

Chapter 6

SHOPPER BARCODE SURVEY, OPINION POLLS AND QUESTIONNAIRES; METHODS AND FINDINGS

Susanne Sleenhoff
Patricia Osseweijer
Sarah Condry
George Gaskell

The consortium explored consumer choice and motivations with respect to buying GM-foods in three ways:

- conducting a survey amongst GfK's consumer panel in eight out of the ten countries participating in the CONSUMERCHOICE project;
- polling UK and Polish citizens visiting or resident in the United States and Canada;
- interviewing German consumers in a local food store.

Poll of UK residents visiting North America

An online poll of UK residents who have visited North America in the past five years was conducted by questioning university staff and students whether they knew about the presence of unlabelled GM-ingredients in many foods on sale there, particularly processed foods, together with asking for the purchase behaviour of the respondents. Details are presented in Chapter 16, pages 16-14 and 16-32.

Poll of Polish origin living in or visiting the United States

An online poll was conducted among Polish residents who have visited or are living in North America. They were asked whether they were aware of the presence of unlabelled GM-ingredients in many foods particularly in processed foods on sale there and for their purchasing behaviour towards GM-products. Details are presented in Chapter 12, pages 12-2 and 12-12.

Motivation of German buyers for purchasing non-GM labelled products

In cooperation with a regional retailer, 317 purchasers of non-GM-labelled dairy products were interviewed in Germany. The respondents were approached in person immediately after they had selected the specific products. Their reasons for choosing the non-GM-product(s) were explored by way of five questions: motivation for this purchase possible preference for non-GM-labelled products and information status/background knowledge of GM-ingredients. Details are presented in Chapter 9, page 7.

GfK consumer panel poll

The GfK Group (GfK = Growth for Knowledge; <http://www.gfk.com>) is one of the worlds' largest market research companies, delivering information on markets and sectors to clients in the industry retail media and service sectors in more than 100 countries.

Consumer panel

In many European countries GfK has a consumer panel that keeps track of all their purchases of “fast-moving consumer goods” (FMCG), those used on a daily basis such as groceries, body care and cleaning products. The registered members of these consumer panels are asked to collect and register all their purchases by scanning or registering the barcodes of the products they bought and occasionally to fill in a questionnaire. (Special codes were nominated for purchases made without a barcode, for instance items from market stalls). Together with the consumers’ personal profiles, all the purchases are collected in a database. The members of the panels are usually those in charge of the household and therefore responsible for the weekly shopping.

For CONSUMERCHOICE it was possible to use this GfK service in eight of the ten countries involved; GfK does not offer the consumer panel in Estonia and Slovenia (Table 1).

Collection of barcodes

In all but one country participating in the GfK survey it was possible to collect barcodes for GM- or GM-free-labelled products on sale. Barcodes for the relevant products were collected by the CONSUMERCHOICE consortium and then used by GfK for identifying purchasers (buyers) of the specific items.

The collected barcodes were checked with the GfK database to see how many panel members had bought those products at least once in a one year period: this is the designated “market penetration”.

In the CONSUMERCHOICE project, countries were designated as selling foods labelled as GM, or GM-free. The Czech Republic, the Netherlands, Poland, Spain and the UK all have at least some foods on sale labelled as containing GM-ingredients (see Chapters 7-16 for details). For the UK, however, none of the GM-labelled products was found in the GfK database so it was not possible to select buyers of these products. Germany and Sweden offer GM-free-labelled foods. Greece is the only country that sells neither GM- nor GM-free-labelled products. However, it was possible to put the standard questions to the Greek panel; based on their opinions and behavioural intentions, they were asked to complete the GM-free questionnaire (Tables 1 and 2).

Table 1. Overview of the differences per country with regard to labelling, barcode panel sizes, number of GM- food buyers and the market penetrations for the labelled products

country	type of labelling	no. of barcodes	total size of barcode panel	total number of buyers	market penetration (%)
Czech Republic	GM	8	2000	273	13.7
The Netherlands	GM	18	6000	653	10.9
Poland	GM	1	5000	133	2.7
Spain	GM	7	8000	161	2
United Kingdom	GM	27	20000	0	0
Germany	GM-free	29	20000	873	4.4
Sweden	GM-free	22	3000	62	2.1
Greece	-	0		0	0

Table 2. Overview of the differences per country with regard to the questionnaire used, sample of buyers and non-buyers, and responses

country	type of questionnaire used	number of buyers	number of buyers responding	% response	number of non-buyers	% response
Czech Republic	GM	273	219	80	483	77
The Netherlands	GM	434	329	76	662	66
Poland	GM	133	83	62	501	59
Spain	GM	161	150	93	413	69
United Kingdom	GM	0	0	-	548	79
Germany	GM-free	873	605	69	491	82
Sweden	GM-free	62	37	60	502	48
Greece	GM-free	0	0	-	500	30

Respondents were classified as follows:

- GM buyers: purchased at least one item identified by the CONSUMERCHOICE consortium as a GM-labelled product during a defined one year period;
- GM-free buyers: purchased at one item identified by the CONSUMERCHOICE consortium as a labelled GM-free product during a defined one year period;
- non-buyers: purchased no items labelled as “containing GM-ingredients” or labelled as “free from GM-ingredients” during the survey period.

The GM buyers and GM-free buyers were groups selected from the panel based on the products they bought. The non-buyers were a random group of circa 500 people selected from the total consumer panel in each country, excluding the GM-free-buyers.

Research questions

The primary focus of the project was to answer the question “Do Europeans buy GM-foods?” EU regulations (EC) 1829/2003 and 1830/2003 require all products containing more than 0.9% GM-content to be labelled accordingly. These labels were introduced to facilitate consumer choice. With the level of consumer support for GM-food across Europe hitherto believed to be low (1), are European consumers aware that these products are for sale and have to be labelled?

The market penetration of GM-labelled products in the various countries showed that the consumers contributing to the GfK consumer panel did buy GM-labelled products. In addition, we were interested in the levels of understanding of GMOs of all GfK shoppers, the motivations they might have for buying the products and their attitudes towards GM-products in general. Their answers were subsequently compared with their actual behaviour.

Therefore the following research questions can be phrased:

- do consumers recognise GM-foods?;

- do consumers react towards GM-labelled products as they say they would? With labelling in place consumers can make an informed choice about whether or not to buy products containing GM-ingredients and act accordingly;
- what are consumer attitudes towards GM-ingredients in food? Europeans have in the past been perceived to be negative towards GM-foods: do they remain negative or have they changed over the years?;
- is there a significant difference between the responses of consumers who do actually buy GM-labelled products and those who do not?

Method

Two Questionnaires

For questioning the household panel members, two different questionnaires were developed based on the type of labelling predominant in the various countries: one questionnaire was used in countries with GM-labelled products for sale, the other for those with non-GM-labelled products (see Table 1).

The questions used were based on those from other surveys, including the Eurobarometer (1) and the Dutch TNS/NIPO study (2) so that results could be compared. There are three types of questions:

- about knowledge and understanding of GM-labelling of consumer products;
- about attitudes towards GM- or GM-free-labelled products;
- about perceived behaviour towards those products.

See Appendix 1 (page 6-19) for further details and explanations of the questions used in this survey. Questions were translated into the various languages as appropriate; the English language versions are on pages 6-19 and 6-20. For most questions, answers were recorded as “yes”, “no” or “don’t know”. For question 8 in countries with GM-labelling, a five-point approval scale was used together with “don’t know”. And for the last question of both questionnaires a ten-point valuation scale was used; for the later analyses, this valuation scale was recalculated back to a five point scale together with “don’t know”. It is thus possible to find a majority of answers corresponding to a value of less than 50%.

