
**THE INTRODUCTION OF
MANDATORY NUTRITION LABELLING
IN THE EUROPEAN UNION**

**IMPACT ASSESSMENT UNDERTAKEN
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IMPACT ASSESSMENT

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INTRODUCTION

This study has been carried out for DG SANCO of the European Commission by European Advisory Services (EAS) following the submission of a tender in March 2004. The study is focussed on the potential impact of the introduction of mandatory nutrition labelling for pre-packaged food products across the EU. Work has been divided into three areas:

The impact of mandatory nutrition labelling on consumers: this incorporates both an assessment of the prevalence of food products with nutrition labels across the EU at present and a review of the data available on the potential health impact of the introduction of nutrition labelling.

The impact of mandatory nutrition labelling on the food industry: this assessment is focussed on establishing the costs to companies of incorporating nutrition labelling on their products and the acceptability of different policy options related to nutrition labelling. This information has been gathered from a cross-section of 203 companies from 21 Member States who responded to an on-line questionnaire and from interviews with experts from analytical laboratories, manufacturing operations, packaging operations and packaging manufacturers.

The impact of mandatory nutrition labelling on the control authorities who have the responsibility for enforcing legislation: this assessment was carried out through interviews with the control authorities of four Member States (Italy, Spain, Slovakia and the UK).

All efforts have been made to ensure the accuracy of the information and conclusions provided within this study. In order to help facilitate the use of this study, the annexes are included at the end of the section. Further background documentation is then provided at the end of the report.

EAS would like to thank the many experts from the European Commission, Member State administrations, public interest groups, the CIAA, other industry groups and individual companies who have provided information and advice during the course of the study.

EXECUTIVE SUMMARY

RETAIL SURVEY OF CURRENT NUTRITION LABELLING PRACTICE

In order to establish the current extent of tabular nutrition labelling, 2,954 products were surveyed in a range of food outlets in four Member States: Germany, Poland, Spain and the United Kingdom (UK). Across the four countries surveyed an average of 56% of food products currently include tabular nutrition labelling, split equally between those with four items and those with 8. The most comprehensive labelling was found in the UK where 75% of all products surveyed were labelled, followed by 54% in Spain, 50% in Germany and 41% in Poland.

The most labelled food categories were breakfast cereals, margarine, soups and frozen vegetables. The least labelled were coffee, chewing gum, spices, mustard, vinegar and honey.

In the four countries surveyed, tabular nutrition labelling was only slightly more common in supermarkets/hypermarkets than other retail outlets (i.e. 56% compared to 53%) with labelling in supermarkets/hypermarkets more commonly containing 8 items. In the UK, tabular nutrition labelling in supermarkets/hypermarkets exceeds 75% of products due to the nutrition labelling of almost all own-brand products.

17% of products surveyed have potential problems with space availability for legible tabular labelling, including chewing gum (89% of products), spices (62%), mustard (48%) and dried tomatoes/olives (44%).

POTENTIAL IMPACT OF NUTRITION LABELLING ON CONSUMER HEALTH

The introduction of nutrition labelling on all pre-packaged foodstuffs is a potentially important element in the overall strategy to combat obesity and non-communicable diseases. Improving the level of information available to consumers has – in conjunction with a spectrum of other nutrition-related initiatives – the potential to improve consumer understanding of different foods which in turn would stimulate changes in patterns of food choice and ultimately improve consumer health.

Given the highly complex nature of the relationship between nutrition information and the endpoint of consumer health, it is not possible on the basis of existing research to quantify or draw strong conclusions as to health benefits associated with nutrition labelling alone. A range of factors including socio-economic background, level of education, age, gender, interest in health, media awareness and mood would also determine the extent to which additional nutrition information will positively impact a consumer's health. Assumptions about the benefits of labelling do find support in available studies, but further more targeted research is required before quantifiable cost benefits can reliably be identified.

Nevertheless, failure to provide clear and understandable nutrition information may seriously undermine other initiatives undertaken to improve consumer diets and reduce the burden of health costs counted in billions annually, related to poor or inappropriate nutrition.

COSTS OF NUTRITION LABELLING TO THE FOOD INDUSTRY

In order to establish the costs associated with the development and application of nutrition labels, interviews were held with experts in analytical laboratories, and food and packaging operations. The following costs were identified:

Laboratory analysis of the food

Where the information only relates to the 'Big 4' (energy, protein, carbohydrate and fat) the costs of laboratory analysis may average € 57 per product. If the requirement is increased from 4 to 7 items by the addition of sugars, saturated fatty acids and sodium, the cost may average € 256 per product. Were fibre to be included the costs would rise to an average € 354 per product.

Calculation from the known or average values of the ingredients used

Computer programs exist for making these calculations but interviews indicated that they often do not include all the information on ingredients and are sometimes too general. The cost of calculating nutrition information using such computer databases can be more than € 70 per calculation. For those that have no access to databases, calculations need to be carried out manually, costing in the region of € 100 per calculation for simple products and much more for complex formulae.

Calculation from generally established and accepted data

These are of most use for single component food products and commodities, fruits and vegetables. The cost of using this data is relatively small.

Interviews with food manufacturers indicate that the first two options above are most commonly used, while the third option is favoured by suppliers of single ingredient commodities (eg rice, flour, oils, milk) and by suppliers of unprocessed foods such as fruit and vegetables.

The direct costs of a label change would fall into the range € 2,000 - € 4,000. If a label would require redesigning, the additional costs could be in the range of € 7,000 - € 9,000 per product. In some cases the introduction of compulsory 7 items would take up space and displace multilingual labelling resulting in the need for one or more additional labels. This would in-turn increase the number of stock keeping units (SKUs). The cost implications of changing a label vary between adhesive labels and labels printed directly on pack.

In order to establish the likely cost impact of mandatory nutrition labelling on a range of companies, an on-line questionnaire was launched. This required the responding company to provide key data relating to its economic size, number of products, type of labelling and extent to which it currently uses nutrition labels. The on-line questionnaire then calculated the cost of a number of policy scenarios that are open to European legislators (eg mandatory labelling of 4 or 7 items). It allowed the company to comment on the cost implications of labelling associated with each scenario.

Four conclusions were reached from the analysis of the data provided by 203 companies (10% with a turnover of under € 2 million, 32% between € 2 and € 50 million, 58% above € 50 million) from 21 Member States:

Form of nutrition labelling: there is a profound difference in the cost to companies of incorporating tabular labelling as opposed to linear labelling. This cost can increase by more than 100% due to the design and packaging issues associated with finding space for tabular labelling.

Cost of mandatory nutrition labelling: this has been reported as being very significant by most companies, bearing in mind that in excess of two thirds of the companies reporting would have to introduce it on at least some of their products. The sample gave a total cost of mandatory tabular labelling in excess of € 560 million across the 203 companies. There are difficulties in extrapolating this figure, across the EU food industry and in assessing the amount of labelling changes that would be incorporated through normal labelling changes.

Viability of the cost for companies: the results of the questionnaire indicated that 88% of respondents considered that the estimated costs of introducing tabular nutrition labelling of 7 items would be difficult for their companies to absorb. When given the option to label in tabular or linear, the figure was reduced to 58%. Interviews highlighted the importance of adequate transition periods for the introduction of new labels. Three years would appear to be the minimum for most companies, with some smaller companies and those with a substantial number of products reporting difficulties to accommodate costs even within this time period.

Impact of costs on the price of final products: 49% considered that the introduction of nutrition labelling would have a significant impact on the price of their products as sold to the final consumer. 42% considered that it would have a marginal impact and 9% indicated that it would have no impact at all. There was a significant divergence in the results across the company groups. 62% of smaller companies (up to € 2 million) considered that nutrition labelling would have a significant impact on prices, while this figure dropped to 44% for companies with a turnover in excess of € 50 million.

Multilingual labelling: the current prevalence of multilingual labelling has been highlighted as being of serious economic concern (and was one of the problems constantly highlighted by larger companies).

IMPACT OF MANDATORY NUTRITION LABELLING ON MEMBER STATE ADMINSTRATIONS

Interviews were carried out with four Member State bodies (Italy, Slovakia, Sweden and the UK) responsible for controlling compliance with food legislation, with the aim of identifying any resource issues associated with the introduction of mandatory nutrition labelling. Discussions indicated that there is a wide range of interrelated factors associated with the introduction of mandatory nutrition labelling including prioritisation and resource allocation, the systems of control, the existing prevalence of nutrition labelling and the development of additional guidance to economic operators.

Conclusions reached across the four countries indicated that it was not expected that resources for controls on nutrition labelling would be increased with the introduction of mandatory nutrition labelling. Control bodies would be expected to carry out their controls within the existing resources, depending on the priorities established within the control body. However, none of the bodies interviewed expressed concern at the potential burden on control authorities of moving to mandatory nutrition labelling. The potential burden was felt most lightly in the UK, which has the highest existing prevalence of nutrition labelling.

A number of measures were identified by control authorities as potentially significant to reduce the burden of mandatory labelling. These include the provision of detailed guidance and ongoing support to companies on nutrition labelling; training workshops for companies (particularly SMEs) to provide practical hands-on guidance on how to correctly label nutritional information; a long lead-time for the introduction of nutrition labelling to permit companies time to phase in nutrition labelling and allow existing stocks to sell out; a pragmatic approach to implementation and a proportionate response to mistakes or mislabelling; clarification of key technical elements on developing nutrition labels (in particular Article 6 of the nutrition labelling Directive); establishment of on-line calculator(s) for both enforcement officials and companies to permit the development of a nutrition label or specific on-line sectoral guidance.

A. RETAIL SURVEY OF CURRENT NUTRITION LABELLING PRACTICE

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1. THE PROVISION OF NUTRITION INFORMATION TO CONSUMERS IN THE EU

In order to assess the potential impact of mandatory nutrition labelling, it was necessary to review the current labelling practice for pre-packaged foods.

Since the scope of the study did not provide for a comprehensive review of practice in all EU Member States, retail research was undertaken in four large European markets. These represent the largest market (Germany), a new Member State with a substantial food industry (Poland), a large southern Member State (Spain), and the UK that is known to have one of the highest prevalences of nutrition labelling in the EU. In addition to larger retailers (eg super/hypermarkets) a range of smaller retailers (eg discount stores, health food retailers and outlets specialised in local/regional produce) were surveyed across a whole range of food categories commonly making up the average diet. The number of items per category and per retailer was pre-defined in order to ensure comparable results from each country. In addition to the current number of products labelled, researchers were asked to reflect on whether products would need to be redesigned in order to include tabular nutrition labelling¹ (a common concern of the food industry). In total, 2,954 food items were surveyed across the four countries.

1.1. General patterns of labelling (see Chart 1, p. 13)

The survey found that in total 56% of food products included tabular nutrition labelling and 44% had no tabular nutrition labelling. The European Commission has previously cited UK reports of 80% of products being labelled² and this appeared to be confirmed by this survey that reported 75% of products being labelled in the UK. However, information provision was not as low in any country as the 30% reported by Greece in the Commission's report. In Spain, 54% of food products were labelled, in Germany, 50% of surveyed items included labelling and tabular nutrition labelling was found to be most scarce in Poland, where 41% of products included nutrition labelling.

¹ It should be noted that researchers were specifically requested to survey nutrition labelling in tabular form, this being the form favoured by the European Commission and consumer groups in the light of research. Nutrition labelling currently presented in linear form was therefore not included and, although relatively uncommon, the survey may therefore insufficiently represent the total amount of nutritional information currently provided. Researchers were also provided with clear guidance on the type of labels that would require redesigning to incorporate tabular labelling.

² Draft Report on the application of Directive 90/496/EEC on nutrition labelling for foodstuffs.

1.2. Labelling of 4 or 8 items (see Chart 2, p. 13)

Researchers were asked to record whether 4 items (energy, protein, carbohydrates and fat) or 8 items (with the additional sugars, saturates, sodium and fibre) were included in the nutrition labelling table. On average, 28% of surveyed products included 8 items and 28% of items included only 4 items. Or expressed differently, 51% of products that included nutrition labelling provided information on 8 items. Of the 75% of foods including nutrition labelling in the UK, 73% included labelling with 8 items (55% of total products surveyed). In Spain, just under half of labelled products (24% of total products) were labelled with 8 items. In Germany, approximately one third of labelled products (15% of total products) currently label 8 items. Although tabular nutrition labelling was less common in Poland, a relatively high 40% of labelled products included 8 items (17% of all products).

1.3. Labelling per product sector (see Chart 3, p. 14)

Sectors currently providing comprehensive nutrition labelling

As could be expected, labelling patterns varied greatly between products. Tabular nutrition labelling was comprehensive³ (i.e. in excess of 85% labelled) for breakfast cereals, margarine, frozen vegetables and soups. In Germany and the UK, frozen products (fruits, vegetables, pizzas and meals) were also comprehensively labelled, as were fruit juices, soft drinks and ready-to-eat meals. In addition, potato crisps, tinned foods (fish, fruit, meat and vegetables) were comprehensively labelled in the UK. In Spain, nutrition labelling of pasta and bread was exceptionally common (85% and 94% respectively). In Poland, cocoa powder, breakfast cereals, milk and sauces were the only categories to comprehensively include nutrition labelling.

Sectors labelling with 8 items

The only product to be comprehensively labelled with 8 items in all countries was breakfast cereals. In the UK, ready-to-eat frozen meals were almost always labelled with full tabular nutrition information. In Spain, only breakfast cereals and bread and in Germany, only margarine are comprehensively labelled with 8 items. In Poland, only margarine and cocoa powder were labelled widely with 8 items.

