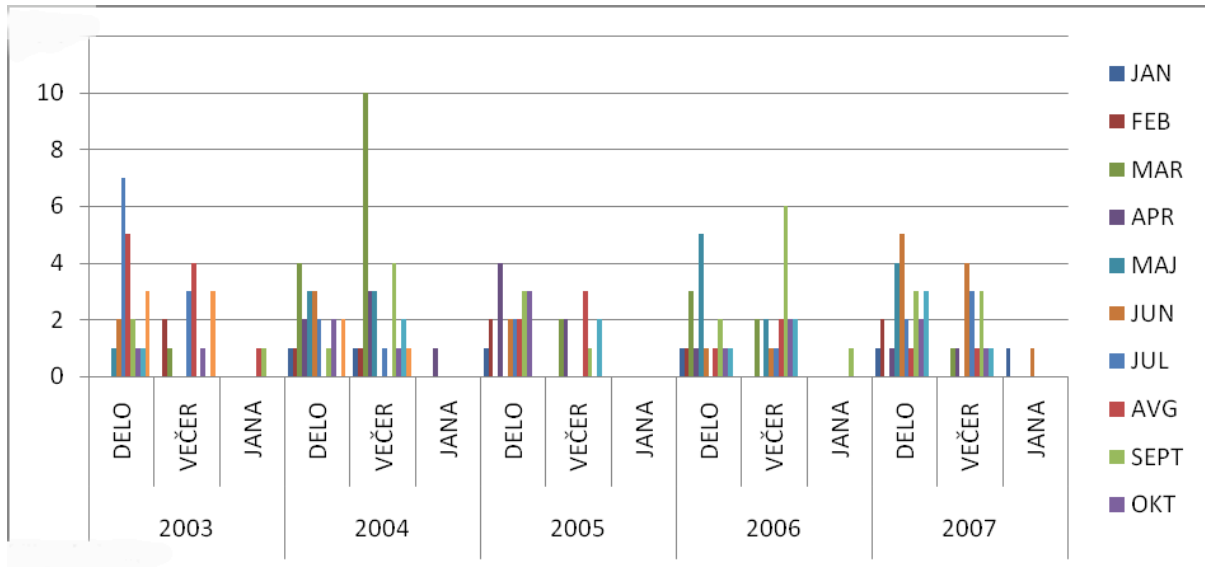


Fig 1: Frequency of published articles by month and title (01.01.2003 - 31.12.2007)