Analyses

Data were analysed by means of the Statistical Package for Social Sciences (SPSS) software, version 16. Chi-square tests were used to compare answers given by buyers and related non-buyers.

Results

Countries using the GM-label (excluding the UK)

The following summary aggregates the findings from all the countries in which GM-labelled foods are sold. Details for the individual countries can be found on the following pages.

For all countries with GM-labelled products on sale, 75% of the respondents claimed to know that GM-products have to be labelled by law. Nearly 60% said they did not know how to distinguish a GM-containing product from a conventional one. Although not everyone read the detailed ingredients list before they bought a particular food item, 54.1% of the respondents said they did do so. There was no significant difference between buyers and non-buyers in the answers to these three questions.

There was a significant difference between buyers and non-buyers with respect to how much they cared whether or not they bought food containing GM-ingredients ($\chi^2=14.433$, $p<0.05$); although for both groups it mattered whether their food contains GM ingredients, it mattered more to non-buyers (50.2%) than to buyers (42.3%). Buyers and non-buyers also differed significantly in how careful they were not to buy GM-labelled products ($\chi^2=9.709$, $p<0.05$); most buyers were not really careful (55.6% average of total), with buyers of GM-labelled food caring even less (59.4%) than non-buyers (54.1%).

Comparison of the respondents' actual behaviour with their *perceived behaviour* revealed no significant difference between buyers and non-buyers. Half the respondents (49.8%) said they did not buy GM-labelled food. Interestingly, 48% of the GM-buyers thought they *did not* buy GM-labelled food. Conversely, almost 23% of non-buyers thought they *did* buy GM-labelled food. A remarkably high number of respondents (30%) claimed not to know.

No difference could be found between buyers and non-buyers as to whether they would buy organic food if it contained GM-ingredients; most respondents (54.2%) said they would not do so. We did, however, find a significant difference between buyers and non-buyers on the question of whether food containing GM-ingredients is safer for health. Most respondents neither agreed nor disagreed (37.5%), but more non-buyers tend to be less positive ($\chi^2=13.919$, $p<0.05$). The majority of respondents (56.8%) said they would not buy food with GM-ingredients even if it offered possible benefits (better taste, lower prices, healthier and environment friendly), with no differences between buyers and non-buyers.

Of all respondents, 75.3% regarded gene technology in food production as undesirable; 5.5% were undecided and 19.2% had no opinion. Again no difference between buyers and non-buyers could be detected.

There are differences in the responses of buyers and non-buyers between individual countries which are identified in the following paragraphs.

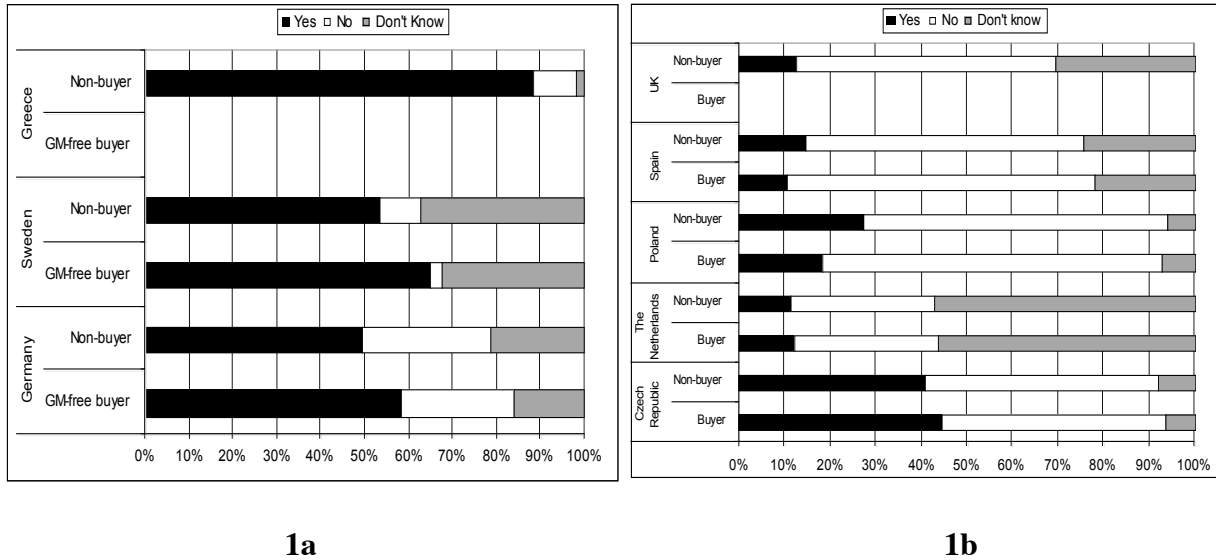


Fig. 1. 1a shows the percentages of respondents in each country willing to buy GM-free labelled products, shown separately for GM-free buyers and non-buyers. **1b** shows the percentages of respondents in each country who say they buy GM-labelled products, again shown separately for GM-buyers and non-buyers.

Countries using the GM-free label (excluding Greece)

In contrast with the results described above for GM-labelled products, there was a significant difference between respondents who bought products with a GM-free label compared with those who did not. More GM-free buyers (76.8%) than non-buyers (52%) ($\chi^2=1.124$, $p<0.05$) claimed to know that products with GM-ingredients had to be labelled by law. Buyers of GM-free labelled products also read the detailed content listings of the food items they bought more often (65%) than did the non-buyers (47.9%) ($\chi^2=54.59$, $p<0.05$). Significantly more non-buyers (67.4%) than GM-free buyers (58.8%) said they did not know how to distinguish products containing GM-ingredients from conventional equivalents ($\chi^2=16.28$, $p<0.05$).

Both GM-free and non-buyers stated that the use of gene technology in food is very undesirable (59.7% for each). However, significantly more GM-free buyers (24%) than non-buyers (21.6%) did not know what to believe about the technology as far as food production is concerned ($\chi^2=7.76$, $p<0.05$). When asked if they favour the presence of GM-ingredients in their food, significantly more GM-free buyers (72.9%) than non-buyers (60.5%) said they were not in favour ($\chi^2=27.44$, $p<0.05$).

Overall, GM-free buyers (59.8%) were more reluctant to buy food that contains GM-ingredients than were non-buyers (49.7%); significantly more non-buyers (36.2%) than GM-free buyers (26.6%) did not know what to do ($\chi^2=18.42$, $p<0.05$).

GM-free buyers (58.6%) preferred to have food carrying the GM-free label. Although most of the non-buyers (51.3%) also welcomed this label, significantly more non-buying respondents said they did not know if they preferred that type of labelling ($\chi^2=32.25$, $p<0.05$). Of the buyers of GM-free labelled products, 24.4% did not particularly want this label and might have bought these products for other reasons.

Despite the fact that most respondents (62.6%) would not buy organic food if it contained

GM-ingredients, significantly more non-buyers (32.2%) than GM-free buyers (21%) were undecided about what they would do ($\chi^2=24.06$, $p<0.05$). With respect to buying GM-food if it had more perceived benefits than other food, 46.2% GM-free buyers and 37.5% non-buyers remained unwilling to buy it. Here again the non-buyers (34.7%) were significantly more undecided than GM-free buyers (24.8%) ($\chi^2=19.88$, $p<0.05$).

If food with GM-ingredients were produced in a more “environmentally-friendly” way, most of the GM-free buyers (49.8%) would still not buy it, while most of the non-buyers (42%) were undecided ($\chi^2=20.99$, $p<0.05$). But almost 20% of both, buyers of GM-free products and non-buyers, indicate that they would buy such foods.