Product sectors which did not provide nutrition information in the countries surveyed are limited to chewing gum, coffee and spices. Nutrition labelling was limited (i.e. <25% of products labelled) in only a few additional categories of foods, namely cold meats (ham, salami etc.), honey, syrups/cordial drinks and vinegar. For other categories, labelling varied widely between countries. In Germany tabular nutrition labelling was limited for biscuits (5% of products), butter (23%) and potato crisps (23%), whereas the comparable products in the UK were frequently labelled (biscuits 78%, butter 60% and potato crisps 85%). In Spain labelling for ready-to-eat meals and sauces (80% and 100% of which were labelled respectively in the UK) was limited to 25% of products. In Poland, cheese, crackers, desserts, jams and ready-to-eat meals were among the

³ N.B. Comprehensive here refers to the extent of labelling and not the number of items labelled.

categories infrequently labelled. It is therefore difficult on this basis to draw strong sector-related conclusions. Labelling practice diverged widely between countries and even between what might be considered comparable food categories.

Particularly pertinent to a policy option of mandatory labelling of either 4 or 8 items is the extent to which 'additional items' such as sugars and saturated fats are labelled on the most relevant products. For biscuits, butter, confectionary, cheese, chocolate, margarine, milk and soft drinks, for example, with the exception of milk (38% of products labelled) and margarine (78%), 20-30% of this category of products were labelled with 8 items. However, there was little consistency between countries. For example, 65% of biscuits surveyed include information on sugars and saturated fats in the UK, but only 5% in Germany and none at all in Poland. In Spain, 43% of chocolate products were labelled with 8 items. By contrast, 29% of chocolate products in Poland and 24% in the UK included information on saturates and sugars, whilst in Germany, the total was only 5%. However, the survey of soft drinks demonstrated a slightly different pattern. 54% of soft drinks in the UK were labelled with 8 items, whilst the figure for the other countries ranged between 13 and 20%.

1.4. Size of product (see Chart 4, p. 15)

Researchers were asked to note for which product categories the inclusion of nutritional labelling in tabular form⁴ would be problematic due to insufficient space on the packaging in its current form (i.e. the inclusion of a table would necessitate a significant change in packet size). In total 17% of products fell into this category. Significant problems related to size were particularly encountered for chewing gum (89% of products), spices (62%), mustard (48%) and dried tomatoes/olives (44%). Size restrictions were also widely reported for some cold meats, cream, butter, jams, honey, ready-to-eat sauces/meals and tinned fish (25-35% of products). In some countries, potential space limitations were also reported for yoghurts, cheese, chocolate, biscuits, confectionary, ice cream and tinned meats and fish (15-25% of products).

The sectors where 30% or more of product range have pack size limitations for nutrition labelling were chewing gum, cold meats, dried tomatoes/olives, honey, jams, mustard, spices, syrups/cordial drinks, tinned fish.

1.5. Diversity across retail outlets (see Chart 5, p. 16)

In Poland, nutrition labelling patterns were comparable (ranging from 41% to 42% of products labelled) regardless of the retail outlets (hypermarket, food department in general store, health food shop or discount store). In the UK, the hypermarket surveyed had labelling on 80% of the products and similar patterns were seen in discount and health food stores. Only a retail outlet specialising in local and artisanal products provided a notably different result, with 54% of products labelled. In Germany, labelling ranged from 47% to 51%, although in this case, the most comprehensive labelling was found in a department store rather than a hypermarket. In Spain, labelling ranged between 52% and 60%

⁴ Font size 8 was taken as a guide for reference. This is the 'absolute minimum' prescribed by the UK Food Standards Agency in its advice entitled "Clear Food Labelling" (October, 2002 - available at <www.foodstandards.gov.uk>).

according to the outlet surveyed. Over the four countries surveyed, nutrition labelling was only slightly more common in hypermarkets than other smaller retail outlets (i.e. 56% compared to 53%) with labelling in the former more commonly containing 8 items (30% of products as opposed to 24%).

2. CONCLUSIONS

The global findings suggest that considerably more nutrition labelling could be provided to the consumer on pre-packaged foods with 56% of products currently including tabular labelling. However, were the products to be discounted that are never labelled in Europe (eg spices/coffee) and those on which labelling in tabular form cannot be included for size reasons (eg chewing gum), the amount of 'feasible' nutrition labelling could be in the region of 70% under the current voluntary system.

The power of retailers to shape the range of products which are nutrition labelled is clearly demonstrated in the UK. Through voluntary nutrition labelling of own-brand products in all major supermarket chains and encouragement to branded products to provide nutrition labelling, the extent of nutrition labelling in UK supermarkets is in the region of 75%, 15% higher than Spain and 25% higher than Germany.

The results also point to the potential problem of introducing nutrition labelling, if as suggested in the survey, almost a fifth of the products would have significant difficulties incorporating a legible nutrition table. Both the number and wide range of products that may have to be repackaged to include labelling is significant.

3. ANNEXES: CHARTS

- Chart 1 Overview of nutrition labelling in countries surveyed
- Chart 2 Overview of nutrition labelling in 4 Member States surveyed
- Chart 3 Nutrition labelling per food category
- Chart 4 % of products per food category where tabular nutrition labelling is limited by product size
- Chart 5 Nutrition labelling by country and retail outlets

Chart 1: Overview of tabular nutrition labelling in countries surveyed

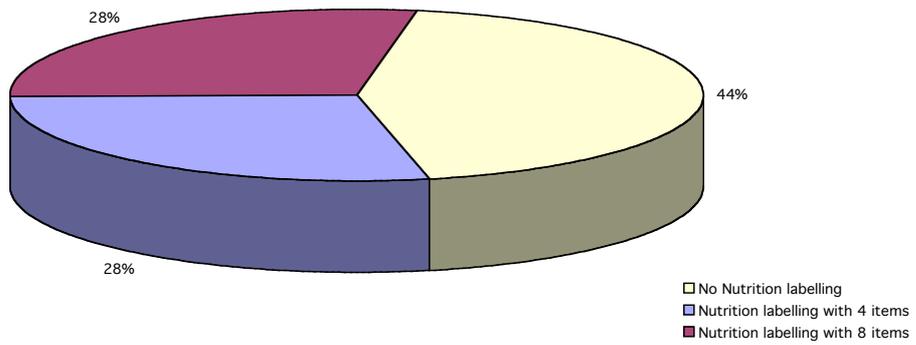


Chart 2: Overview of tabular nutrition labelling in 4 Member States surveyed

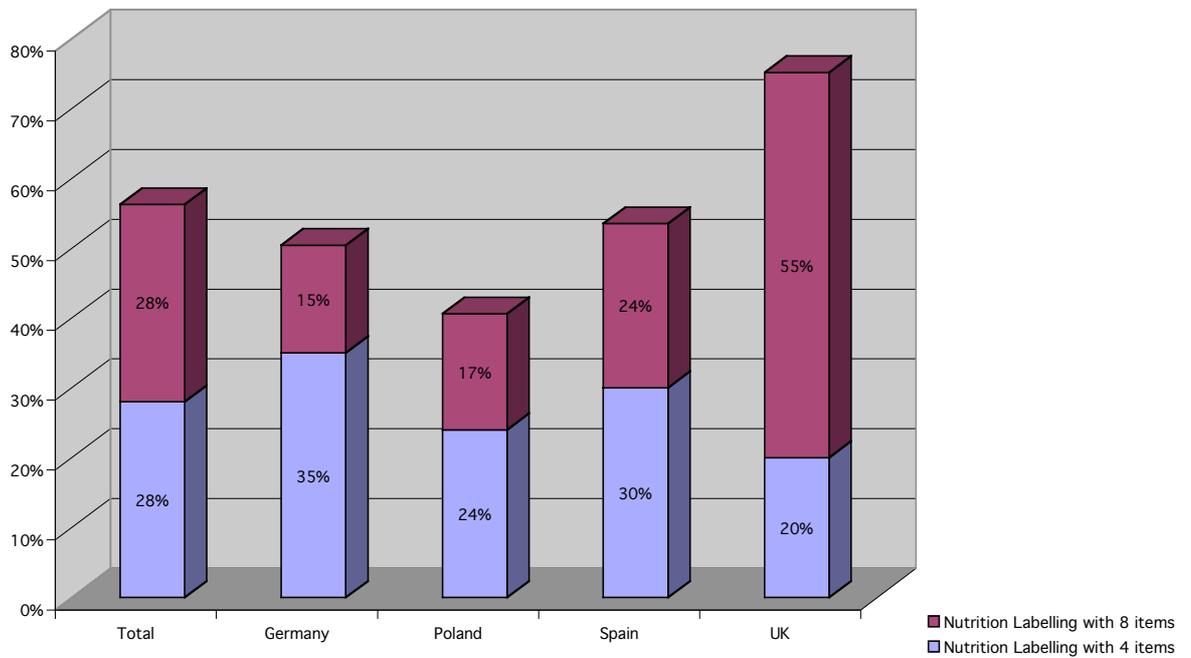


Chart 3: Nutrition labelling per food category

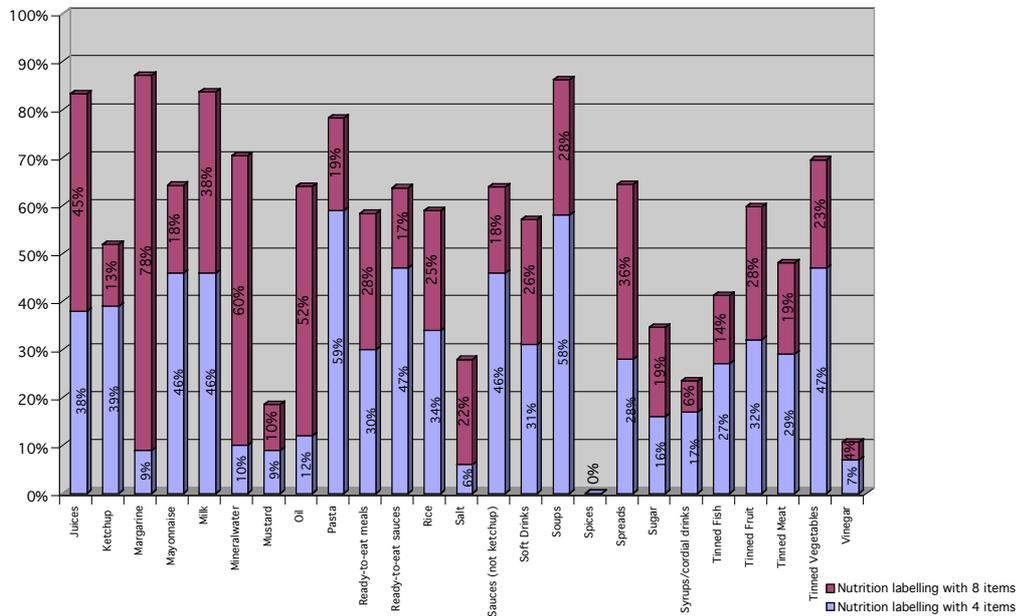
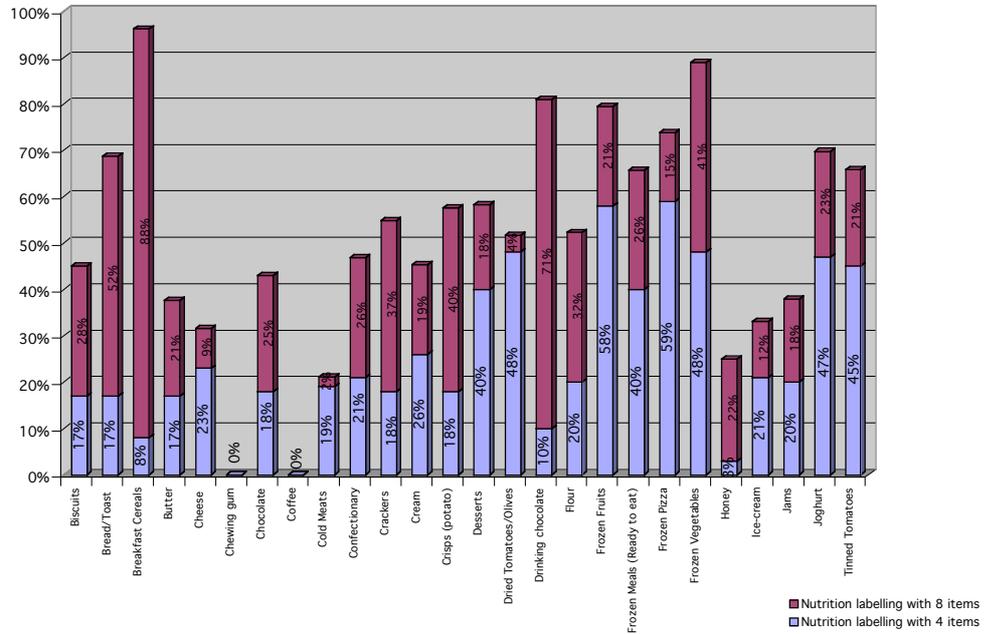


Chart 4: % of products per food category where tabular nutrition labelling is limited by product size