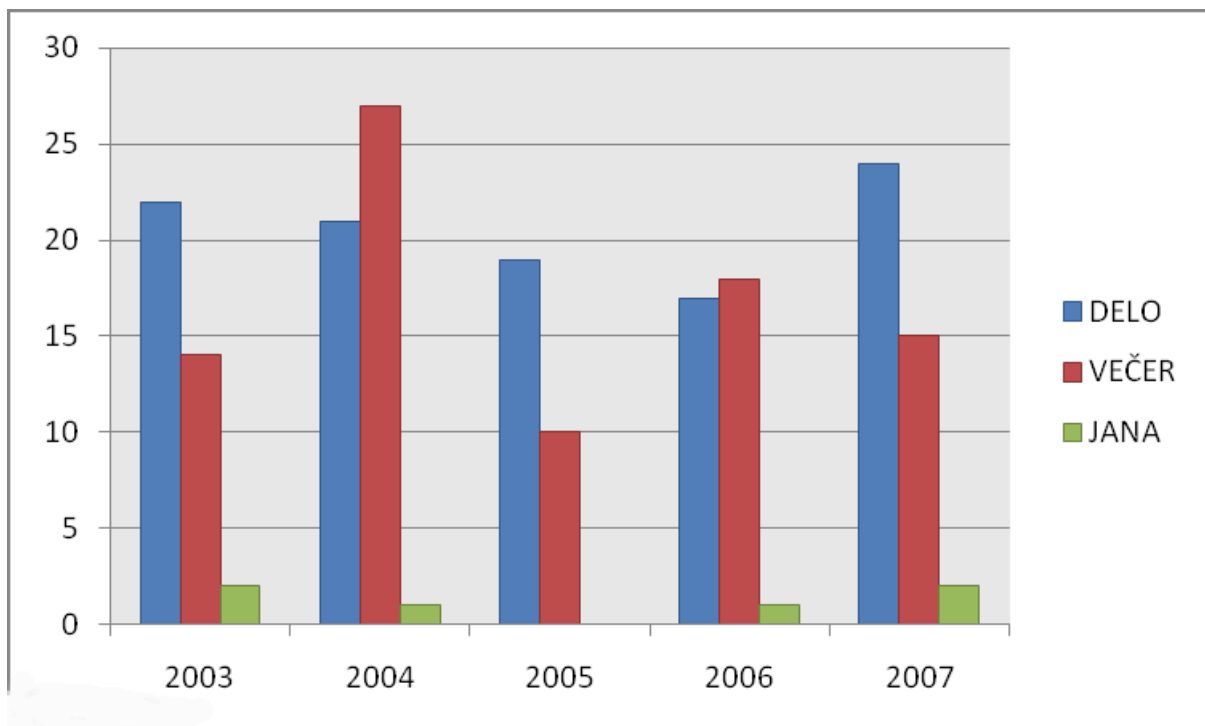
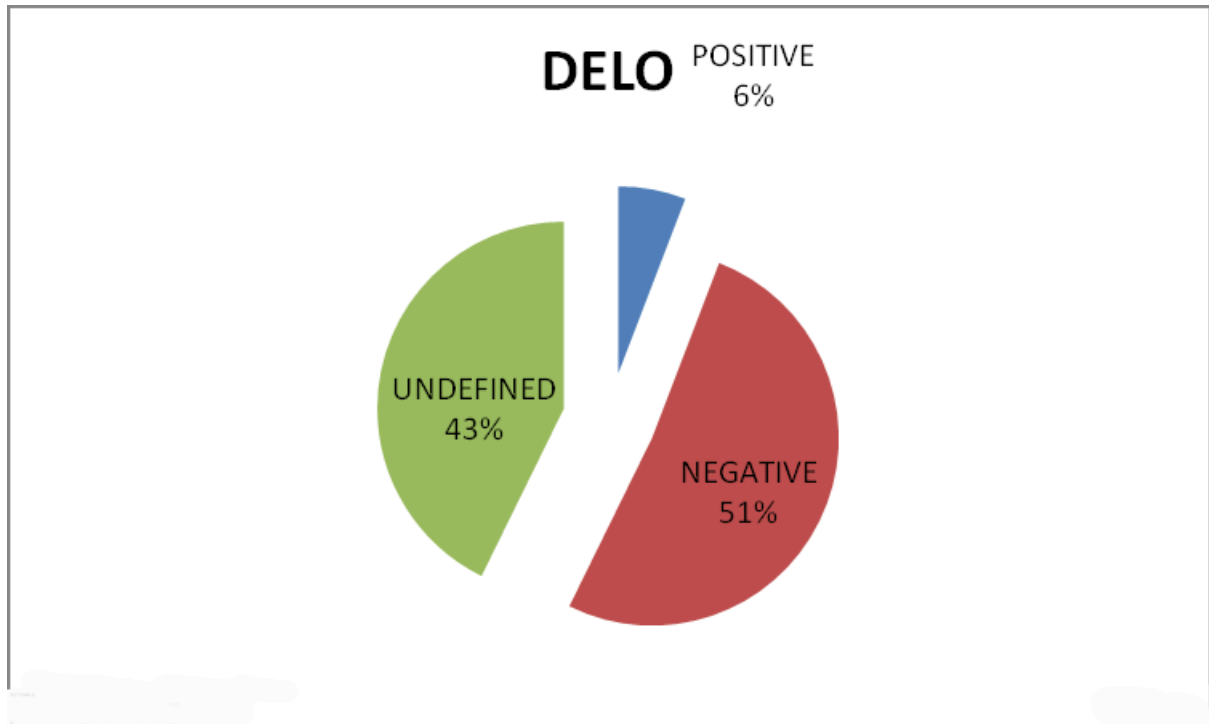


Fig 2: Frequency of publication by title (01.01.2003 - 31.12.2007)