Results from individual countries

Countries with products carrying “contains GM” labels

(i) The Czech Republic

Table 3. Frequency and percentages of buyers and non-buyers, males and females

	frequency	%
n	702	100
buyers	219	31.2
non-buyers	483	68.8
female	624	88.9
male	78	11.1

Table 4. Frequency and percentages as a function of age distribution of the respondents

age brackets	frequency	%
up to 29	45	6.4
30-39	145	20.7
40-49	124	17.7
50-64	218	31.1
65+	170	24.2
total	702	100

Both buyers and non-buyers (95.3%) stated they knew that, according to law, GM-food ingredients have to be labelled. The majority (63.1%) claimed to know how to distinguish GM-products from their conventional counterparts; 68.9% claimed to read the detailed ingredient listings of the products before deciding to buy. There was no significant difference between the answers of the buyers and the non-buyers.

Most Czech respondents said that it mattered whether they were buying food with GM-ingredients, non-buyers (55.9%) being slightly more concerned than buyers (47.9%); the difference was not significant. When shopping, most of the Czechs said they were not particularly careful about not buying GM-labelled foods, with buyers (67.6%) significantly less careful than non-buyers (57.6%) ($\chi^2=6.65$, $p<0.05$). When comparing Czech respondents' actual behaviour with their perceived behaviour, we found no significant difference between buyers and non-buyers of GM-labelled products; 49.3% of the buyers thought they did not buy GM-labelled food but actually they did. Of the non-buyers, 40.8% thought they had bought GM-products when actually they had not (see Fig. 1b).

There was a significant difference between buyers and non-buyers about whether they would buy organic food if it also contained GM-ingredients. Although more than half of the respondents (59.5%) said they would not do so, more GM-food buyers (32.4%) than non-buyers (26.3%) would buy the products ($\chi^2=7.24$, $p<0.05$). The majority of Czech respondents

(33.8%) were undecided whether food with GM-ingredients is safer for health; 35.2% of the respondents were plainly negative and 25.2% positive. Most respondents (57%) stated that other possible benefits of GM-foods were not sufficient reason for buying them.

Overall, the Czech respondents believed that the use of gene technology for food production was bad (39.5%) or very bad (42.9%), with no significant difference between buyers or non-buyers (see Fig. 2).

(ii) The Netherlands

Table 5. Frequency and percentages of buyers and non-buyers, males and females

	frequency	%
n	991	100
buyers	329	33.2
non-buyers	662	66.8
female	849	85.7
male	142	14.3

Table 6. Frequency and percentages as a function of age distribution of the respondents

age brackets	frequency	%
up to 29	74	7.5
30-39	217	21.9
40-49	244	24.6
50-64	314	31.7
65+	142	14.3
total	991	100

There were no significant differences between the answers given by the Dutch buyers and non-buyers. It was noticeable that for some questions there were fairly large percentages of respondents who were unable to provide an answer.

The majority of the Dutch respondents (60.9%) said they knew that GM-containing products have by law to be labelled; only 16% were able to distinguish GM-products from conventional ones. Moreover, 62.7% of the respondents said they did not read the detailed content lists of products before buying them.

For 38%, buying GM-labelled products would be a matter for concern, although 69.7% said they were not careful not to buy them. Most Dutch respondents said they did to know whether or not they actually bought GM-labelled products. Comparing their own perceived and actual behaviours showed that 31.6% of buyers thought they did not buy GM-food while 11.3% of the non-buyers thought they did (see Fig. 1b).

Almost half (47.4%) the Dutch respondents would not buy organic food if it also contained GM-ingredients; only a small percentage (14%) would do so. About a third (34.7%) of the Dutch were uncertain whether they regarded food with GM-ingredients as safer for health; almost the same proportion (30.4%) did not know. Others considered GM to be either bad (9.8%) or very bad (22%) for their health. Most respondents (55.1%) considered other possible benefits of GM offered no justification for their purchase.

Overall, the Dutch respondents believed the use of gene technology to be bad (42.8%) or very bad (25.8%); almost one third did not know (see Fig. 2).

(iii) Poland

Table 7. Frequency and percentages of buyers and non-buyers, males and females

	frequency	%
n	584	100
buyers	83	14.2
non-buyers	501	85.8
female	543	93
male	41	7

Table 8. Frequency and percentages as a function of age distribution of the respondents

age brackets	frequency	%
up to 29	70	12
30-39	83	14.2
40-49	129	22.1
50-64	199	34.1
65+	103	17.6
total	584	100

Overall there were no significant differences between the answers given by the Polish buyers and non-buyers. Almost all (94.2%) Polish respondents said they knew that food containing GM-ingredients had legally to be labelled; 62.8% said they did not know how to distinguish them from conventional products, while 69.2% claimed to read the detailed content listings before buying a product.

Most Polish respondents (74.1%) said that they cared if the food they bought contained GM-ingredients buy; nevertheless 48.6% were not careful to avoid food with GM-ingredients. Most Poles (67.6%) thought they did not buy food with GM-ingredients; 74.7% of the buyers who thought they did not buy GM-food with GM-ingredients did in fact do so. Vice versa, 27.5% of the people who actually do not buy food with GM-ingredients thought that they did (Fig. 1b).

The majority of the Polish respondents (59.4%) would not buy organic food if it also contained GM-ingredients. Many (34.4%) were uncertain whether to regard GM- food as safer for health but their answers tend to be more negative (41.6% total said it was bad or very bad) than positive (16.3% total said it was good or very good). Other potential benefits (improved taste, lower price, healthier or more environmental friendly cultivation) were not considered good reasons for buying food with GM-ingredients and 58.9% of the respondents said they would not do so.

None of the Polish respondents considered the use of gene technology for food to be desirable, most (46.6%) regarding it as very undesirable (see Fig. 2).

(iv) Spain

Table 9. Frequency and percentages of buyers and non-buyers, males and females

	frequency	%
n	563	100
buyers	150	26.6
non-buyers	413	73.4
female	549	97.5
male	14	2.5

Table 10. Frequency and percentages as a function of age distribution of the respondents

age brackets	frequency	%
up to 29	11	2
30-39	115	20.4
40-49	179	31.8
50-64	174	30.9
65+	84	14.9
total	563	100

Overall there were no significant differences in Spain between the answers given by buyers and non-buyers. Most respondents (73.7%) claimed they knew about the legal requirement to label GM-products; even though 79.6% of them did not know how to recognise products with GM, the majority (53.8%) claimed to read the list of ingredients before buying.

The majority of the Spanish respondents (46.4%) did not care if the foods they bought contained GM-ingredients, with 38.7% saying they were very careful not to buy such food. Although the majority (62.5%) of respondents thought they did not buy food with GM ingredients, the data showed that 67.3% of them actually did buy such products. On the other hand, 14.8% of the respondents who did not buy GM-food thought they did (see Fig. 1b).

A majority (53.8%) of Spanish respondents would not buy organic food if it also contained GM-ingredients. Most (50.3%) neither agreed nor disagreed that GM-food is safer for health but more people disagreed than agreed. Other benefits of GM-products were not considered valid reasons for buying it and 57.5% of people said they would not do so.

Most (44%) Spaniards regarded that the use of gene technology in food as very bad; not a single one considered it to be good (Fig. 2).

(v) United Kingdom

Table 11. Frequency and percentages of buyers and non-buyers, males and females

	frequency	%
n	548	100
buyers	0	0
non-buyers	548	100
female	385	70.3
male	163	29.7

Table 12. Frequency and percentages as a function of age distribution of the respondents

age brackets	frequency	%
up to 29	78	14.2
30-39	120	21.9
40-49	112	20.4
50-64	112	20.4
65+	126	23
total	548	100

It was not possible to compare differences between UK buyers and non-buyers of GM-labelled products. Despite the fact that there are GM-products on sale in the UK, they were

not in the “fast-moving consumer goods” and so did not register on the GfK consumer panel survey in that country.