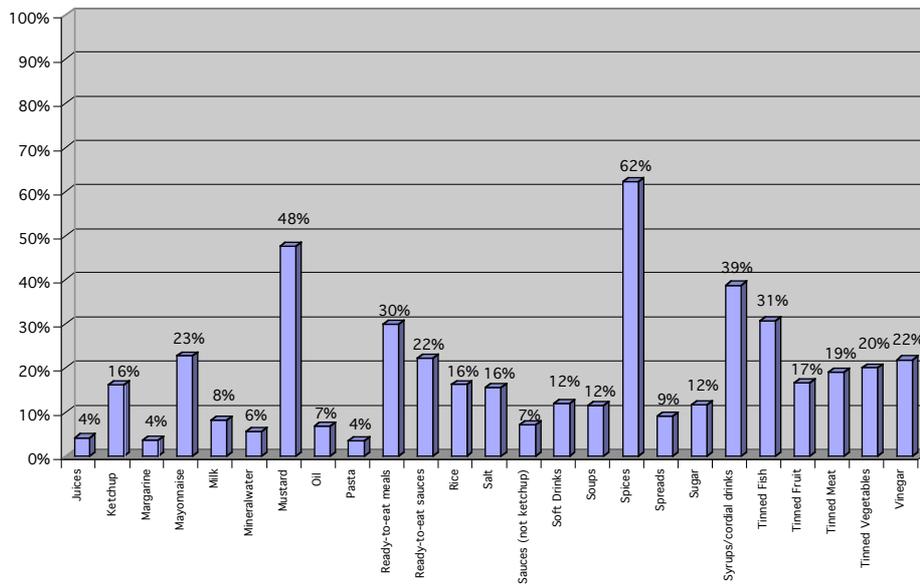
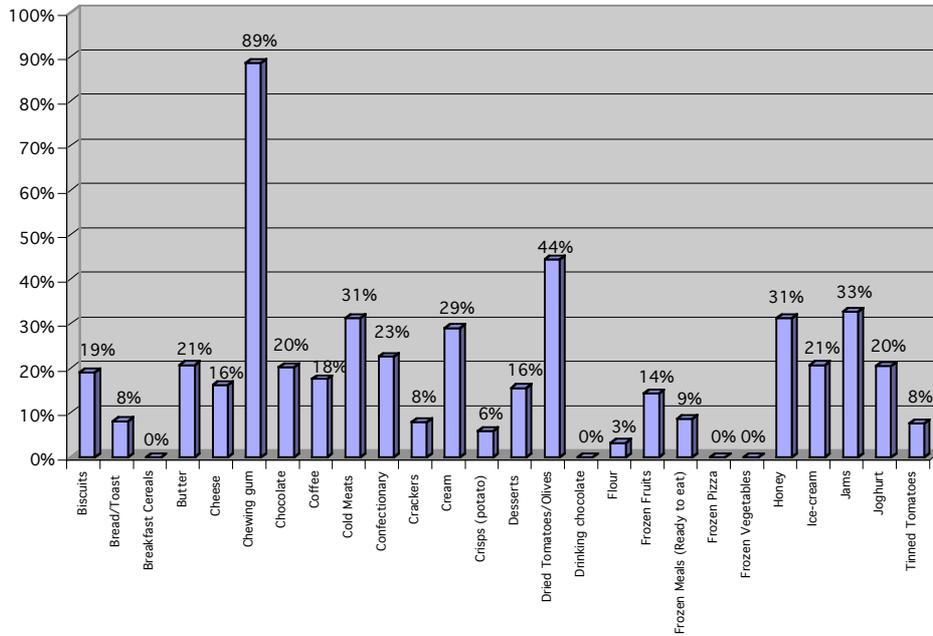
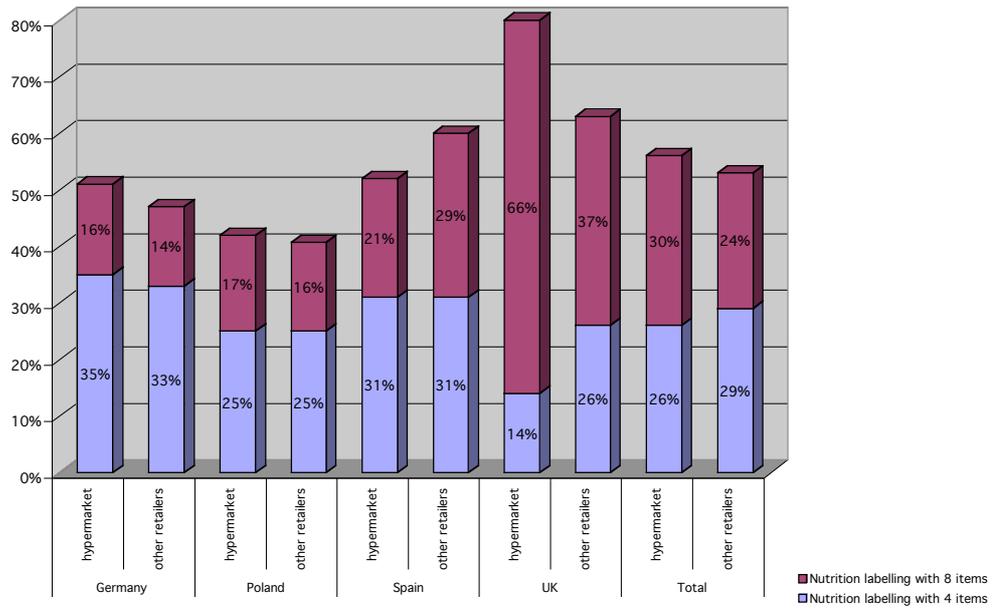


Chart 5: Nutrition labelling by country and retail outlets



**B. POTENTIAL IMPACT OF NUTRITION LABELLING
ON CONSUMER HEALTH**

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1. INTRODUCTION

The introduction of nutrition labelling on all pre-packaged foodstuffs is a potentially important element in the overall strategy to combat obesity and non-communicable diseases. Improving the level of information available to consumers has – in conjunction with a spectrum of other nutrition-related initiatives – the potential to improve consumer understanding of different foods which in turn would stimulate changes in patterns of food choice and ultimately improve consumer health. Given the highly complex nature of the relationship between nutrition information and the endpoint of consumer health, it is not possible on the basis of existing research to quantify or draw strong conclusions as to health benefits associated with nutrition labelling alone. Assumptions about the benefits of labelling do find support in available studies, but further more targeted research is required. Nevertheless, failure to provide clear and understandable nutrition information may seriously undermine other initiatives undertaken to improve consumer diets and health. Nutrition labelling could help to contribute to the reduction of the current burden to public health costs.

Nutrition labelling has long been considered as an important tool in making real progress in fighting obesity and diminishing non-communicable diseases. Moreover, it is entirely consistent with the Commission's "grass-roots" approach to consumer health.¹ This understanding is based on the logical and highly plausible theory that enhancing consumer understanding of nutrition knowledge will lead to dietary changes and improvements in consumer health. In order to evaluate the specific role that nutrition labelling could play in enhancing EU consumer health, the complex information-health relationship can be broken down into three stages represented by the following assertions:

- a) Nutrition labelling will assist consumer understanding of food and diet.
- b) Improved understanding of the content of food will facilitate improved and more balanced food choice.
- c) Improved dietary patterns will have benefits on consumer health.

If the above assertions can be demonstrated to be correct and evidence can be collated that quantify, for example the extent to which nutrition knowledge is enhanced through provision of information, it may be possible to draw conclusions on the aggregate effect of nutrition labelling on consumer health. The following sections attempt to do this by drawing on consumer surveys and research that have addressed this issue. In the absence of a sufficient European body of research, use is also made of initiatives undertaken outside the European Union. The specific policy options and the potential cost benefits will then be addressed.

¹ David Byrne, Address to the Environment, Public Health and Consumer Protection Committee of the European Parliament (Brussels, 19 February 2003) (emphasising the need to empower EU citizens)

2. THE RELATIONSHIP BETWEEN NUTRITION LABELLING AND CONSUMER HEALTH

There are essentially two main elements to assimilating the information that is presented on a food product: reading and understanding.

2.1. Reading food labels

A fundamental element in the nutrition labelling-consumer health relationship is the first step in the process, namely ensuring the consumer reads the label. A number of factors - time available for shopping,² reading and language ability, even eyesight - combined with other motivational aspects³ (eg interest in food, attention to health and these in relationship to competing interests such as cost, taste) may inhibit the extent which the consumer will read the label.

Nevertheless, several studies into food and nutrition labelling have indicated that the percentage of consumers sometimes reading nutrition labelling may range from 70-80%.⁴ Other studies have provided a considerably less optimistic picture of consumer practice.⁵ If 20-30% of consumers do not read labelling, these figures may not in themselves suggest a lack of interest in nutrition among this group. Canadian research reported that 40% of those who did not read labels considered themselves to be sufficiently familiar with food products not to have to consult the labelling. Such patterns of label reading can be further differentiated. In general, studies have shown that women pay greater attention to labels than men⁶ and that the elderly are less likely than younger people to read labels.⁷ The level of education of the consumer is also considered to be directly related to the likelihood of the label being read.⁸

² Paterson, for example, reports on the pressure felt by consumers to shop quickly. Wyn Thomas found that 40% of subjects felt they did not have time to assimilate the information on the food product. Paterson D, Zappelli R and Chalmers A. (2001) *Food Labelling Issues – consumer qualitative research*. Donovan Research, ed. Canberra: Australia and New Zealand Food Authority and Wyn Thomas B, Boaz A and Rayner M. (1997) *Food labelling and healthy food choices*. UK: British Heart Foundation Health Promotion Research Group.

³ The importance of motivational factors as opposed to the format of labelling – the focal point of the majority of studies – has not been rigorously addressed in the literature. The limitations of considering the label are underlined by Klopp and Macdonald. Klopp P and MacDonald M. Nutrition labels: an exploratory study of consumer reasons for non-use. *Journal of Consumer Affairs* 1981; 15, 301-316.

⁴ See Guthrie JF, Fox JJ, Cleveland LE, Welsh S. Who uses nutrition labelling, and what effects does label use have on diet quality? *Journal of Nutrition Education* 1995; 27 (4) 163-172, National Institute of Nutrition (1999) *Nutrition Labelling: Perceptions and Preferences of Canadians* 9. Ontario: National Institute of Nutrition and Neuhouser ML, Kristal AR and Patterson RE. Use of food nutrition labels is associated with lower fat intake *J Am Diet Assoc* 2002; 99 (1), 45-53.

⁵ Wyn Thomas see note 2 above, (finding that nutrition information was consulted in less than 1% of food purchases) and Higginson (recording 4% use of nutrition labelling in normal shopping use). Higginson C, Rayner M, Draper S and Kirk TR. The nutrition label – which information is looked at? *Nutr and Fd Sci* 2002; 32 (3) 92-99.

⁶ Scott V and Worsley A. Ticks, claims, tables and food groups: a comparison for nutrition labelling. *Health Promotion International* 1994; 9 (1) 27-37 and Worsley, A Which nutrition information do consumers want on food labels? *Asia Pacific Journal of Clinical Nutrition* 1996; 5 70-78.

⁷ Byrd-Bredbenner C and Kiefer L. The ability of elderly women to perform Nutrition Facts label tasks and judge nutrient content claims *Journal of Nutrition for the Elderly* 2000; 20 (2) 29-46 and Sullivan AD and Gottschall-Pass KT. Food label nutrition literacy: tool development and assessment. *Journal of the Canadian Dietetic Association* 1995; 56 (2) 68-72.

⁸ Research Services Ltd (1995) *Nutrition labelling study*. London: Ministry of Agriculture, Fisheries and Food.

However, the term 'reading' does not necessarily sufficiently reflect the considerable differences in the amount of information assimilated. In reading the label, consumers commonly focus on only specific information that reflects their own personal interests. Fat content has widely been cited as the piece of nutrition information considered to be of highest importance and most frequently consulted.⁹ Other information, such as fibre, salt and vitamins were generally shown to be of secondary importance among consumers consulted.¹⁰ Such patterns are sometimes reversed in specific population groups.¹¹

2.2. Understanding food labels

The second and more complex factor is the ability of the consumer to place the information within their existing knowledge structure in an effective way. Isolating and evaluating the impact of nutrition labelling on an individual's broader nutrition knowledge is inherently problematic and there is currently inadequate research available to draw firm conclusions.¹²

Using self-assessment of the subject's own understanding of nutrition labelling, Canadian researchers found that 83% of consumers had some understanding of nutrition information presented and 43% claimed to understand it very well. Two other studies suggested a different level of understanding for different elements of the nutrition label.¹³ Energy, kilocalories, fat, dietary fibre, 'recommended dietary amounts' and sugars were generally well understood. Cholesterol, saturated fat, sodium and kilojoules were less well understood. In one study, it was found that 28% of those questioned thought that salt and sodium were the same.¹⁴ UK research has also demonstrated confusion associated with 'grams per 100g'.¹⁵ There are strong indications that for most foods the consumer would benefit from the information being given per serving, although this is not the requirement of current legislation. Different levels of information assimilation were found for different population groups according to both age¹⁶ and socio-

⁹ Black A. and Rayner M. (1992) *Just read the label*. London: Coronary Prevention Group (The Stationery Office) and Institute of Grocery Distribution (1998) *Voluntary nutrition labelling*. Watford: Institute of Grocery Distribution. Higginson C, Kirk TR, Rayner M and Draper S. How do consumers use nutrition label information? *Nutr and Fd Sci* 2002; 32 (4) 145-15. See also Neuhouser, note 4 above.

¹⁰ British Market Research Bureau. (1985) *Consumer attitudes to and understanding of nutrition labelling: Quantitative Stage*. London: Consumers' Association. See also Neuhouser, note 4 above, and Black A. and the Institute of Grocery Distribution, note 9 above.