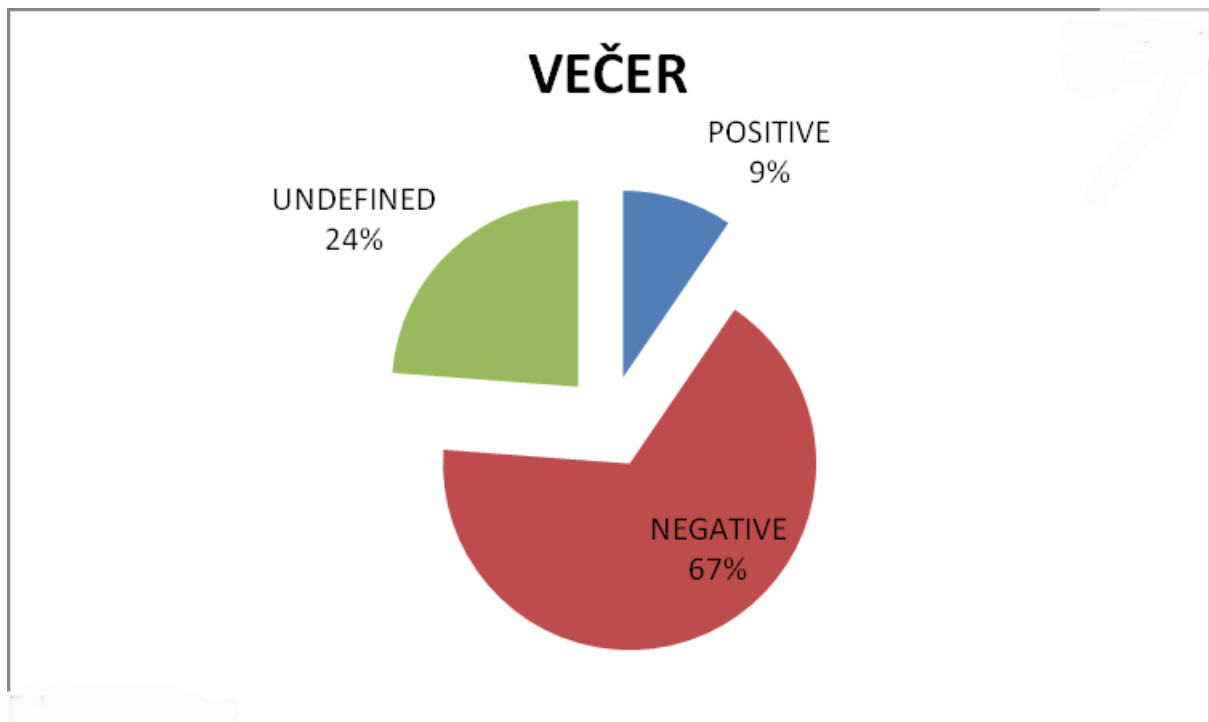
*Distribution by viewpoint*

A total of 153 articles were published in *Delo* distributed as shown in Fig. 3:



**Fig 3: Proportions of positive, negative and undefined articles in *Delo***

*Večer* published 83 articles, 75% of them negative towards GMOs (Fig. 4):



**Fig 4: Proportions of positive, negative and undefined articles in *Večer*.**

Only six articles appeared in *Jana*, five of them negative (Fig. 5):