Most (65.3%) UK respondents said they knew about the legal requirement to label GM-food products, with only 27.4% claiming to be able to tell them apart from non-GM foods. A small majority (52.2%) said they read the detailed content listings on the packages before buying.

The majority of the British (48%) cared whether their foods contained GM-ingredients but 44.9% took no measures to avoid them. Only a small percentage (12.6%) thought they bought food with GM-ingredients although in reality they did not; 30.7% did not know (see Fig. 1b).

Of the UK respondents, 47% disagreed (21.5% of them strongly) when asked whether they would buy food with GM-ingredients if it was safer and healthier; 39.8% were undecided. Other perceived benefits would not encourage British panel members to buy GM-foods; the percentages against were for health benefits 62.8%, lower prices 56.2%, better taste 58.8% and environmentally friendly 59.1%. Just as for the respondents in the other countries polled, the majority of the British respondents considered gene technology very bad for food production (Fig. 2).

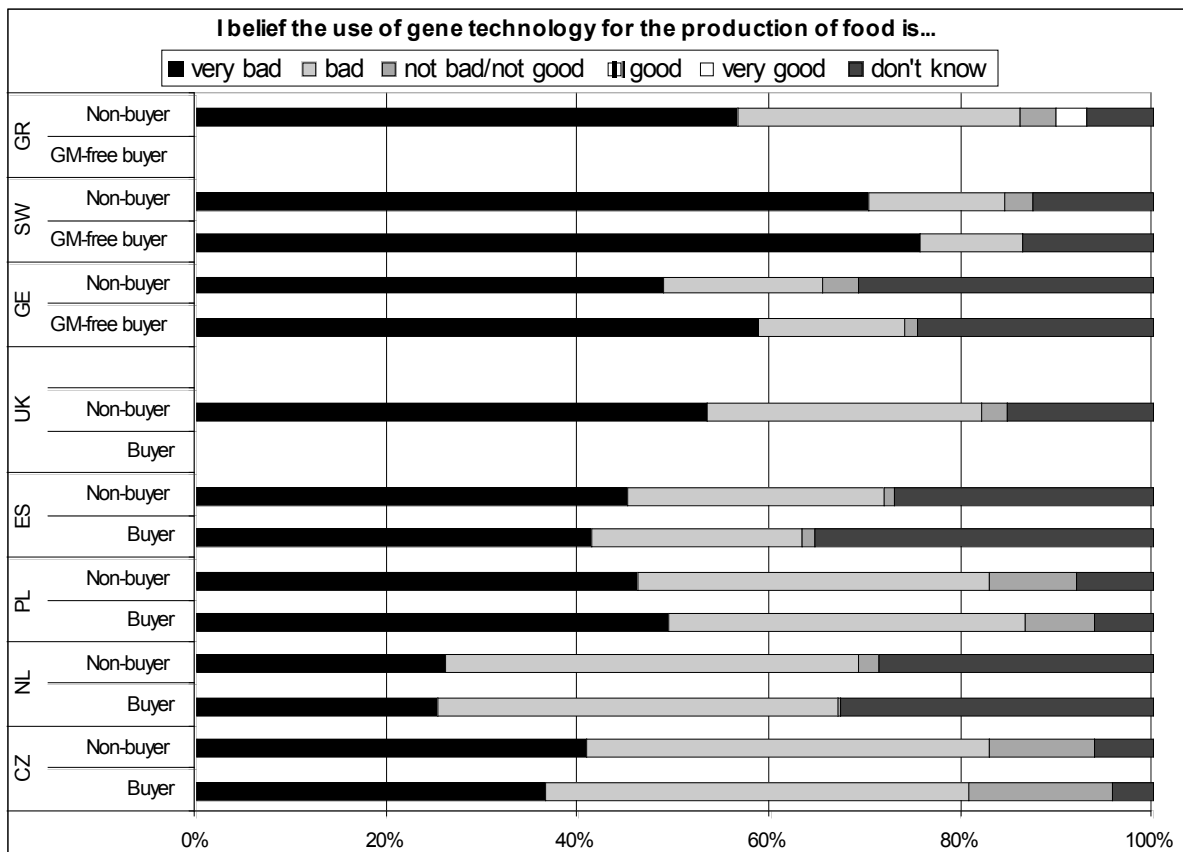


Fig. 2. the percentages for the answers given to the question if people think the use of gene technology is good/bad given for all countries divided in buyers and non-buyers.

Countries with products carrying “GM-free” labels

(i) Germany

Table 13. Frequency and percentages of buyers and non-buyers, males and females

	frequency	%
n	1096	100
buyers	491	44.8
non-buyers	605	55.2
female	692	63.1
male	404	36.9

Table 14. Frequency and percentages as a function of age distribution of the respondents

age brackets	frequency	%
up to 29	91	8.3
30-39	196	17.9
40-49	235	21.4
50-64	318	29
65+	256	23.4
total	1096	100

Most Germans (79.2%) also knew of the legal obligation to label GM-food, with 59.9% claiming to be able to tell a GM-product from a conventional one; in this regard buyers and non-buyers of GM-free products were equal in their responses. A majority said they read the detailed content listings before buying a particular food item, with significantly more GM-free buyers (64.8%) saying so than did non-buyers (52.6%) ($\chi^2=17.785$, $p<0.05$).

Significantly more GM-free buyers (58.7%) than non-buyers (48.9%) regarded the use of gene technology for food as very bad ($\chi^2=15.083$, $p<0.05$) (figure 2); 70% both of buyers and non-buyers were against the use of GM-ingredients in food, with the majority (58.4%) saying they would not buy GM-food. Significantly more GM-free buyers (58.8%) than non-buyers (49.3%) preferred buying GM-free-labelled products ($\chi^2=9.243$, $p<0.05$). Although 49.3% of the non-buyers said they preferred the GM-free-label, they did not necessarily buy such products while 25.7% of GM-free buyers did not prefer this label and might have bought the products for other reasons.

Around 70% both of buyers and non-buyers would reject organic food with GM-ingredients. Possible benefits of GM-products were rejected by 44.7% of both groups while 30.6% thought they would buy such GM-products and 24.7% did not know what they would do. Environmental benefits were still no reason for a majority of 47.6% of the German respondents to buy GM-food. Here we found a significant difference between GM-free buyers and non-buyers ($\chi^2=6.101$, $p<0.05$). More GM-free-buyers (50.9%) than non-buyers (43.6%) would also probably not buy GM-food even if produced in a more environmental friendly fashion.

(ii) Greece

Table 15. Frequency and percentages of buyers and non-buyers, males and females

	frequency	%
n		
buyers	0	0
non-buyers	500	100
female	348	69.6
male	152	30.4

Table 16. Frequency and percentages as a function of age distribution of the respondents

age brackets	frequency	%
up to 29	49	9.8
30-39	102	20.4
40-49	100	20
50-64	167	33.4
65+	82	16.4
total	500	100

There are no products labelled “GM-free” in Greece so we could not consider differences between buyers and non-buyers.

Most Greek respondents (91.4%) said they knew that, by law, GM-products have to be labelled but 62.8% could not tell them apart from conventional ones. The majority (64.2%) said they read labels before purchasing.

Although most (56.6%) respondents in Greece believed the use of gene technology for food production to be very bad, a small proportion (3.2%) took a contrary view and considered it to be very good (Fig. 2). Most (87.6%) Greeks did not favour the use of GM-ingredients in their food, with 89.4% saying they would not buy them. A high proportion (88.2%) preferred to buy food carrying a GM-free label.

Most (82.4%) Greek respondents would not buy organic food containing GM-ingredients nor would the existence of taste, price and health benefits tempt them: most (70.4%) would still not buy nor would 67.6% do so if there were environmental benefits to be had.