¹¹ See Miller (showing that among elder women with type II diabetes, sugars, cholesterol and sodium took priority over fats and calories). Miller C and Brown J. Knowledge and use of the food label among senior women in the management of type 2 diabetes mellitus *J Nutr Health Aging* 1999; 3 (3) 152-157.

¹² A systematic review of existing research published in 2003 found that only 5% of the 129 studies could be considered of high quality. European Heart Network (2003), *A systematic review of the research on consumer understanding of nutrition labeling*. Brussels.

¹³ Anderson DJ and Coertze DJ. Recommendations for an educational programme to improve consumer knowledge of and attitudes towards nutritional information on food labels *South African Journal of Clinical Nutrition* 2001; 14 (1) 28-35. See also Black, note 9 above.

¹⁴ Co-operative Wholesale Society Ltd (2002) *Lie of the Label II*. UK: Co-operative Wholesale Society. However, The Food Standards Agency found that the salt-sodium relationship was widely understood. Food Standards Agency (2001) Food Advisory Committee *Review of Food labeling 2001*. London: Food Standards Agency.

¹⁵ Food Standards Agency and Co-operative Wholesale Society, *ibid*.

¹⁶ Goldberg HH, Probert CK and Zak RE. Visual search of food nutrition labels. *Hum Factors* 1999; 41 (3) 425-437 (highlighting the difficulty the elderly had in calculations of nutrition information).

economic group.¹⁷ The process of the individual's assimilation of information can also not be treated as static. Goldberg has demonstrated that the regular use of labels can lead to consumers making fewer mistakes.¹⁸

Considerable (predominantly US) research has been undertaken into the presentation of nutrition labelling, such as the relative merits of numerical and non-numerical formats and logos indicating healthy products.¹⁹ The purpose of this current impact assessment was not to enter into presentation-related questions, which would be subject to separate Community discussions and separate legislation. However, the research, whilst inconclusive in many respects, does provide extremely useful guidance as to what consumers prefer, find useful and assist their understanding of the labelling.²⁰ The importance of presentation underlines once more the difficulty of assessing the impact of nutrition labelling *per se*. The impact of nutrition labelling on the consumer is inextricably linked to the quality and clarity of the information provided.

2.3. The link between nutritional information and food choice

A crucial link in the nutrition information-consumer health relationship is the impact that potentially enhanced understanding will have in influencing consumer food choice.

At the simplest level, a lack of belief in the benefits of improved dietary choice may prove a significant barrier to effectively implementing gained knowledge. In the light of existing dietary patterns, one might expect European consumers to be characterised by uncertainty or scepticism as to the benefits of nutrition on their health. However, a recent survey in France has shown that 87% of consumers believe that nutrition has a positive effect on health,²¹ a finding consistent with research undertaken in the UK.²² Such patterns are corroborated by Canadian research.²³ Consumer surveys of this sort suggest a promising basis for improving consumer dietary choice. More systematic research on the impact of consumer knowledge on dietary choice provides a more complicated and less promising picture. Such research has been undertaken both by asking subjects to interpret nutrition labelling in response to questioning and by studying their behaviour in a supermarket setting.

In one study, subjects were asked to interpret nutrition labels. The number of correct responses ranged from 58% for fat to 14% for sodium.²⁴ An experimental study undertaken in the USA required subjects to undertake a range of tasks. Simpler tasks such as a comparison of two products were completed

¹⁷ National Institute of Nutrition, see note 4 above.

¹⁸ Goldberg, see note 16 above.

¹⁹ See, for example, Levy A. and Fein S. Consumers' ability to perform tasks using nutrition labels. *Journal of Nutrition Education* 1998; 30 (4) 210-217, Geiger CJ, Wyse BW, Parent CR and Hansen RG. Review of nutrition labeling formats *J Am Diet Assoc* 1991; 91 (7), 808-815 and Lewis CJ and Yetley E A. Focus group sessions on formats of nutrition labels. *Journal of the American Dietetic Association* 1992; 92 (1) 62-66.

²⁰ A helpful summary of the findings can be found in European Heart Network, see note 12 above.

²¹ Consommation, Logement et Cadre de Vie (CCLV) (2003) *Les allégations nutritionnelles et les allégations santé*.

²² Food Standards Agency, see note 14 above.

²³ National Institute of Nutrition, see note 4 above.

²⁴ Co-operative Wholesale Society Ltd, see note 14 above.

successfully by 78% of those tested. However, on a more complicated task (“How many servings of this food would you need to get all of the carbohydrate you need in a day?”), 20% of those tested managed to complete the calculation accurately.²⁵ This pattern of successful completion of simple comparisons, but an inability to make more complex numerical reasoning is also reflected in UK research.²⁶ A further American study on behaviour of normal weight women has shown no direct response to dietary information on the energy density of food.²⁷ Other studies have experienced a similar trend.²⁸

In a study carried out in a supermarket, Dutch women were asked to select seven items on a shopping list. They were then requested to find lower fat equivalents in a second tour of the supermarket. 73% of the items selected were lower in fat than in the first round and 21% were not. The implications for nutrition labelling are undermined somewhat as 38% of the participants did not use nutrition labelling during their second tour of the supermarket.²⁹

In a comparable experiment in the UK, 31% of participants did not use nutrition labelling when asked to select healthier products. A further US study undertaken whilst people shopped, investigated consumer behaviour prior to and after the introduction of the current US nutrition labelling. The conclusion was that the new label polarised consumers, significantly benefiting those consumers with a greater knowledge and interest in food labelling, but was of little benefit to sceptical or ill-informed consumers.³⁰

Nevertheless, the focus on nutrition labelling in much of the existing research may in itself be misleading by directing the attention away from the multi-faceted approaches required to have a successful impact on dietary choice. Indeed, the most recent research into integrated approaches in different settings suggests that the contribution of nutrition labelling has been important to the outcome of the studies.³¹

2.4. The impact of dietary patterns on consumer health

For nutrition labelling to have an impact on consumer health, improved food choice must have a beneficial effect on consumer health. International discussions on the role of nutrition and diet on health have been extensive, and despite lingering controversies, have culminated in consensus

²⁵ Levy, see note 19 above.

²⁶ Black, see note 9 above.

²⁷ Kral T.V.E, Roe L.S. & Rolls B.J. Does nutrition information about the energy density of meals affect food intake in normal-weight women.? *Appetite* 2002; 39, 137-145.

²⁸ Feick LF, Herrmann RO and Warland RH. Search for nutrition information: a probit analysis of the use of different information sources *The Journal of Consumer Affairs* 1986; 20 (2) 173-192.

²⁹ Levy A.S., Mathews O., Stephenson M. Tenney J.E & Schucker R.E. (2001) *The impact of a nutrition information program on food purchases*. Food and Drug Administration, Washington DC, USA.

²⁹ Meuldijk S, Van Assema P, Van Dis I and Mudde A. Helpfulness of nutritional value labels in choosing low fat products. *Journal of Nutrition Education* 1996; 28 (6) 348-352.

³⁰ Moorman C. A quasi experiment to assess the consumer and informational determinants of nutrition information processing activities: the case of the Nutrition Labeling and Education Act. *Journal of Public Policy & Marketing* 1996; 15 (1) 28-44.

³¹ Steenhuis I, van Assema P, van Breukelen G & Glanz K. *The effectiveness of nutrition education and labelling in Dutch supermarkets*. *American Journal of Health Promotion* 2004. 18, 221-224 and Steenhuis I. Van Assema P, Reubsat A & Kok G. Process evaluation of two environmental nutrition programmes and an educational nutrition programme conducted at supermarkets and worksite cafeterias in the Netherlands. *Journal of Human Nutrition and Diet* 2004; 17, 107-15.

positions.³² Rather than re-open those discussions, this section will briefly summarise the diet-related findings of the most relevant of these exercises to this study, the Community-funded Eurodiet.³³

SUMMARY OF EURODIET FINDINGS

Diabetes	Obesity is associated with cardiovascular disease, some cancers and predominantly with diabetes. The risk of diabetes is reported to be 100-fold greater in obese children who continue to gain weight in adulthood. Lower dietary fat intake, increased consumption of vegetables, fruit and whole grain cereals are recommended to prevent weight gain and have beneficial effects on the risk of diabetes.
Cardiovascular disease	<p>The rates of cardiovascular disease were found to differ widely between Northern and Southern Europe. The major cause, poor diet and the resulting rise in total blood cholesterol is compounded by smoking and high blood pressure. N-3 poly-unsaturated fatty acids (in fish, vegetables and some vegetable oils) have been shown to reduce the risk of cardiac death and recurrent heart attacks. Diets rich in whole grain cereals, vegetables and fruits also seem to provide benefits.</p> <p>The likelihood of developing a stroke depends on the level of blood pressure in conjunction with other factors such as physical inactivity, alcohol consumption and weight gain. The precise relationship of salt intake and blood pressure is controversial, but Eurodiet highlights the value of reducing salt intake. Insufficient potassium intake can exacerbate blood pressure, but low fat and low saturated fatty acid can considerably lower blood pressure.</p>
Cancers	Lower vegetable and fruit intake is associated with a significant increase in risk of many cancers, both those commonly associated with tobacco (mouth, pharyngeal and lung cancer), with physical activity (colon cancer) and other cancers (stomach, breast and pancreas cancers).
Neural tube defect (NTD)	Women in Mediterranean countries have a lower risk of producing babies with NTD, which is thought to be due to a higher intake of green vegetables and fruit which is rich in folates. Increased evidence of significant folate deficiency in Europe demands its inclusion as a serious public health issue.

³² WHO/FAO Joint Expert Consultation (2003) *Diet, nutrition and the prevention of chronic diseases*. WHO Technical Report Series 916. WHO Geneva.

³³ EURODIET Core Report - Nutrition and diet for healthy lifestyles in Europe: Science and policy implications. *Journal of Public Health and Nutrition*: 2001: 4, supplements 2A and Nutrition and Diet for Healthy Lifestyles in Europe: the EURODIET evidence. *Journal of Public Health and Nutrition*: 2001: 4, supplement 2B.

Dental caries	The bacteria <i>Streptococcus mutans</i> are stimulated by regular intake of foods or drinks containing fermentable refined sugars. They generate the acids which cause caries. The frequency of consumption of sugary foods is considered to be an extremely important factor. Adequate fluoride intakes and good dental hygiene are also essential.
Osteoporosis	Osteoporosis is caused by a high rate of bone loss in later life and can be prevented by appropriate dietary means. In conjunction with adequate physical activity in early life, sufficient intakes of calcium and vitamin D can influence peak bone mass and prevent osteoporosis.

Although the multifactorial nature of most health problems and the need to *inter alia* combat poverty, increase physical activity, stimulate breast feeding and further understand the role of genetics is stressed, the importance of diet as a single contributor to general health is shown to be paramount. In spite of the controversy that international reviews have provoked, the diet-health relationship remains the element of the broader nutrition labelling-health relationship that has been most thoroughly and convincingly explored.

3. SPECIFIC POLICY OPTIONS

Even a condensed review of the existing research into nutrition labelling such as the above indicates the current gaps in our comprehension of some elements of the nutrition labelling-consumer health relationship. A significant consensus has grown around the casual effects of poor nutrition on obesity and non-communicable diseases. However, the specific contribution that can be made by nutrition labelling is difficult to quantify. There is evidence, although it is not necessarily conclusive, that nutrition labelling assists the consumer to use existing knowledge, particularly when the format/presentation is conducive to simple understanding. There is evidence to support the conclusion that this understanding may have an impact on food choice, but insufficient research has been undertaken to conclusively confirm or quantify this. Moreover, the multitude of factors that may influence behaviour and the results of this behaviour (see summary in Figure 1) may well inhibit the insights to be gained from further research.