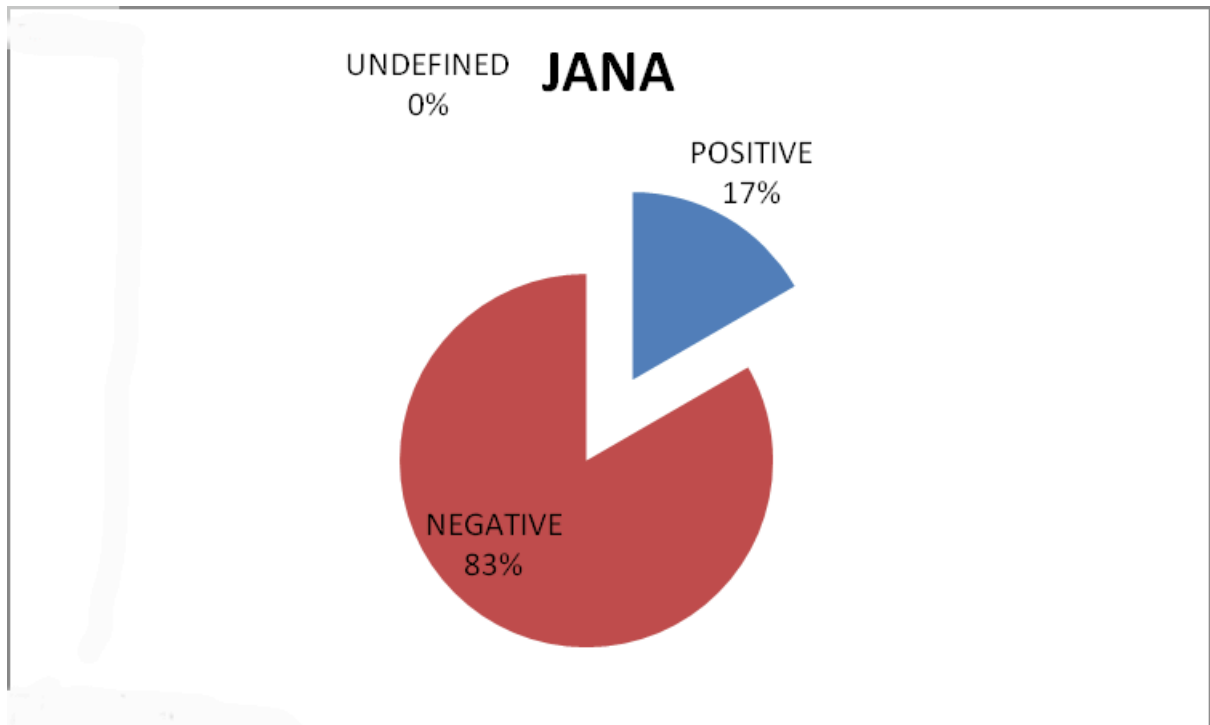


Fig 5: **Proportions** of positive and negative articles in *Jana*.

## APPENDIX 2: FOCUS GROUPS

### Horizontal content analysis

A primary outcome of the focus group discussions was that older participants look after their health more assiduously and are more aware of the meaning of healthy and quality nutrition. The nutrition of some participants aged 30-60 was influenced by existing and recurring health problems. The younger group (20-30 years old) devoted more attention to the quality of life: those with a university degree adopted a precautionary approach while people with just a high school education were more interested in their immediate wants and needs.

Three principal themes which recurred repeatedly in all the focus groups were pre-eminent in influencing opinion:

*“Natural”/“ecological”/“organic” food grown without non-organic pesticides*

Many among the older participants (30-60 years old) with both levels of education (FG3 and FG1) grow their own food or buy it from local suppliers. Together with certified organic products, they trusted this food most because of their perceived harm of pesticide residues. Group FG4 (high school education, 20-30 years old) were the least concerned.

***Be:** “I buy vegetables when I'm out of it and all what's needed at home. I buy bread and eggs at the neighbours'. I buy what my family likes.” (FG1<sub>1</sub>)*

### *Food of Slovenian origin*

Many participants considered the country of origin to be an important criterion. Food grown and processed in Slovenia had an important advantage as people trusted it more, believing also that, in comparison with foreign products, Slovenian products are healthier, of better quality and contain fewer additives. Thus there are many people who support the Slovene food industry. However, a number of the participants in group FG1 group expressed doubts about the genuineness the Slovenian origin of some of the products.

***Ba:** “I favour home producers. I always buy meat at Jata because I trust them. We often produce our own vegetables. I purchase milk and dairy products in Ljubljanske mlekarne because my family likes them the most.” (FG1<sub>2</sub>);*

***M:** “I trust Slovenian producers if they are available. If it's written that the juice is from Hungary or Romania, I would rather pay a half a euro more and buy Fructal.” (FG4<sub>6</sub>)*

### *Avoiding food with additives*

Some participants said they tended to develop different allergies to certain additives in food. Most of them, however, avoided food products with a high level of additives as a matter of principle. Participants, especially among the less educated, had a great deal of trouble understanding the meaning of individual labels for additives (E). For the most part, they were perceived as harmful artificial substances. The few better educated participants, concerned about their health, avoided processed foods in line with the nutritional advice they tend to follow.

*U: "I always pay more attention to healthy food. I mostly avoid canned food, food with additives and of course price is also important – my costs regarding food are maybe slightly above average..." (FG2<sub>2</sub>);*

*Li: "Yes, I try to reduce the E-s...To tell the truth I don't have a lot of information about E-s, I don't know what which E means." (FG4<sub>2</sub>).*

The younger consumers were influenced by the product's taste and appearance, while for some the attractiveness of packaging, advertisements in the media and, to a lesser extent, the recommendations of friends, relatives and acquaintances, were all important. Many mentioned the importance of the price of food.