(iii) Sweden

Table 17. Frequency and percentages of buyers and non-buyers, males and females

	frequency	%
n	539	100
buyers	502	93.1
non-buyers	37	6.9
female	368	68.3
male	171	31.7

Table 18. Frequency and percentages as a function of age distribution of the respondents

age brackets	frequency	%
up to 29	58	10.8
30-39	88	16.3
40-49	124	23
50-64	190	35.3
65+	79	14.7
total	539	100

Almost half (48.2%) of the Swedish respondents said they did not think the law required the labelling of foods containing GM-ingredients; 25.6% did not know while 72.4% could not tell the difference between products containing GM-ingredients and conventional products. There

was a significant difference between buyers and non-buyers of products with GM-free labels with respect to reading labels ($\chi^2=8.518$, $p<0.05$): significantly more buyers (67.6%) than non-buyers (43.4%) said they did read the detailed content listings before buying a particular food item; some 53.6% of non-buyers said that they often did not read labels.

As in the other Member States, a majority (70.7%) of Swedish respondents thought the use of gene technology in food production to be very bad (70.7%) (Fig. 2). Overall, 56% both of buyers and non-buyers of products with GM-free labels opposed to the use of GM-ingredients in food with, however, significantly more buyers (73%) than non-buyers (54.8%) against ($\chi^2=5.889$, $p<0.05$). When asked whether they would buy food with GM ingredients, most respondents were uncertain (46.2%) while 44.2% said they would not buy such foods. A clear majority (54%) of the Swedes would prefer to buy foods with a GM-free label, with a greater preference among buyers (64.9%) than non-buyers (53.2%); 32.4% of the buyers did not express a preference.

Nearly half (47.7%) would not buy organic food containing GM-ingredients, with almost as many (44.3%) not knowing what to do. A somewhat similar result was obtained for a willingness to buy GM-products if taste, price and health were clear: 33.2% would not buy but 43.4% did not know what they would do. That uncertainty was even greater if GM-food also offered environmental benefits: 46.9% remained uncertain while 35.8% would still not buy.

Conclusions

Countries using the GM-label

The people who responded to our GfK consumer panel poll were typical food shoppers and therefore did not form a representative group of their countries' populations. The findings in this study may therefore be at variance with polls which have looked at total populations.

Over three-quarters of all respondent in countries in which GM-labelled-products can be found on supermarket shelves say they know that labelling of GM-products is mandatory. However, 60% of these people say they can not tell whether or not a product contains GM-ingredients. This might reflect the fact that fewer than 50% of our respondents read labels before buying a food item. Alternatively, it might mean that the information on the label is misunderstood or misinterpreted. Another reason may be that people are simply not interested: that seems to be confirmed by the finding that only 30% of the respondents were careful never to buy foods with GM-ingredients.

By and large, consumers in these countries continue to display a negative attitude towards genetically modified ingredients in food products and gene technology in particular. When prompted as to whether they would buy GM-foods, with such benefits as lower prices, healthier or tastier, or grown under "environmental-friendly" regimes, most people remained negative. This is not reflected in the focus groups results where people seemed more positive about GM-foods with specific benefits. It would be interesting to further explore what the reasons are for such differences.

The fact that GM-labelled products are available and actually bought, shows that there is indeed a market for such products. Our results may indicate that this market might even be large than often perceived as 20% of non-buyers thought they were already buying GM-foods,

and around 30% did not even know whether or not they were. Interestingly, the data showed no significant differences between buyers and non-buyers. Were the buyers not aware of what they were buying in spite of claiming both to read the labels and to understand what they meant? Or did the questions asked in the poll simply have no bearing on the way people behave in the bustle of doing the daily or weekly shopping for food?

The answers show another uncertainty. Since expressed opinions differed so little between buyers and non-buyers of GM-products, it is quite possible that there is essentially no difference between the two groups except for the non-buyers having had no particular interest in the rather small ranges of products available in each of the five countries carrying a GM-label. If a consumer did not wish to buy soya cooking oil or margarine, it mattered little whether that oil or margarine was derived from a GM source.

These interpretations of our findings suggest that most people are actually neither really interested in, nor very alert to the presence of GM-ingredients or -products. Polls elsewhere have shown a low and declining level of concern in the GM issue, with just a few percent of people asked unprompted to list their concerns about food (3). It is only when they were prompted, and GMOs brought specifically to their attention, that they showed an antipathy. This is also confirmed by the results of the Focus Group discussions.

The differences between people's opinion and behaviour was also apparent in what they said with respect to how much they cared about buying or not buying GM-food, and how careful they were. As one would expect, non-buyers of GM-labelled food expressed more concern than buyers, suggesting that people in our sample who never buy any GM-products would be more careful to avoid those products than those who bought them. This was, however, not the case: almost three out of every four of both buyers and non-buyers did not take care to avoid food labelled as containing GM-ingredients.

This observation also indicates that what people say differs from what they do. When asked whether they had bought GM-food, half of our respondents said they had not. Yet the barcode analyses of their purchases showed that half of them were wrong and they had indeed bought such products. Perhaps they did not know what they had bought. Some people also thought they had bought GM-food when, in fact, they had not. Our data is not sufficiently extensive to probe more deeply into the minds of the shoppers but *we may reasonably conclude:*

- that whatever they may say, most people do not actively avoid GM-food, suggesting that they are not greatly concerned with the GM issue;
- the way people respond to prompting via a questionnaire is no reliable guide to what they do in a grocery store.

Countries using "GM-free" labels (but excluding Greece)

In contrast to the lack of difference between buyers and non-buyers of GM-products in the five countries above, our data show a significant difference between buyers and non-buyers of GM-free-labelled products. This suggests that, for the latter, buying GM-free-products is more of a conscious choice: the products are bought because of the label.

Although there are no GM-labelled products for sale in these countries, most people said they knew that GM-products had to be labelled. Despite that, most people in effect did not know how to use such labels and could not distinguish GM-labelled-products from conventional

ones; that is perhaps not surprising as respondents in those countries would encounter no GM-labelled products in their home markets. Buyers of GM-free labelled products not only say they read product labels more often than do non-buyers but also more often than buyers of GM-labelled products; this supports the idea that buying GM-free is a more conscious decision.

In countries where GM-free labelled products are sold, people have a slightly more negative opinion towards the use of gene technology for food than in countries with GM-products on sale. This may reflect the differences between countries generally found by other surveys such as the Eurobarometer. When prompted, 55% of both GM-free and non-buyers preferred buying products with a GM-free label but 25% of the people who bought GM-free labelled products did not necessarily buy because of that label and so presumably had other reasons for their purchases. Might such consumers, both buyers and non-buyers, be potential customers for GM-labelled food if it were available?

In countries with GM-free labelling, people said they would not consider buying GM-organic foods. This question, however, was rather misleading and inconclusive as it does not reveal how many people would reject organic foods on other grounds. When asked whether people would buy GM-foods if they were to provide benefits, more than half of the respondents said they would buy or were undecided. This suggests that there is in these countries a sizeable potential market for GM products at present unsatisfied.

Our results suggest that buying GM-free labelled products is a determined choice and that there may be also be a market for foods with GM-ingredients in the countries which are presently not selling GM-food products.

Comments on individual countries

The following summary aggregates some distinguishing findings in individual countries in which GM-labelled foods are sold, followed by those using GM-free labels.

All countries using GM labels

Czech Republic

Compared with the other countries involved in CONSUMERCHOICE project, the Czech Republic is the country with the highest market penetration (13.7%) for GM-labelled products. Since this penetration is based on only eight products we may conclude that these GM products are popular.