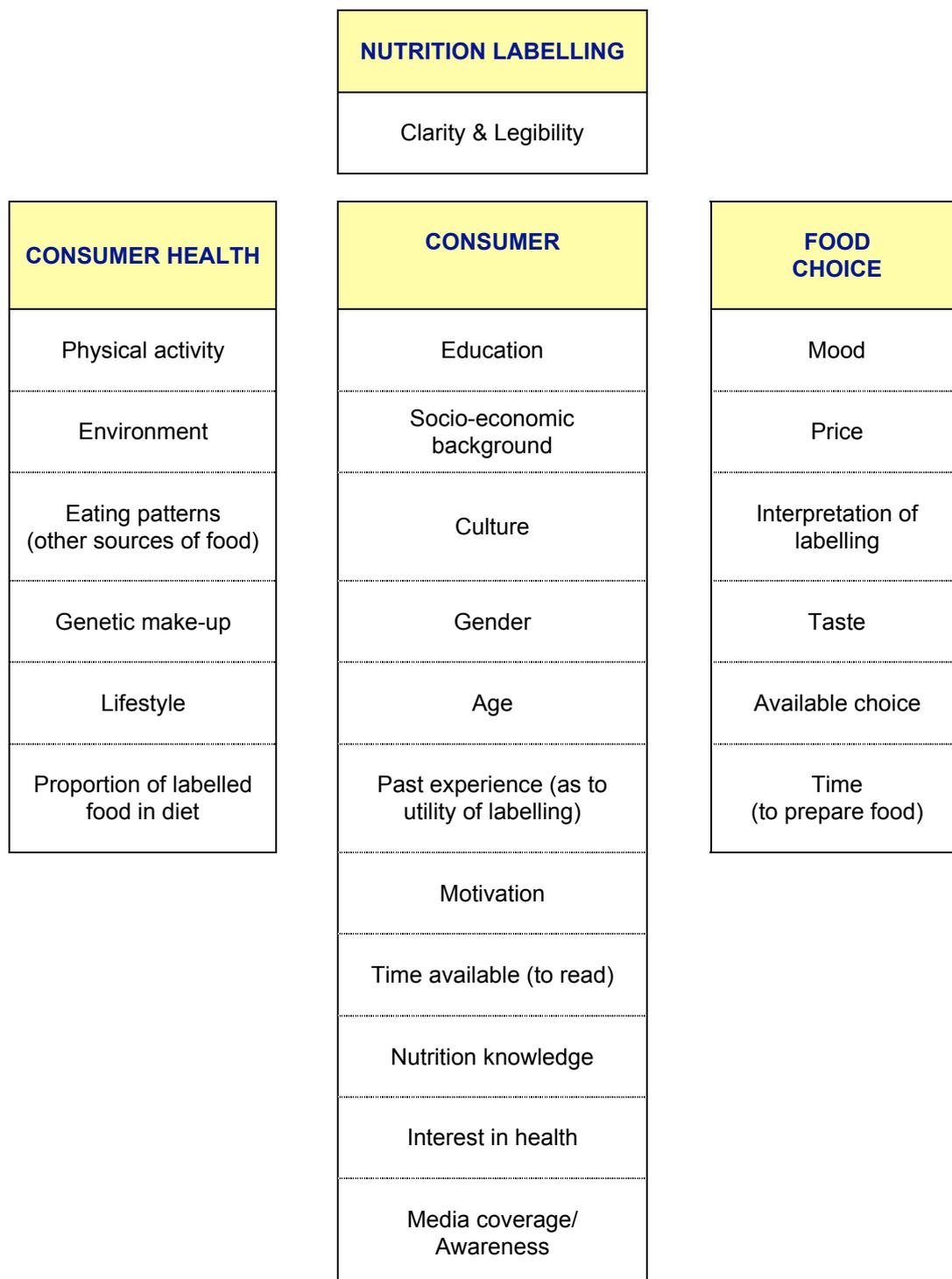
In the light of what has been discussed above, it is perhaps unnecessary to point out the inadequacy of the data when it comes to assessing the potential merits of nutrition labelling containing 4 or 6 or 7 items. To the knowledgeable consumer, there would seem to be clear advantages to including additional information about fats and sugars.³⁴ However, the potential confusion caused by the inclusion of additional information is well documented. Reviews of the literature on consumer understanding and nutritional information provide inconclusive results as to the level of complexity of information to provide to consumers.³⁵ Individual studies can provide noteworthy

³⁴ See Moorman, note 30 above.

³⁵ Glanz K, Hewitt A.M. and Rudd J Consumer behaviour and nutrition education: an interactive review. *Journal of Nutrition Education* 1992; 24 (5) 267-277 and Caudill EM. Nutritional information research: a review of the issues. *Advances in Consumer Research* 1994; 21, 213-217

points for policymakers. For example, a study by the UK Institute of Grocery Distribution indicated that subjects more accurately read information on fat and saturated fat when this information was presented separately in a box under the nutrition labelling panel.³⁶ But specific answers to the relative merits of different policy options would require tailored research, drawing together various elements discussed above.

Figure 1: Influential factors in the nutrition labelling-consumer health relationship



³⁶ Institute of Grocery Distribution, see note 9 above.

4. POTENTIAL COST BENEFITS

Nutrition labelling, provided it is supported by other related interventions, is expected to have a beneficial effect on consumer health. With Member States highly conscious of growing health costs and the future burden of an aging Europe, the potential economic benefits of any health-related initiative are likely to be keenly sought. However, in the light of the above discussions and the complex interrelationship between nutrition labelling and other (as yet unforeseen or undefined) nutrition initiatives, drawing economic implications would be speculative³⁷.

This is not to deny the potential economic benefits of nutrition labelling. It is clear that nutrition labelling in conjunction with a package of other relevant measures can help relieve what is currently the unacceptable burden of public health costs due to poor or inappropriate nutrition and counted in tens of billions of euros annually.

5. CONCLUSIONS

Whilst much of the research referred to in this section is interesting in isolation and can give useful indicators of the potential of nutrition labelling, it neither provides the answers to dilemmas on policy options, nor ultimately answers the question posed at the beginning, namely 'What are the benefits of nutrient labelling to consumer health?' To researchers and experts working in the fields of nutrition and public health, the question is largely redundant. There is an understanding that nutrition labelling is one essential element in tackling poor nutrition, but without any supportive measures will not radically change dietary patterns. Nutrition labelling provides consumers with vital 'pegs' on which to hang their nutrition knowledge, but that knowledge needs to be gained and stimulated in other ways, be it consumer education or new marketing strategies. Unfortunately, existing research is not strong in this respect. Further work is required to better understand the reasons for non-use of nutrition information and the interventions required to stimulate both consumer interest in food choice and their use of labelling.

³⁷ Agriculture and Agri-Food Canada and Health Canada have estimated the value of the net effect of labelling changes on health based on the hypothetical simulation exercise of GA Zarkin et al (1993) and the Browner health effects model. Although indicative for a potentially substantial beneficial effect on consumer health, such estimate is based on a number of assumptions and limited data that are not available or may not be appropriate for the European setting.

**C. THE COSTS OF NUTRITION LABELLING
TO THE EUROPEAN FOOD INDUSTRY**

C. THE COSTS OF NUTRITION LABELLING TO EUROPEAN FOOD INDUSTRY

In order to establish the costs of moving to mandatory nutrition labelling, interviews were first carried out with analytical laboratories, manufacturing operations, packaging operations and packaging manufacturers. These interviews provided the basic cost data associated with developing nutrition labels, and the costs of including labels on pack, design and packaging. An online questionnaire for food manufacturers was then developed incorporating this data in order to establish the impact on manufacturers of a number of options for nutrition labelling. 203 companies from 21 Member States responded to the questionnaire.

1. ESTABLISHING THE COSTS OF NUTRITION LABELLING

1.1. Deriving information to be included in nutrition labelling

The study considered the costs of three methods of deriving information as a basis for nutrition labelling (as foreseen in Directive 90/496/EEC, Article 6, (8)). The Directive provides that declared values shall, according to the individual case, be average values based on:

- (a) the manufacturer's analysis of the food (laboratory analysis)
- (b) a calculation from the known or average values of the ingredients used
- (c) a calculation from the generally established and accepted data.

With options (a), (b), (c) there are reducing levels of accuracy, with (a) being the most accurate in terms of a specific product and (c) being the least accurate. Interviews with manufacturers of food products indicate that (c) is the least used and (a) and (b) are most commonly used. However, option (c) is favoured by suppliers of single ingredient commodities (eg rice, flour, oils, milk) and by suppliers of unprocessed foods such as fruit and vegetables.

Rules for establishing acceptable tolerances between the manufacturer's declaration and those found during official checks are particularly important for manufacturers using option (c) above as process formulations and seasonal variations can sometimes lead to large differences between generally established and accepted data and the values actually found in the food.

a. The laboratory analysis of the food

Where the information only relates to the 'Big 4' (energy, protein, carbohydrate and fat) the costs are relatively modest as the information can be achieved by simple, well established tests for: protein (as Kjeldahl nitrogen x 6.25), fat, ash, moisture.

Carbohydrate is calculated by difference and energy calculated by using the standard factors. Costs quoted by different European laboratories range from € 42 - € 86 with a mean of € 57.

If the requirement for nutrition labelling is increased from 4 to 7 items by the addition of sugars, saturated fatty acids and sodium, there is a significant increase in cost due to the more complex analytical methods needed to determine sugars and fatty acids.

For the 6 assays plus the calculation of energy the same European laboratories quoted in the range € 210 to € 280 with a mean of € 256.

The cost difference between the analysis of 4 items and 7 items is between 4 and 5 fold (or approximately € 200).

If fibre was included in addition to the 7 items referred to above, the additional costs would range from an additional € 80 to € 135 (average € 97).

b. Calculation from average values of ingredients

From interviews with food manufacturers this was, in most cases, the principle means of obtaining the information on nutrient content.

Although a number of computer programmes and databases are commercially available it was a frequent comment from interviews with food companies that none appeared to provide all the information on ingredients and in some cases were too general.

Some of the larger manufacturers had modified the programmes and databases to incorporate specific raw material information obtained from their suppliers. For new product development it is often the case that additions have to be made to the data to incorporate ingredients that have not previously been used.

The cost of calculating nutrition information using computer databases can be upwards of € 70 per calculation for a label of 7 items (excluding the costs of the program and any alterations) for a relatively simple product. It is not possible to estimate an upper level, as it is dependent upon the complexity of the product. The cost relates to that of experienced manpower inputting the information and checking the resulting calculations.

For those companies that have not invested in a computer programme or have not enhanced the database, the calculations are carried out manually. There is as a result, a manpower cost for the competent technician / technologist for which it is difficult to obtain a realistic range or average. However, it is unlikely to be less than € 100 and is more likely to be several hundred euros depending on the complexity of the formulation and the accessibility of the required data.

c. Calculation from generally established and accepted data

As previously mentioned, this option has significant limitations and is mainly used for single component commodities, fruits, vegetables, nuts etc. It has been noted that some national composition tables vary from each other in important detail. This can produce problems for suppliers selling the food in more than one Member State.

1.2. Labelling and design costs

Labels for foods, for purposes of discussion on the labelling operation and costs, can be divided into two categories:

- (a) Labels applied to the packed product (adhesive labels, shrink-sleeves, etc.)
- (b) Labels printed on pack (carton, pouch, can, bottle)

As a generalisation, category (a) is normally more flexible in terms of the time taken to introduce label changes and also in the cost of written-off stock. Labels printed on pack usually have a longer lead-time, have to be ordered in advance in significant quantities and have a greater unit write-off cost.

There are a number of factors that have an influence on the cost of labelling:

Order Level. Depending on the type of packaging there is normally a tiered system of pricing for labels / packs which relates to the size of the individual orders or the frequency of guaranteed orders. For example, information received from label suppliers of adhesive labels shows that if the cost per 100,000 labels is taken as 100%, that for 50,000 labels would be 122% and 25,000 labels 150%.

The order levels can be even more important for labels printed on-pack. A printed foil laminate pouch (eg for a dessert, drink mix, soup, etc.) can often only be ordered economically at levels above 1 million units with small orders incurring prohibitive cost penalties.

Design of Label. The number of printing colours needed to obtain the desired design of the label have a marked influence on the cost of the label/pack. The difference between the cost of a 3-colour label print and a 5-colour print is that the 5-colour label will be about 15% more than the 3-colour version.

Shelf-Life of Food. The shelf-lives of food products on the supermarket shelf can range from a few days to over three years. The shelf-life influences production/packaging cycles, order frequencies for packaging and the frequency of label changes.

Marketing Strategy for Product Sector. Marketing strategies vary by product sectors and this affects the frequency of label changes. For example, marketing of certain food products (breakfast cereals, beverages, confectionery) relies on regular on-pack offers whilst for other sectors (canned fruits and vegetables, edible oils) the same label design may be retained for a number of years. This means that some companies plan frequent label changes into marketing costs whilst this is not included in the budget of others.

In summary, based on interviews with experts from manufacturing companies, the direct costs of a label change would fall into the range of € 2,000 - € 4,000. These costs include label drafting, artwork and the cost of new printing plates. If a product would require redesigning, the additional costs (depending on the complexity of the process and the implications of change on advertising, production, marketing, etc.) would be in the range of € 7,000 - € 9,000 per product. In some cases the introduction of compulsory 7 items would take up space and displace multilingual information.

Multilingual labels are mainly used by multinational companies. For a number of product categories, including confectionary, soft drinks, bread and fruit and vegetable juices, the manufacturers have reported that a statutory nutrition labelling requirement of 7 items would significantly increase the number of stock keeping units (SKUs) to accommodate additional labels that would have to be generated.

For example, if the label currently contains the statutory information in three languages, the size of the table required for the full nutrition labelling (7 or 8 items) would only leave space for two languages. Thus, a new label has to be produced for the third language resulting in a new SKU.

The increase in SKUs has potentially significant knock-on effects in terms of the packaging, warehousing and distribution operations, including extra down-time for label changes and the provision for separate bays in the warehouse. These additional costs would be ongoing and not 'one-off'.

1.3. Normal frequency of label changes

The frequency with which changes are made to the label of a product vary significantly according to a range of factors:

- The marketing culture of the company. Some companies are more marketing orientated than others. For example, some companies make greater use of on-pack 'flashes' which can range from statements such as 'New –Improved' or 'contains x' to offers such as 'Free Coffee mug with x label coupons' or competitions such as 'Win €100 a day for a year' (on a jar of coffee).
- The product type and the degree of competition for that product in the market. This is prevalent where products of perceived equal quality are competing against each other. Examples are instant coffee, breakfast cereals and some soft drinks and confectionery where market advantage is sought through tempting on-pack offers.
- The need to change in line with regulatory issues not related to nutrition labelling. For example, changes that may be required by the recent introduction of allergen labelling.

A full study of the life-cycle of products and labels would be required to gain accurate data in relation to the frequency of label changes. However, it is expected that the product categories which are most likely to change their labels most frequently and least frequently are the following:

- Most frequently: breakfast cereals, beverages (coffee, tea), desserts, some soft drinks and dairy products.
- Least frequently: niche products, canned meat, vegetables and fruits, commodities (flour, sugar, salt, dried pasta).

Initial enquiries have elicited the information that the labels of some niche products or commodities have been relatively unchanged for a number of years with one product cited in the UK has only had five minor modifications to the label in 35 years.