*Mi: "I often buy products with attractive packaging especially when it comes to new products. "Uh, what is this? I didn't see it yet!" and then I go and look it up." (FG1<sub>7</sub>)...;*

*L: "First thing is price I think, second...you always notice colour, a kind of quality, especially with food. What can be seen." (FG4<sub>3</sub>).*

### **Lack of information and understanding GMOs, GM-food and gene manipulation**

Few people were familiar with and understood the basic principles of genetic modification and the characteristics of GM-foods compared with conventional products. Some who did know commented on the useful properties of GM-crops: higher resistance to pests and pesticides, accelerated growth and high-yielding crops which should lead to the reduced use of pesticides, environmentally friendly food production and a fall of the production costs; improved nutritional content was also brought up. But those who knew less often equated gene technology with plant breeding in general and confused GM technology with intensive farming.

*S: "I instantly remember that there is something complicated about it. Something that we all don't know enough about..." (FG3<sub>14</sub>);*

*L: "Yes, cheaper, they are actually cheaper. Of course. At first you can genetically modify so that insects don't attack it, you can make its taste bad, so you have more product, you don't have expense with fertilization, spraying, the product is more resistant, and it is cheaper..." (FG4<sub>16</sub>);*

*L: "...It can contain more vitamins, more minerals. Taste, that is another matter, it can be better or worse..." (FG4<sub>17</sub>).*

While some participants derived most of their information from tabloid newspapers,

television and the internet, they felt themselves to be poorly informed and that the internet was not available for everybody, especially poorly educated people. They said they would like to be better informed. But the whole topic was often remote and people often did little to inform themselves.

*L: "Yes you read about this topic, when you read the whole newspaper, not that I would pay special attention to it, because I don't find it so problematic right now. ... and yes internet too. I get mostly informed when some affairs come out, like that soy or Poli salami... then you pay more attention, what they are discussing about, what's harmful and stuff. So you can say that I'm indirectly informed, but I don't do direct researches, no, not that!" (FG3<sub>8</sub>);*

*Va: "Yes I think it should clearly be said what it's harmful and in what way"*

Most panel participants were not familiar with the regulation of gene technology: thus, they argued for labelling when such foods enter the Slovenian market. Some thought there was none at present; others guessed they are a component in specific products. The less well educated participants were convinced that a large proportion of vegetables (especially soybean, corn and tomato), meat and fruit in Slovenia were already genetically modified. And indeed, all of them agreed GM-foods are indeed widespread in all other parts of the world, especially in the USA.

*L: "... ..and I also heard that more than 35% of soy world production is GM. It means that theoretically there is no chance of eating normal soy in Slovenia. And soy is included everywhere, in poli salami, industrial biscuits and so on. You are eating GM food and you don't even know it... " (FG3<sub>26</sub>);*

*P: ...Tomato definitely... ;*

*Li: ...and but lettuce..." (FG4<sub>30</sub>).*

## **Mistrust**

### *Credibility of information in the media*

Respondents were critical of the vagueness of media reports and the lack of information on the long-term consequences of GM-food on their health and on the environment. They regarded reporting as being mainly negative, most probably because of the public's susceptibility to negative information. That led to doubts about the credibility of media coverage as well as the expertise of the journalists; they agreed that the negative media reporting has had a subtle psychological influence on the readers. They made reference to the financing of the journalistic coverage;

*F: "People are frightened by something new, and everything that is written about this new topic, usually has a negative surrounding so that people would enjoy reading it more." (FG2<sub>3</sub>);*

*Vi: "Yes, absolutely there need to be professional references behind all of this, you cannot blindly trust journalists and the internet, you need to have a sieve to out all of this information through and see if they are true." (FG1<sub>18</sub>);*

*L: "I see a problem with this information. It's a problem because nowadays*

*everyone can write for the media and there is also no control over what's written. There's a lot of publishing but few things are verified, there are a lot of mistakes. You can't be sure what's true or false. Expert's stuff... that's another problem, regarding to sponsored researches, so you can doubt it.” (FG3<sub>9</sub>)*

Some participants who did not know very much about the topic, expressed considerable curiosity and wanted to try new kinds of food, sceptical about whether GM-foods are truly as bad for their health as their co-participants tended to believe – and as presented in the media.