The Netherlands

Of the countries surveyed, The Netherlands has the greatest variety of GM-labelled-products on sale. Only a small minority of respondents could recognise GM-labelled-products while nearly two-thirds said they did not read labels. But the Dutch do not seem to mind: a majority do not know whether or not they bought GM-food and nearly 70% said they did not take care to avoid it.

Dutch opinion overall toward the use of gene technology in food was negative but their answers showed great uncertainties. For most questions there were many “don’t know” or

“neither agree nor disagree” answers. Perhaps they were more honest than others in filling in their questionnaires. We do conclude that they appeared generally more open towards new technologies but confirmation of that view would require further inquiry.

Poland

Poland had a market penetration of 2.7% based on only one product (soya cooking oil). We have therefore to be careful when interpreting the data. Because of the presence of only one product it is not surprising that most respondents did not know how to distinguish a GM-labelled-product from a conventional one as they hardly ever come across any, although the high proportion of people who claimed to read the labels suggests that they would recognise such products if they found them.

Spain

Spain is the only country in this project with a large area under commercial cultivation with GM-crops. These GfK results suggest that Spanish shoppers seem to bother little about whether or not the food they buy is of GM-origin. But when prompted, nobody considered gene technology for food products a good thing.

United Kingdom

For the United Kingdom we could not compare people's perceived with their actual behaviour because none of the GM-labelled products on sale showed up in the consumer panel database. A possible explanation is that the panel data was restricted to fast-moving consumer goods whereas the GM-products on sale in UK stores were mainly cooking oil in large containers bought infrequently by any individual shopper.

Countries using GM-free labels

Germany

Although our data suggest that buying GM-free labelled products is a considered choice, 25% of purchases buy these products for other reasons than avoiding GM as they claim not to favour particularly products carrying a GM-free label.

Sweden

There are no GM-labelled products for sale in Sweden and most people there did not know GM-products had to be labelled by law or how to recognise GM-products. Surprisingly almost half the respondents could not say if they would buy GM-labelled-food were it was available; thus there may be a market for GM-products. The prospect of consumer benefits resulting from the use of gene technology did not remove Swedish doubts about whether to buy such products.

Greece

Surprisingly the one country included in this survey where no GM- nor GM-free-labelled products are to be found is the only country where a small percentage of people considered gene technology for the use of food production to be very good. Other questions showed

similar responses to those in the other countries.

Overall conclusions

There are many subtle differences between the countries which participated in this survey as one would expect on the basis of earlier findings such as the Eurobarometer. In the Eurobarometer 2005 (1) the outright and risk-tolerant support for GM-food ranged from 74% in Spain to only 12 % in Greece.

Overall, people seem not to be able to recognise GM-food in spite of the labelling requirements. But this does not seem to be a problem as people are in general are not careful to avoid these products, a conclusion supported by the little attention paid to labels. However people do react differently towards GM-free labelled products suggesting that those products are chosen with greater thought.

Although people's general expressed attitude towards gene technology and GM-ingredients in food is negative, 50% both of buyers and non-buyers think they do buy GM-food or do not know whether they buy them. Shoppers certainly behave differently from what they say they would do. One in three of the respondents were wrong in their perceptions about what they bought, while another third did not know.

We conclude that one must be very careful in drawing conclusions about behaviour from surveys which focus on opinions and intentions. Our findings should serve as a warning against using the Eurobarometer and similar polling data as justifications for policy making in the retail food market.

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The work involved in this chapter was carried out mainly within the research programme of the Kluyver Centre for Genomics of Industrial Fermentation which is part of the Netherlands Genomics Initiative.

APPENDIX 1: QUESTIONNAIRES

Questions for countries with GM products on sale (Czech Republic, Netherlands, Poland, Spain, UK)

1. According to law, does food with GM ingredients have to be labelled? (K)
yes/no/don't know
2. Before deciding to buy a particular food item I always read (or have previously read) the detailed contents listing on the package. (B)
yes/no/don't know
3. I know how to tell whether a product contains GM ingredients (1). (K)
yes/no/don't know
4. I don't care if the food I buy contains GM ingredients. (A)
yes/no/don't know
5. I buy food labelled as containing GM ingredients. (B)
yes/no/don't know
6. I would buy organic food even if it also contained GM ingredients (A)
yes/no/don't know
7. I am careful never to buy food labelled as containing GM ingredients (B)
yes/no/don't know
8. Compared with other foods, I regard those containing GM ingredients as being safer for health (1). (R)
answers graded on a ten point scale
9. I buy food with GM ingredients because, compared with other food, it is healthier,
10. Cheaper, tastier or produced in a more environmental friendly manner (2). (R)
yes/no/don't know
11. In general I believe that the use of gene technology in food production is...(3) (A)
answers graded on a ten point scale

Approval Scale

totally disagree/disagree/nor agree/nor disagree/agree/totally agree

Valuation Scale

very bad/ bad/very unsatisfactory/unsatisfactory/ OK /more than OK/good/very good/
excellent

A = Attitude

B = Behaviour

K = Knowledge

R = Reason

Questions for countries with no GM-products on sale (Germany, Greece, Sweden)

1. According to law, does food with GM ingredients have to be labelled? (K)
yes/no/don't know
2. Before deciding to buy a particular food item I always read (or have previously read) the detailed contents listing on the package. (B)
yes/no/don't know
3. I know how to tell whether a product contains GM ingredients (1). (K)
yes/no/don't know
4. I am in favour of the use of GM ingredients in food. (A)
yes/no/don't know
5. I would buy food containing GM ingredients. (B)
yes/no/don't know
6. I prefer to buy foods carrying a "GM-free" label. (B)
yes/no/don't know
7. I would buy organic food even if it also contained GM ingredients. (A)
yes/no/don't know
8. I would buy food with GM ingredients if it were healthier ,cheaper or tastier than other food. (R)
yes/no/don't know
9. I would buy food with GM ingredients if it were produced in a more environmental friendly way than other food (2). (R)
yes/no/don't know
10. In general I believe that the use of gene technology in food production is good/bad (3). (A)
answers graded on a ten point scale

Approval Scale

totally disagree/disagree/nor agree/nor disagree/agree/totally agree

Valuation Scale

very bad/ bad/very unsatisfactory/unsatisfactory/ OK /more than OK/good/very good/
excellent

A= Attitude

B= Behaviour

K= Knowledge

R= Reason

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APPENDIX 2: TABLES

Chi-square analyses between buyers and non-buyers for all countries where GM labelled products are for sale (excl UK)

	chi- square	df	sig.		%		
					yes	no	don't know
Q1				buyer	76.7	3.7	19.6
	2.882	2	0.237	non-buyer	79.6	3.2	17.2
				total	78.8	3.3	17.9
Q2				buyer	52.0	45.3	2.7
	2.405	2	0.3	non-buyer	54.9	42.9	2.1
				total	54.1	43.6	2.3
Q3				buyer	28.6	59.3	12.2
	0.884	2	0.643	non-buyer	30.4	57.9	11.8
				total	29.9	58.3	11.9
Q4				buyer	39.6	42.3	18.2
	14.433	2	0.001*	non-buyer	34.7	50.2	15.1
				total	36.1	48.0	16.0
Q5				buyer	21.5	48.0	30.5
	4.222	2	0.121	non-buyer	22.9	50.5	26.6
				total	22.5	49.8	27.7
Q6				buyer	20.6	52.6	26.8
	1.829	2	0.401	non-buyer	20.9	54.7	24.3
				total	20.8	54.2	25
Q7				buyer	26.1	59.4	14.5
	9.709	2	0.008*	non-buyer	32.1	54.1	13.8
				total	30.5	55.6	14
Q9				buyer	15.6	56.6	27.8
	0.975	2	0.614	non-buyer	16.8	56.9	26.3
				total	16.5	56.8	26.7