It needs to be considered that changing a label to make a modification to the ingredient list or changing the description of the product is, in many cases, different to introducing tabular nutrition information onto the label, which would require a greater allocation of space and lead to the need for a complete redesigning of the label.

2. SURVEY OF THE COSTS TO COMPANIES OF MANDATORY LABELLING

2.1. The rationale and approach

A range of options were considered for establishing the likely cost impact on companies of the introduction of mandatory labelling with 4 or 7 items. In view of the need for geographic and sectoral coverage, the need to deliver results in a short period of time and the limited budget allocation for the study, it was decided to provide companies access to an on-line questionnaire (www.eas.be/nutritionlabelling).

This questionnaire required the company to provide key data relating to its economic size, number of products, type of labelling and extent to which nutrition labels are currently used. The on-line questionnaire then calculated a number of scenarios based on the varying impact of a move to mandatory nutrition labelling and allowed the company to respond to the conclusions of the scenarios, particularly the likely cost implications of labelling changes (further information on the questionnaire below).

To make the process of filling in the questionnaire as easy as possible for companies, the questionnaire was available in 11 Community languages: Czech, English, French, German, Greek, Hungarian, Italian, Polish, Portuguese, Slovak and Spanish (see Appendixes).

Before launching the questionnaire, checks were carried out with a test group of small and large companies to ensure accuracy and feasibility.

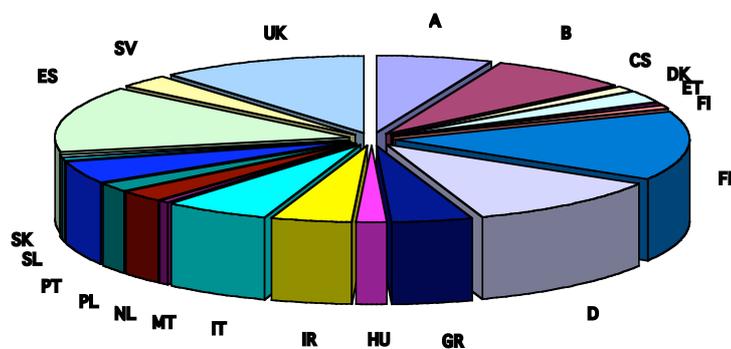
In order to ensure that companies across the EU were aware of the opportunity of contributing to this impact assessment, a number of steps were taken:

- The Confederation of the Food and Drink Industries of the EU, CIAA, circulated information about the importance of the impact assessment and questionnaire to their member associations, who in turn encouraged companies to fill in the questionnaire.
- The questionnaire was provided directly to companies included in a database of food companies held by EAS.
- A press release was issued about the questionnaire to the specialist food industry electronic bulletins which was covered widely in the EU and outside.

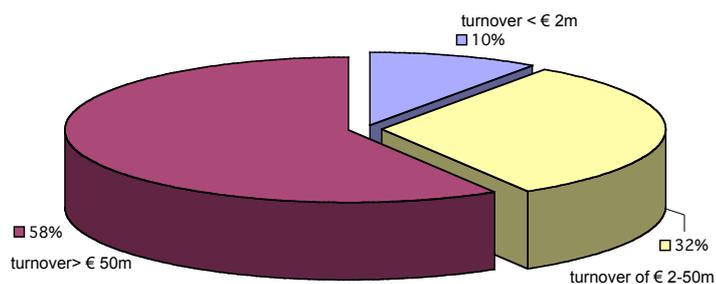
2.1. Responses to the questionnaire

203 completed questionnaires were received by the deadline (see Appendixes for breakdown by country). The questionnaires originated from 21 Member States. A breakdown of the response rate from individual Member States and also per company size follows. The highest response rates came from France, Germany, Italy, Spain and the UK with 58% of responses originating from companies with a turnover in excess of € 50 million.

Responses per country



Responses per company size



2.3. Calculating the total cost to companies of mandatory nutrition labelling

A model was established in order to calculate the estimated cost to companies of five potential options relating to nutrition labelling legislation. This model was developed on the basis of the data gathered from the interviews reported in section 2, focussing on:

Analysis costs: to ensure that nutrient content is accurately represented on the labelling, detailed product analysis was required. For the purposes of this assessment only, no economic distinction was made between the costs of analysing 4 or 7 items.

Labelling costs: these costs varied according to the label type: adhesive or on-pack.

Design/packaging costs: design/packaging costs were incorporated where manufacturers were required to change (enlarge or redesign) their packaging.

Administration costs: the costs of co-ordinating the process of introducing nutrition labelling and costs with regard to expertise/training.

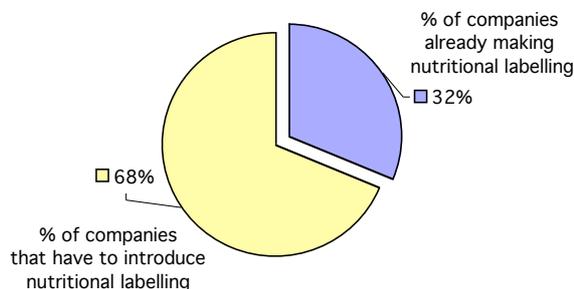
Disposal costs: the costs associated with discarding former labelling and packaging.

Each of these costs was calculated on a stock-keeping unit (SKU) basis.

2.4. The cost of mandatory nutrition labelling to food companies

a. Extent of nutrition labelling

From the 203 responding companies, 64 companies were already making nutrition labelling on all products while 139 companies will have to introduce nutrition labelling on some or all products.



To some extent this figure would appear to be out of line with the retail data gathered in section A and may potentially be skewed by the large number and variety of manufacturers of soft drink, confectionery and snack products that responded to the questionnaire. However, the omission of nutrition labelling is

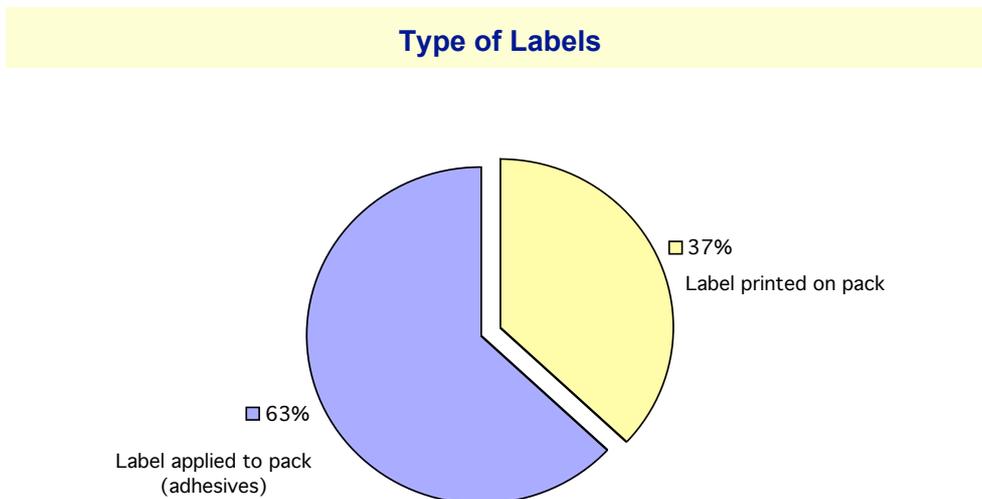
also prevalent in other product categories such as edible oils, soups and sauces, fruit and vegetable juices, spices and seasonings and processed meat.

The low figures reported for nutrition labelling is corroborated by an analysis of the other data supplied by companies. This shows that from all the responses only 32% of companies claimed to have nutrition labelling on all their products. Of the companies claiming a turnover of greater than € 50 million/year only 34% reported that they already have appropriate labelling.

Over two-thirds of the food companies would be affected if nutrition labelling was mandatory.

b. Type of labels

From the responses to the questionnaires, almost two thirds (63%) of labels were printed on pack and only 37% applied as adhesive labels or shrink-wraps.



c. Multilingual labels

From the results received from the questionnaire, 74% of the companies with a turnover in excess of € 50 million use multilingual labelling, whereas this figure drops to 14% for companies with a turnover below € 50 million.

d. Total Costs

Due to the variations in sample size within the categories of company turnover, the average total costs for each category were calculated. For larger companies, the average cost of introducing tabular nutrition labelling was € 6.2 million. For companies with a turnover from € 2-50 million, the average cost was € 1.2 million. For the smallest companies, the average cost was € 320,000.

For larger companies, the average cost of introducing linear nutrition labelling was € 1.8 million. For companies with turnover from € 2-50 million, the average cost was € 260,000 while for the smallest companies, the average cost was € 84,000.

Tabular nutrition labelling was estimated to cost more than three times linear labelling due to the additional costs of redesign of labels and, for many companies, the need to create additional labels to accommodate multilingual labelling.

For the companies surveyed, the costs for compliance with mandatory 7 items in linear form total € 160 million. The costs of including nutrition labelling in tabular form total € 560 million (see tables 1 and 2). Due to the diverse structure of the food industry in each of the Member States, it is not possible to make a direct extrapolation of these figures to the total food industry in the EU.

Table 1: Estimated average and total costs to companies of mandatory labelling 7 items in tabular form

(Results of online questionnaire)

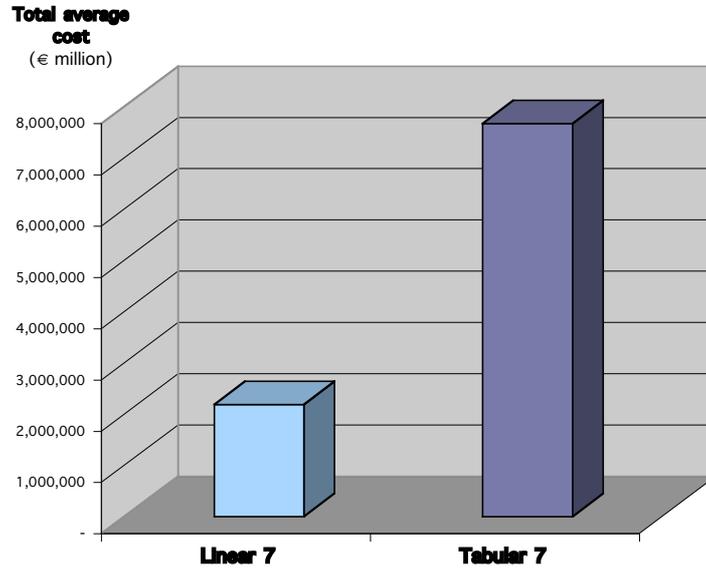
TURNOVER	< € 2 million		€ 2-50 million		> € 50 million	
	sample size	cost (€)	sample size	cost (€)	sample size	cost (€)
Tabular 7						
Austria	2	317,200	0		11	54,716,680
Belgium	3	240,828	5	1,164,860	8	11,307,361
Czech Rep.	0		1	-	1	2,576,000
Denmark	0		2	21,250	3	1,934,760
Estonia	0		0		1	-
Finland	0		0		2	2,955,600
France	0		9	16,504,760	20	65,870,405
Germany	2	0	7	4,617,388	14	48,810,060
Greece	1	0	2	790,620	6	697,560
Hungary	1	0	0		2	5,568,040
Ireland	1	78,592	4	3,480,320	4	2,884,928
Italy	3	0	3	6,002,096	6	27,748,890
Malta	0		1	-	0	
Netherlands	0		2	523,520	3	25,871,000
Poland	0		1	436,300	3	5,235,200
Portugal	2	1,387,750	3	2,437,980	5	9,316,448
Slovakia	0		1	-	0	
Slovenia	0		1	-	0	
Spain	5	555,552	16	10,152,552	7	28,872,075
Sweden	0		0		6	13,633,462
UK	0		6	8,625,640	17	202,907,666
Total	20	2,579,922	64	54,757,286	119	510,906,135
Companies making already nutritional labelling	12		18		36	
Companies need to introduce nutritional labelling	8		46		83	
Average Cost		322,490		1,190,376		6,155,496

Table 2: Estimated average and total costs to companies of mandatory labelling 7 items in linear form

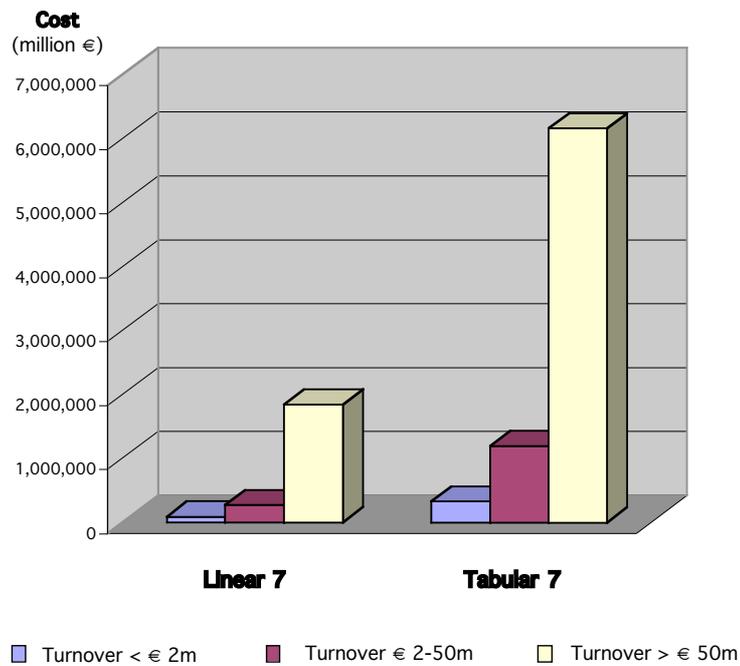
(Results of online questionnaire)