*L: “What is more harmful? The altered gene or pesticides that are absorbed into fruits? That is a real question. Because you cannot know if the normal food is healthier than GM-food. “ (FS4<sub>25</sub>).*

#### *Objectivity and impartiality of the scientific research in general and on GM-foods in particular*

From the quotation (FG3) above, it is evident that some participants question the objectivity and the impartiality of the scientific “community”, mostly because of the way research is funded. Scientists were reproached for not being able to agree on their attitude towards GM-foods.

People wanted absolute assurances that such food is safe. The less well educated called attention to the excessively technical media coverage, too complex to be understood by the general public. Their trust would be mostly in the consumer groups (e.g. Consumers' Association of Slovenia); they felt that the public health institutions had a duty to inform the public.

*F: “Usually the consignee is the one who gets profit and can direct the results from the research. And if the food industry which wants to sell GM-food orders a research including high respected scientists which will discover that GM-food is all great and fine, you really can't trust these results...” (FS2<sub>9</sub>);*

*Mi: “...many of the articles are written on such high expertise level that most of us are not educated enough to understand it. It should be written more commonly for a wider circle of people.” (FG1<sub>21</sub>).*

#### **Benefits exclusively to the producers and the potential manipulation of consumers**

There was a general view that those who benefit from GM-foods will mainly be the producers, retailers and large multinationals, while the consumers themselves will not be able to enjoy the full benefits. Some people expressed doubts about regulation and commented on the various devices merchants have used to boost the profit from selling the GM-products.

*S: “I have a good opinion about GM food because it brings improvement, but I also have negative doubts regarding to the relationship between the multinational corporations and us, the consumers... and the third world countries... The multinational corporations sold them one genetically modified wheat, that's what I read... and then next year the farmers try to grow it again but it didn't even want to sprout. It's all one big plan how we will become*

*addicted to these big multinational corporations. If you see it right... Winegrower already depends on spraying system.” (FG1<sub>26</sub>);*

*F: “When it will come to that, that GM food can be sold only if it’s labelled properly, manufacturers will use their tricks on us, like putting the price tag over the GM food sign or they will place the GM food sign on the bottom of the product.” (FS2<sub>12</sub>).*

A GM-free label was not well regarded except by individuals who buy organic food. Some accept that such a label is a guarantee that food truly does not contain GM-ingredients but the majority believed it to be primarily a marketing ploy. This led to doubts about the “purity” of all other foods which do not carry a GM-label.

*A: “I think it's the same joke like with the sunflower oil, which doesn't contain cholesterol. This kind of products people like nowadays, so that's what sells. I think it is all just a marketing trick.” (FS2<sub>15</sub>);*

*L: “...But in general if you go looking, you will find that 5 out of 100 products only have this label. What about the rest of them?”... (FS3<sub>25</sub>).*

### **Regardless of age and education, participants showed a strong psychological opposition to GM-foods and fear of long-term effects on human health and on the environment**

This opposition could be sensed among many of the participants who described GM-food as an “artificial” and “not real food”. They believe gene technology means interfering with nature. In contrast to the unfavourable views of GM-foods, there were approving attitudes towards organic products. The reasons lay partly in conservatism and neophobia on the part of most people, in their poor understanding of genes and gene technology, in the mistrust of media reporting and doubts about the objectivity of scientists who work in the field.

*F: “I get creeps when I think about that food, that there is something between animal and fruit. In plain food you know that plant is still a plant although it was sprayed with a purpose for a better look and better growth.” (FG2<sub>5</sub>);*

*S: “For instance gene engineering on food from plant material. If you grow this modified plant in a certain area it's going to definitely have some effects on other plants, nature and on the ecosystem. And we know what ecosystem is. It's some sort of a cycle of activities in nature and now we try to force something in it.” (FG3<sub>13</sub>).*

The long-term consequences kept on cropping up:

*R: “It's likely that this stuff enhance human growth if it stimulates plant growth. If we look at the generations and how big we were when we were in elementary school and how big children now are. Yes, we can see the difference...;*

*..F: “Yes very big children indeed...”;*

*..R: “It's like those turkeys, right, they grow very fast...;*

*..F: “Yes, we can't deny it. Food actually has an influence.” (FG2<sub>10</sub>);*

**S:** *“I also see the consequences on the environment, not only on the human health...for instance, if you want to have even more noble rots, they can do that with genetically modification and if such micro organism escapes ..(FG3<sub>18</sub>);*

**L:** *“The point is, what does it do to your genes. This is the catch...Because if it turns out to be wrong we could all get cancer.” (FG4<sub>20</sub>).*