* Significant

							%			
	chi-square	df	sig.		1 completely disagree	2 disagree	3 neither agree/ nor disagree	4 agree	5 completely agree	9 don't know
Q8				buyer	11.7	21.3	41.7	6.7	3.7	15
	13.919	5	0.016*	non-buyer	15.2	23.1	35.9	8.1	4.2	13.5
				total	14.2	22.6	37.5	7.7	4.1	13.9
					1 very bad	2 bad	3 neither bad, nor good	4 good	5 very good	99 don't know
Q10				buyer	34.1	38.3	5.4	0	0	22.3
	7.92	3	0.048*	non-buyer	38.2	38.1	5.6	0	0	18.1
				total	37.1	38.2	5.5	0	0	19.2

* Significant

APPENDIX 3: TABLES

Chi-square analyses between buyers and non-buyers for all countries (except Greece) where GM-free-labelled products are on sale

	chi-square	df	sig.		%		
					yes	no	don't know
Q1				GM-free buyer	76.8	9.8	13.4
	1.12e+02	2	0.000*	non-buyer	52	28.7	19.3
				total	61.7	21.3	17
Q2				GM-free buyer	65.0	28.4	6.6
	54.592	2	0.000*	non-buyer	47.9	46.7	5.3
				total	54.6	39.5	5.8
Q3				GM-free buyer	11.4	58.8	29.8
	16.282	2	0.000*	non-buyer	11.4	67.4	21.2
				total	11.4	64	24.5
Q4				GM-free buyer	7.2	72.9	19.9
	27.437	2	0.000*	non-buyer	8.8	60.5	30.7
				total	8.2	65.4	26.4
Q5				GM-free buyer	13.6	59.8	26.6
	18.415	2	0.000*	non-buyer	14.0	49.7	36.2
				total	13.9	53.7	32.5
Q6				GM-free buyer	58.6	24.4	17
	32.245	2	0.000*	non-buyer	51.3	19.4	29.3
				total	54.1	21.4	24.5
Q7				GM-free buyer	10.3	68.7	21
	24.06	2	0.000*	non-buyer	9.1	58.7	32.2
				total	9.6	62.6	27.8
Q8				GM-free buyer	28.9	46.2	24.8
	19.875	2	0.000*	non-buyer	27.8	37.5	34.7
				total	28.2	40.9	30.9
Q9				GM-free buyer	18.9	49.8	31.2
	20.985	2	0.000*	non-buyer	18.3	39.8	42
				total	18.5	43.7	37.8

* Significant

				%						
	chi-square	df	sig.		1 very bad	2 bad	3 not bad, not good	4 good	5 very good	99 don't know
Q10				buyer	34.1	38.3	5.4	0	0	22.3
	7.76	3	0.051	non-buyer	38.2	38.1	5.6	0	0	18.1
				total	37.1	38.2	5.5	0	0	19.2

APPENDIX 4: COMPARISONS BETWEEN BUYERS AND NON-BUYERS IN COUNTRIES WHERE GM- LABELLED PRODUCTS ARE ON SALE

Chi-square analyses of Questions 1-10

	country	chi-square	df	sig.		%		
						yes	no	don't know
Q1	Czech Republic	1.609	2	0.447	buyer	96.8	1.8	1.4
					non-buyer	94.6	3.1	2.3
					total	95.3	2.7	2
	Netherlands	2.058	2	0.357	buyer	59.9	6.7	33.4
					non-buyer	61.5	4.5	34
					total	60.9	5.2	33.8
	Poland	1.567	2	0.457	buyer	95.2	0	4.8
					non-buyer	94	1.8	4.2
					total	94.2	1.5	4.3
	Spain	0.2	2	0.905	buyer	74	2	24
					non-buyer	73.6	2.7	23.7
					total	73.7	2.5	23.8
	UK*				buyer	-	-	-
					non-buyer	65.3	10.4	24.3
Q2	Czech Republic	1.004	2	0.605	buyer	67.1	32.9	0
					non-buyer	69.8	30	0.2
					total	68.9	30.9	0.1
	Netherlands	1.771	2	0.412	buyer	34.7	62	3.3
					non-buyer	35	63	2
					total	34.9	62.7	2.4
	Poland	0.358	2	0.836	buyer	68.7	31.3	0
					non-buyer	69.3	30.3	0.4
					total	69.2	30.5	0.3
	Spain	2.072	2	0.355	buyer	58.7	34.7	6.7
					non-buyer	52.1	41.2	6.8
					total	53.8	39.4	6.7
	UK*				buyer	-	-	-
					non-buyer	52.2	45.6	2.2

*For the UK there are no totals and chi-square analyses because no comparison was possible made between buyers and non-buyers.

						%		
	country	chi-square	df	sig.		yes	no	don't know
Q3	Czech Rep.				buyer	61.2	38.8	0
		4.113	2	0.128	non-buyer	64	34.6	1.4
					total	63.1	35.9	1
	Netherlands				buyer	16.1	60.8	23.1
		0.64	2	0.726	non-buyer	16	58.6	25.4
					total	16	59.3	24.6
	Poland				buyer	36.1	63.9	0
		1.686	2	0.43	non-buyer	35.3	62.7	2
					total	35.4	62.8	1.7
	Spain				buyer	4	83.3	12.7
		2.997	2	0.223	non-buyer	8	78.2	13.8
					total	6.9	79.6	13.5
	UK				buyer	-	-	-
					non-buyer	27.4	49.6	23
Q4	Czech Rep.				buyer	48.4	47.9	3.7
		3.325	2	0.115	non-buyer	41.8	55.9	2.3
					total	43.9	53.4	2.7
	Netherlands				buyer	34.7	34	31.3
		3.352	2	0.187	non-buyer	31.3	40	28.7
					total	32.4	38	29.6
	Poland				buyer	20.5	77.1	2.4
		0.454	2	0.797	non-buyer	23.4	73.7	3
					total	22.9	74.1	2.9
	Spain				buyer	48	32.7	19.3
		0.863	2	0.65	non-buyer	45.8	31.2	23
					total	46.4	31.6	22
	UK				buyer	-	-	-
					non-buyer	32.3	48	19.7

						%		
	country	chi-square	df	sig.		yes	no	don't know
Q5	Czech Rep.				buyer	44.3	49.3	6.4
		1.106	2	0.575	non-buyer	40.8	51.1	8.1
					total	41.9	50.6	7.5
	Netherlands				buyer	12.2	31.6	56.2
		0.159	2	0.923	non-buyer	11.3	31.6	57.1
					total	11.6	31.6	56.8
	Poland				buyer	18.1	74.7	7.2
		3.33	2	0.189	non-buyer	27.5	66.5	6
					total	26.2	67.6	6.2
	Spain				buyer	10.7	67.3	22
		2.39	2	0.303	non-buyer	14.8	60.8	24.5
					total	13.7	62.5	23.8
	UK				buyer	-	-	-
					non-buyer	12.6	56.8	30.7
Q6	Czech Rep.				buyer	32.4	59.8	7.8
		7.243	2	0.027*	non-buyer	26.3	59.4	14.3
					total	28.2	59.5	12.3
	Netherlands				buyer	13.4	47.4	39.2
		0.206	2	0.902	non-buyer	14.4	47.4	38.2
					total	14	47.4	38.5
	Poland				buyer	32.5	56.6	10.8
		1.122	2	0.571	non-buyer	27.1	59.9	13
					total	27.9	59.4	12.7
	Spain				buyer	12.7	51.3	36
		4.524	2	0.104	non-buyer	17.7	54.7	27.6
					total	16.3	53.8	29.8
	UK				buyer	-	-	-
					non-buyer	18.1	59.3	22.6