TURNOVER	< € 2 million		€ 2-50 million		> € 50 million	
	sample size	cost (€)	sample size	cost (€)	sample size	cost (€)
Linear 7						
Austria	2	260,100	0		11	29,594,350
Belgium	3	45,375	5	445,850	8	3,368,425
Czech Rep.	0		1	-	1	747,500
Denmark	0		2	3,900	3	1,272,370
Estonia	0		0		1	-
Finland	0		0		2	425,000
France	0		9	1,773,550	20	10,503,425
Germany	2	-	7	1,148,950	14	9,375,100
Greece	1	-	2	161,500	6	242,950
Hungary	1	-	0		2	1,185,250
Ireland	1	13,640	4	837,300	4	330,990
Italy	3	-	3	1,511,000	6	4,598,350
Malta	0		1	-	0	
Netherlands	0		2	194,000	3	8,002,400
Poland	0		1	98,650	3	1,179,270
Portugal	2	165,750	3	1,153,950	5	2,014,920
Slovakia	0		1	-	0	
Slovenia	0		1	-	0	
Spain	5	190,150	16	3,774,360	7	9,489,930
Sweden	0		0		6	3,085,475
UK	0		6	1,047,120	17	67,254,020
Total	20	675,015	64	12,150,130	119	152,669,725
Companies making already nutritional labelling	12		18		36	
Companies need to introduce nutritional labelling	8		46		83	
Average Cost		84,377		264,133		1,839,394

Estimated average total cost to all surveyed companies of mandatory labelling 7 items in linear and tabular form



Estimated average total costs to companies of mandatory labelling 7 items in linear and tabular form per company size



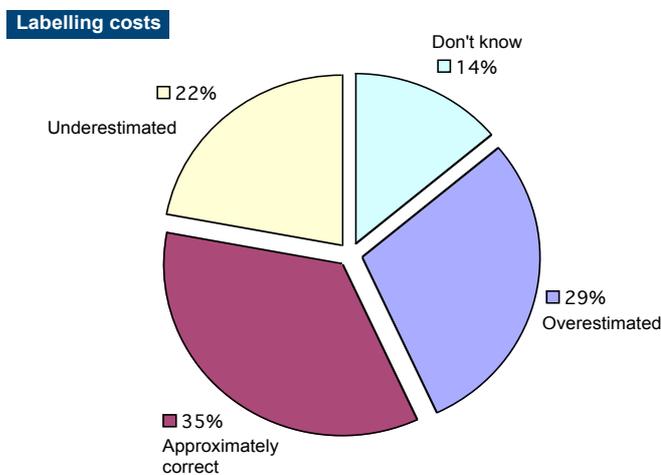
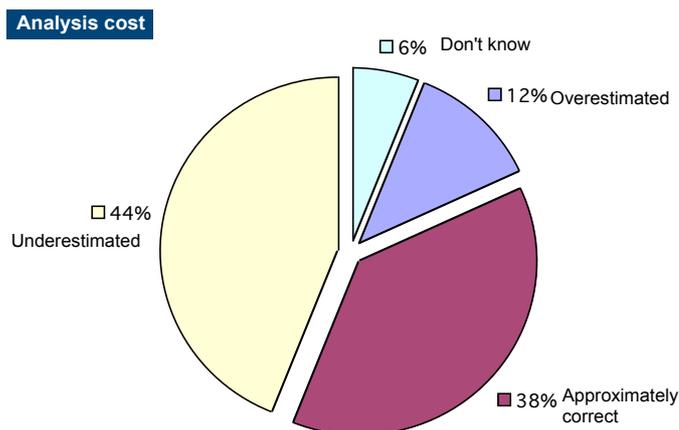
2.5. Accuracy of the calculation of labelling changes

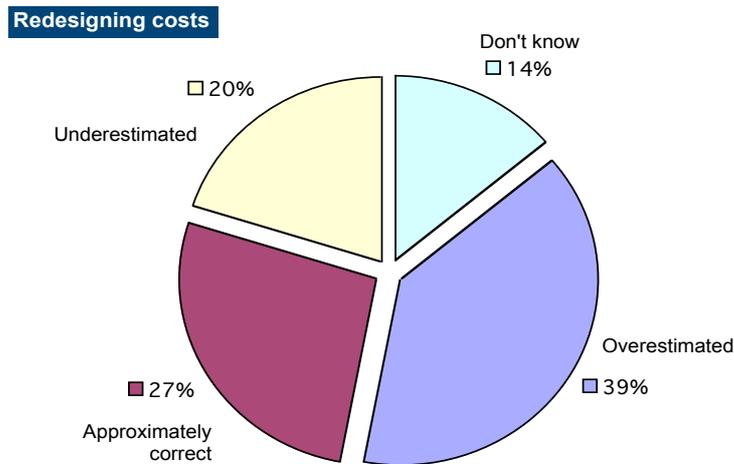
The creation of the calculations within the questionnaire inevitably required the use of benchmark costs (eg for design and production). It was therefore necessary to test whether the companies filling in the questionnaire considered that the results were approximately correct, underestimates of the real cost, or overestimates of the real cost of making the changes.

For the three areas the results obtained were as follows:

	Approximately Correct	Underestimated	Overestimated	Do not know
Analysis Costs	38%	44%	12%	6%
Labelling Costs	35%	22%	29%	14%
Redesign Costs	27%	20%	39%	14%

Estimated costs





2.6. The impact of mandatory nutrition labelling to food companies

In order to establish the extent to which the costs of various forms of mandatory nutrition labelling could be passed onto the consumer through product pricing and the extent to which costs could potentially be absorbed by the companies, five scenarios for nutrition labelling were tested:

Scenario 1	Mandatory labelling of 7 in tabular form on the basis of comparative analysis
Scenario 2	Mandatory labelling of 4 in tabular form on the basis of full laboratory analysis
Scenario 3	Mandatory labelling of 7 in tabular form on the basis of full laboratory analysis
Scenario 4	Mandatory labelling of 7 in tabular or linear form on the basis of comparative analysis
Scenario 5	Mandatory labelling of 7 in tabular or linear form on the basis of comparative analysis with 3 year transition period

a. Viability of labelling changes for individual companies

All respondents who were not already providing tabular nutrition labelling on all their products were questioned about the extent to which it would be economically viable to absorb the costs associated with the five different scenarios. Respondents were asked to evaluate the costs associated with the five scenarios agreeing or disagreeing with the following question:

“Given the growing consumer demand for full product information and the potential health benefits associated with nutrition labelling, I consider a cost of ‘x’ euro to be an acceptable cost to my business”.

Scenarios were evaluated on a scale of 1-7 (1 = strongly disagree and 7 = strongly agree):

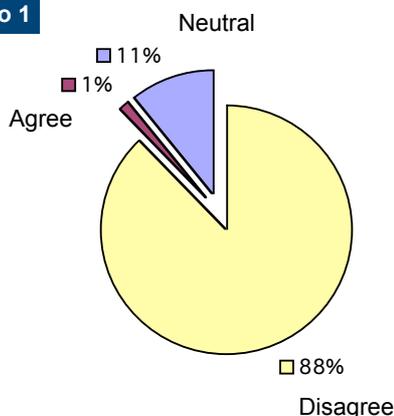
	Agree 6-7	Neutral 3-4-5	Disagree 1-2
Scenario 1	1%	11%	88%
Scenario 2	5%	22%	73%
Scenario 3	2%	8%	90%
Scenario 4	9%	33%	58%
Scenario 5	8%	25%	67%

Scenario 4 (mandatory labelling of 7 in tabular or linear form – decided by the manufacturer – on the basis of comparative analysis) was marginally the most acceptable of the options. Being the most expensive, scenario 3 (mandatory labelling of 7 in tabular form on the basis of full laboratory analysis) was considered to be the most onerous scenario.

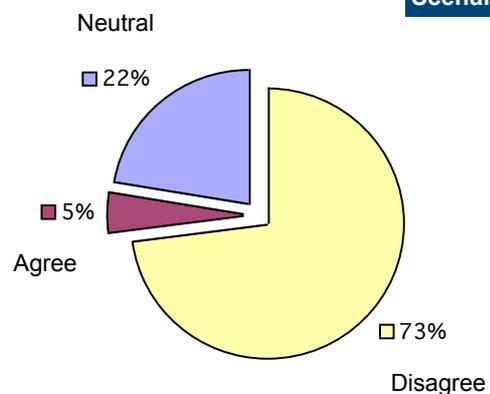
There was only a marginal difference in acceptability of scenarios 1 and 3 which differed only in the form of analysis (comparative and laboratory). This demonstrated that the form of analysis is not a decisive issue. However, the cost difference of labelling four items rather than seven resulted in a 27% difference in acceptability between scenarios 2 and 3. Maintaining the choice of tabular or linear labelling, rather than having only mandatory tabular labelling, resulted in a 30% difference. Although the option of maintaining a transition period was considered very important in interviews with individuals and in comments made on the questionnaire, this was not carried through in the results of the questionnaire.

Scenarios Evaluations

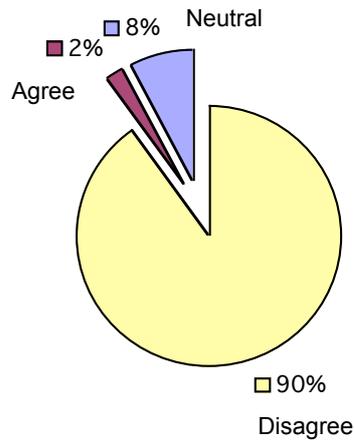
Scenario 1



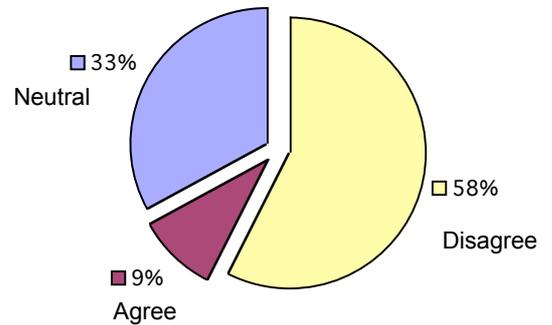
Scenario 2



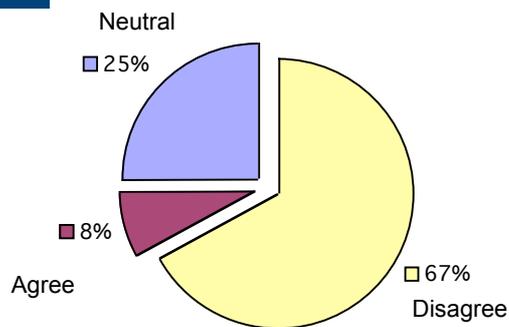
Scenario 3



Scenario 4



Scenario 5



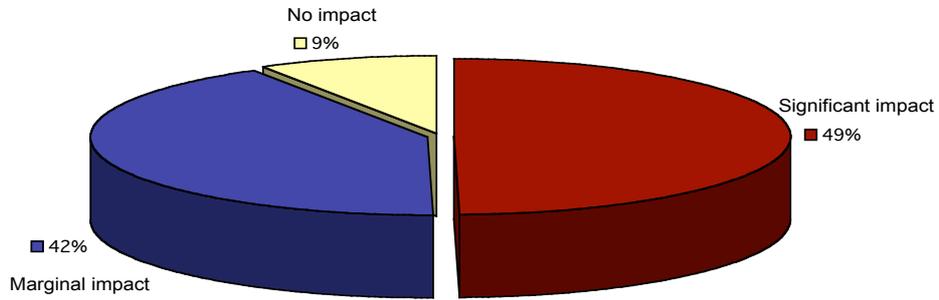
b. Impact of mandatory labelling on the costs of products sold to the consumer

Companies were asked if the costs incurred due to the introduction of mandatory nutrition labelling would have:

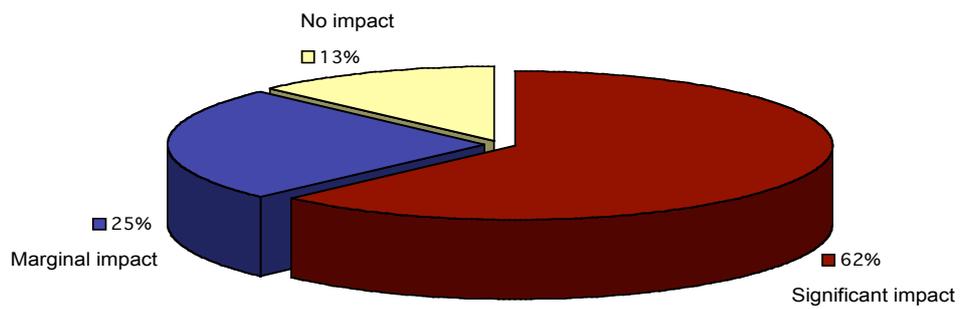
- no impact on the end costs of the product as sold to the consumer
- marginal impact on the end costs of the product as sold to the consumer
- significant impact on the end costs of the product as sold to the consumer.

49% of the respondents indicated that the costs incurred due to the introduction of mandatory nutrition labelling would have a significant impact on the costs of the final product. The impact was felt most heavily by smaller companies with turnover under € 2 million (see charts below).