* Significant

	country	chi-square	df	sig.		1 completely disagree	2 disagree	3 neither agree/nor disagree	4 agree	5 completely agree	9 don't know
Q10	Czech Rep.				buyer	12.8	17.8	38.8	15.5	9.6	5.5
		4.538	5	0.475	non-buyer	15.1	22.2	31.5	14.9	10.4	6
					total	14.4	20.8	33.8	15.1	10.1	5.8
	Netherlands				buyer	7.3	21.3	39.5	1.8	0.9	29.2
		7.768	5	0.169	non-buyer	11	22.4	32.3	2.7	0.6	31
					total	9.8	22	34.7	2.4	0.7	30.4
	Poland				buyer	22.9	16.9	37.3	9.6	6	7.2
		2.01	5	0.848	non-buyer	19.2	22.8	33.9	10.8	5.6	7.8
					total	19.7	21.9	34.4	10.6	5.7	7.7
	Spain				buyer	13.3	28.7	53.3	2.7	0	2
		6.4	5	0.269	non-buyer	17.2	25.9	49.2	5.6	1.2	1
					total	16.2	26.6	50.3	4.8	0.9	1.2
	UK				buyer	-	-	-	-	-	-
					non-buyer	1.3	4.9	39.8	25.5	21.5	6.9

								%			
	country	chi-squared	df.	sig.		1 very bad	2 bad	3 neither bad nor good	4 good	5 very good	99 don't know
Q10	Czech Rep.				buyer	36.5	44.3	15.1	0	0	4.1
		4.342	3	0.227	non-buyer	40.8	42.2	10.8	0	0	6.2
					total	39.5	42.9	12.1	0	0	5.6
	Netherlands				buyer	25.2	41.9	0.3	0	0	32.5
		5.508	3	0.138	non-buyer	26.1	43.2	2	0	0	28.7
					total	25.8	42.8	1.4	0	0	30
	Poland				buyer	49.4	37.3	7.2	0	0	6
		0.833	3	0.842	non-buyer	46.1	36.7	9.2	0	0	8
					total	46.6	36.8	8.9	0	0	7.7
	Spain				buyer	41.3	22	1.3	0	0	35.3
		4.037	3	0.258	non-buyer	45	26.9	1	0	0	27.1
					total	44	25.6	1.1	0	0	29.3
	UK				buyer	-	-	-	-	-	-
					non-buyer	53.5	28.5	2.9	0	0	15.1

APPENDIX 5: COMPARISONS BETWEEN BUYERS AND NON-BUYERS IN COUNTRIES WHERE GM-FREE LABELLED PRODUCTS ARE ON SALE

Chi-square analyses of Questions 1-10

	country	chi-square	df	sig.		%		
						yes	no	don't know
Q1	Germany	0.968	2	0.616	GM-free buyer	79.8	8.3	11.9
					non-buyer	78.4	7.7	13.8
					Total	79.2	8	12.8
	Sweden	3.748	2	0.154	GM-free buyer	27	35.1	37.8
					non-buyer	26.1	49.2	24.7
					Total	26.2	48.2	25.6
	Greece✘				GM-free buyer	-	-	-
					non-buyer	91.4	7.4	1.2
Q2	Germany	17.785	2	0.000*	GM-free buyer	64.8	28.2	7
					non-buyer	52.6	39.7	7.8
					Total	59.3	33.3	7.3
	Sweden	8.518	2	0.014*	GM-free buyer	67.6	32.4	0
					non-buyer	43.4	53.6	3
					Total	45.1	52.1	2.8
	Greece				GM-free buyer	-	-	-
					non-buyer	64.2	35.6	0.2
Q3	Germany	2.245	2	0.325	GM-free buyer	11.5	58.1	30.4
					non-buyer	11.2	62.2	26.5
					Total	11.4	59.9	28.7
	Sweden	0.23	2	0.891	GM-free buyer	10.8	70.3	18.9
					non-buyer	11.6	72.5	15.9
					Total	11.5	72.4	16.1
	Greece				GM-free buyer	-	-	-
					non-buyer	35.8	62.8	1.4
Q4	Germany	5.477	2	0.065	GM-free buyer	7.6	72.9	19.4
					non-buyer	10	66.5	23.5
					Total	8.7	70	21.3
	Sweden	5.889	2	0.053*	GM-free buyer	0	73	27
					non-buyer	7.6	54.8	37.6
					Total	7.1	56	36.9
	Greece				GM-free buyer	-	-	-
					non-buyer	9.4	87.6	3

* significant

✘ for Greece there are no totals or Chi-square analyses as no comparisons could be made between buyers and non-buyers

						%		
	country	chi-square	df	sig.		yes	no	don't know
Q5	Germany				GM-free buyer	14.3	60.1	25.6
		3.034	3	0.219	non-buyer	18	56.2	25.8
					Total	15.9	58.4	25.7
	Sweden				GM-free buyer	2.7	54.1	43.2
		2.943	2	0.23	non-buyer	10.2	43.4	46.4
					Total	9.6	44.2	46.2
	Greece				GM-free buyer	-	-	-
					non-buyer	8.4	89.4	2.2
Q6	Germany				GM-free buyer	58.2	25.7	16.1
		9.243	2	0.010*	non-buyer	49.3	29.5	21.2
					Total	54.2	27.4	18.4
	Sweden				GM-free buyer	64.9	2.7	32.4
		2.87	2	0.238	non-buyer	53.2	9.6	37.3
					Total	54	9.1	36.9
	Greece				GM-free buyer	-	-	-
					non-buyer	88.2	10	1.8
Q7	Germany				GM-free buyer	10.5	69.9	19.6
		0.019	2	0.991	non-buyer	10.3	70.2	19.5
					Total	10.4	70	19.6
	Sweden				GM-free buyer	8.1	48.6	43.2
		0.019	2	0.99	non-buyer	8	47.6	44.4
					Total	8	47.7	44.3
	Greece				GM-free buyer	-	-	-
					non-buyer	14.2	82.4	3.4
Q8	Germany				GM-free buyer	29.5	46.8	23.7
		2.326	2	0.313	non-buyer	32	42.2	25.9
					Total	30.6	44.7	24.7
	Sweden				GM-free buyer	18.9	37.8	43.2
		0.594	2	0.743	non-buyer	23.7	32.9	43.4
					Total	23.4	33.2	43.4
	Greece				GM-free buyer	-	-	-
					non-buyer	27.2	70.4	2.4

* Significant

	country	chi-square	df	sig.		%		
						yes	no	don't know
Q9	Germany	6.101	2	0.047*	GM-free buyer	18.4	50.9	30.7
					non-buyer	20	43.6	36.4
					total	19.1	47.6	33.2
	Sweden	2.672	2	0.263	GM-free buyer	27	32.4	40.5
					non-buyer	16.5	36.1	47.7
					total	17.3	35.8	46.9
	Greece				GM-free buyer	-	-	-
					non-buyer	28.8	67.6	3.6

	country	chi-square	df	sig.		%					
						1 very bad	2 bad	3 not bad, not good	4 good	5 very good	99 don't know
Q10	Germany	15.08	3	0.002*	GM-free buyer	58.7	15.4	1.3	0	0	24.6
					non-buyer	48.9	16.7	3.7	0	0	30.8
					Total	54.3	16	2.4	0	0	27.4
	Sweden	1.546	3	0.672	GM-free buyer	75.7	10.8	0	0	0	13.5
					non-buyer	70.3	14.1	3	0	0	12.5
					Total	70.7	13.9	2.8	0	0	12.6
	Greece				GM-free buyer	-	-	-	-	-	-
					non-buyer	56.6	29.4	3.8	0	3.2	7

* Significant