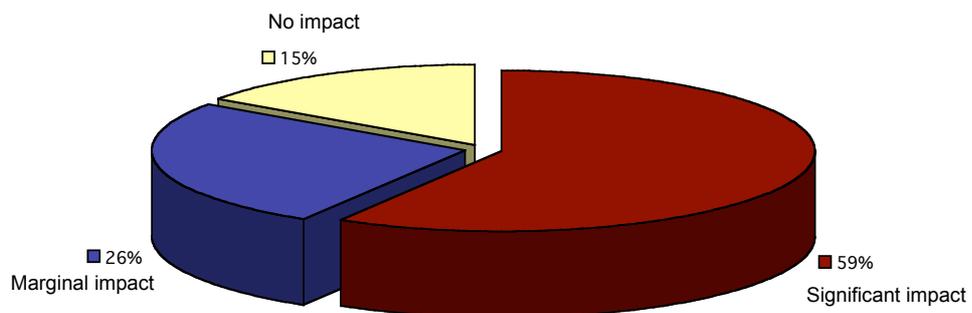
Total impact on the end costs of the product as sold to the consumer



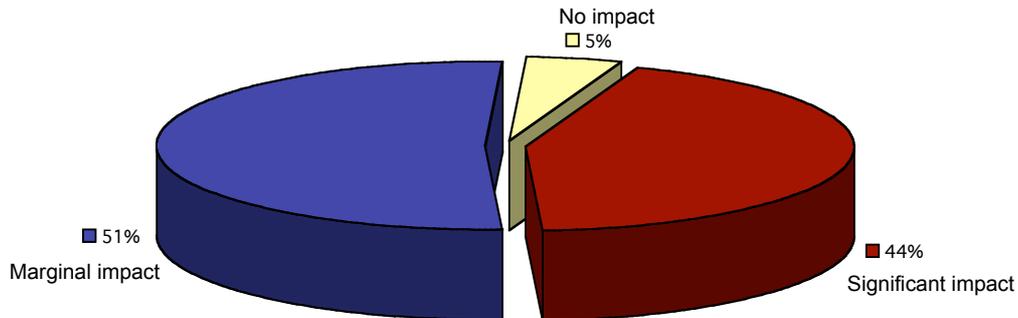
Impact on the end costs of the product as sold to the consumer (turnover < € 2m)



Impact on the end costs of the product as sold to the consumer (turnover € 2-50m)



**Impact on the end costs of the product as sold to the consumer
(turnover > € 50m)**



2.7. Additional comments of the catering industry

The questionnaire was specifically designed for food manufacturers and was not, therefore, appropriate to the catering industry. A response was nevertheless received from the European Modern Restaurants Association, which had carried out a survey of its membership on the impact of mandatory nutrition labelling in their sector. The results of this survey were reported to indicate that there was not a high level of demand by customers for nutrition labelling on restaurant menus. This is primarily attributed to the fact that many people visit restaurants for a 'treat'.

The response also cautions on the concept of nutrition labelling of menus reporting that it would:

- Reduce the number of menu options and the frequency of menu changes.
- Limit the capacity of smaller suppliers to provide the information and tend to less choice of suppliers.
- Greatly increase the labour cost and impose a serious burden on employee time, particularly as meals are produced on site to customer request.
- Lead to large margin of error due to the 'hand-made' nature of meal production and serving size.

3. CONCLUSIONS

Four conclusions can be reached from the study carried out:

- Form of nutrition labelling: there is a profound difference in the cost to companies of incorporating tabular labelling as opposed to linear labelling. This cost can increase by more than 100% due to the design and packaging issues associated with finding space for tabular labelling.
- Cost of mandatory nutrition labelling: this was reported as being very significant by most companies, bearing in mind that in excess of two thirds of the companies reporting would have to introduce it on at least some of their products. The sample of 203 companies from 21 Member States gave a total cost of mandatory tabular labelling in excess of € 560 million. There are difficulties in extrapolating this across the EU food industry.
- Transition periods: adequate periods for the introduction of new labels are considered essential if the costs were to be viable for a number of companies, particularly for those with products with longer shelf-lives. Three years would appear to be the minimum for most companies, with some smaller companies and companies with a substantial number of products potentially having difficulties even within this time period.
- Multilingual labelling: the prevalence of existing multilingual labelling has been highlighted as being of serious economic concern and was one of the problems constantly highlighted by larger companies.

To illustrate these issues, examples are provided below of two responses, both from companies who are already nutrition labelling to a relatively high degree:

Company based in a new Member State:

Description	Company with a wide range of food products with a turnover in excess of € 50 million
Labelling	Printed on pack
Existing labelling: tabular 4	634 products
Existing labelling: tabular 8	30 products
Existing labelling: linear	10 products
Products with no labelling	160 products
Additional labels required due to multilingual labelling	110 labels
Products requiring format changes due to mandatory nutrition labelling	168 products
Cost range	Tabular label of 7 with lab analysis: € 3,300,000 Linear label of 7 (no design change): € 575,000
Economically acceptable scenarios to the company	Linear and 3 year transition for tabular
Economically unacceptable scenarios to the company	Single cost (i.e. short time frame) change to tabular labelling

Comments:

- This company is already using a high percentage of nutrition labelling.
- Labelling is printed on pack, the higher cost option. Nevertheless label changes would be required since at present only the 'Big 4' are currently being labelled for most products, 10 products have linear labelling and 160 are not labelled at all.
- In addition to the labelling changes, it is estimated that 110 additional labels would need to be produced since tabular nutrition labelling of 7 would not permit as many languages to be contained on one label as at present, in many cases.
- In addition, 168 products would need design changes on the packaging to accommodate the tabular nutrition labels.
- Nevertheless, even with an estimated cost of € 3.3 million for the changes, this company could accept the costs of tabular nutrition labelling if at least a 3 year transition period is provided.
- This cost could potentially be reduced by 25% by using company specific computer programmes and databases of average values, if available.

Company based in smaller Member State:

Description	Manufacturer of a wide range of food products with a turnover between € 5-10 million
Labelling	Adhesive labels
Existing labelling: tabular 4	200 products
Existing labelling: tabular 8	100 products
Existing labelling: linear	225 products
Products with no labelling	20 products
Additional labels required due to multilingual labelling	150 labels
Products requiring format changes due to mandatory nutrition labelling	10 products (4) 45 products (6-7)
Cost range	Tabular label of 7 with lab analysis: € 1,643,900 Linear label of 7 (no design change): € 841,000
Economically acceptable scenarios to the company	Tabular labelling of 4, or linear
Economically unacceptable scenarios to the company	Tabular labelling of 7 even with transition

Comments:

- Medium-sized company with over 500 products, already nutrition labelling to a relatively significant degree.
- Use of lower cost adhesive labels.
- Label changes would be required for 445 products and additional labels may be required for 150 products with the potential introduction of tabular nutrition labelling of 7 items due to the lack of space to accommodate existing multilingual labelling.
- In view of the number of products that require relabelling, the one-off cost of nutrition labelling for 7 items on the basis of laboratory analysis is in excess of € 1.6 million. This cost could potentially be reduced by about 25% by using company specific computer programmes and databases of average values, if available.
- With a turnover of between € 5-10 million, the company could accept the lower cost option of tabular nutrition labelling of 4 items or linear nutrition labelling. Tabular labelling of 7 items is reported as being economically unacceptable, even with transition periods.

4. CONSIDERATIONS ON THE USE OF AN ONLINE QUESTIONNAIRE

To keep the questionnaire as simple to use as possible, particularly for smaller companies, the amount of data requested was kept to the minimum. It was clear, however, that a more detailed questionnaire could have been developed which would have provided further information on the impact of mandatory nutrition labelling on companies.

A small number of complaints were received from large companies who considered the questionnaire did not request sufficient detail and from small companies who considered that the questionnaire was too complex.

The number of questionnaires received was lower than expected given the degree of publicity for the questionnaire, the considerable resource that had been allocated to providing the questionnaire in 11 languages and the fact that nutrition labelling is considered to be a significant issue for the food industry. Some of the reasons for this rate of return could be the following:

- For many companies, providing comments on EU regulatory initiatives is considered to be the role of their national/European trade association.
- For many companies in the new Member States, the focus of attention would appear to be ensuring conformity with existing legislation rather than commenting on future EU legislation.
- A long period of time (eg minimum 4-6 months) is required to ensure that a questionnaire of this type reaches the person in the company who is able to fill it in. This time period was not available for this study.
- For some companies, with a large number of products (eg over 1,000) or with limited technical/regulatory support in house, the process was time consuming or technically challenging.

Nevertheless, the results of the questionnaire have provided a unique insight into the estimated costs of individual companies introducing tabular nutrition labelling onto their labels and their reactions to these estimates.

D. IMPACT ON MEMBER STATE ADMINISTRATIONS

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Interviews were carried out with bodies in the Member States that are responsible for controlling compliance with food legislation, such as nutrition labelling, with the aim of identifying any resource issues associated with the introduction of mandatory nutrition labelling.

Representatives of four Member State control authorities were interviewed (Italy, Slovakia, Sweden and the United Kingdom).

1. FACTORS INFLUENCING IMPACT ON MEMBER STATE ADMINISTRATIONS/ CONTROL BODIES

Discussions with the four control authorities indicated that there is a wide range of interrelated factors associated with the impact of the introduction of mandatory nutrition labelling:

- Prioritisation and resource allocation
- Systems of control
- Existing prevalence of nutrition labelling
- Development of additional guidance to economic operators

1.1. Prioritisation and resource allocation

In the Member States interviewed the resources that are allocated to inspection do not normally rise in line with the number of legislative initiatives that are to be controlled/sampled. The resources allocated may rise as a result of general increases in budget or indexation in line with inflation or, exceptionally, in relation to specific concerns relating to legislation. An often-stated example of the latter is the control of genetically modified organisms, which has received specific budget allocations in several Member States.

Based on discussions with Member State control authorities it would appear unlikely that the total amount of resources available for control would increase with a move to mandatory nutrition labelling. Consequently, specific allocation of human resources and finances for control purposes or for analysis largely depends on the political priority given to the issue. Generally speaking, the control of food safety issues (contaminants, microbiological agents, residue levels, etc.) would have a higher priority than issues without a direct public health impact, such as the accuracy of nutrition labelling. This is illustrated in the following table:

	Italy	Slovakia	Sweden	United Kingdom
How large a share of existing budgets is allocated to the control of nutrition labelling?	Relatively small	Relatively small	Relatively small	Relatively small
Is it likely that additional budgets would be allocated to control compliance/truthfulness of nutrition labelling?	Unlikely	Unlikely as no public safety aspect	Only if provisions (quantitative/qualitative) on controls were integrated in legal text	Unlikely
Is it likely that the control of nutrition labelling would get increased resources within the existing budget if mandatory?	Unlikely due to a high degree of existing labelling	Unlikely	Only if the control of nutrition labelling is given a high prioritisation	Unlikely due to high degree of existing labelling

1.2. Systems of control

The way that controls/sampling are carried out in the various Member States varies both in the centralisation or decentralisation of controls, the budgetary approach to control, and the way in which controls are carried out.

In respect of the approach to controls, which are themselves dependent on the resources available and the volume of food legislation and food products on the market, authorities generally adopt two different *modus operandi*.

In some Member States such as the United Kingdom and Sweden, controls/sampling consist of risk analysis based checks, which are performed after an evaluation by the control authorities of which products should be analysed. In these countries, the control authorities are always vigilant for warning signs that the nutrition labels may not be accurate and they follow up with those companies where they consider that there could be a problem. On the other hand, in some Member States, control authorities take samples of products on a random basis.

The frequency and size of sampling, and the nature of the controls influences the requirement for resources. It is however the case in all countries interviewed that the control of compliance of nutrition labelling as a part of a series of other controls is less resource intensive than a specifically targeted control. For example, carrying out a nutrition labelling control at the same time as a scheduled microbiological control.

1.3. Existing prevalence of nutrition labelling

In Member States where there is a high degree of nutrition labelling at present, the amount of additional work needed to check compliance is of course significantly lower than in those countries where nutrition labelling has a lower prevalence.

A rough estimate of cost of controls can be quantified by comparing the following criteria:

- whether a Member State has a high or low prevalence of nutrition labelling;
- whether controls will be focussed on compliance only (i.e. whether a product is nutrition labelled) or whether the accuracy of labelling will also be a priority;
- the amount of nutrients that will have to be controlled will have an impact on costs and time allocated to controls.

Each criterion can be allocated a theoretical comparative cost (1 being very low and 6 being very high) based on the qualitative information provided by the Member State control bodies. The cost is not a cost in absolute numbers but an estimated comparative indicator. As the prevalence of nutrition labelling changes considerably between the various Member States, the comparative estimations were carried out for both a high and low prevalence scenario.

Prevalence of Nutrition Labelling	Systems of Control	Nature of Controls	Number of nutrients to control	Cost						
				1	2	3	4	5	6	
High	General Food Controls	Compliance	Big four	+						
			Big eight	+						
	Compliance and accuracy	Compliance	Big four			+				
			Big eight				+			
	Controls Targeted Specifically at Nutrition Labelling	Compliance	Big four		+					
			Big eight		+					
	Compliance and accuracy	Big four				+				
		Big eight						+		
Low	General Food Controls	Compliance	Big four		+					
			Big eight		+					
	Compliance and accuracy	Compliance	Big four				+			
			Big eight						+	
	Controls Targeted Specifically at Nutrition Labelling	Compliance	Big four			+				
			Big eight			+				
	Compliance and accuracy	Big four						+		
		Big eight							+	

Cost level					
1	Very low	3	Medium low	5	High
2	Low	4	Medium high	6	Very high

Therefore, in a country such as the UK where the prevalence of nutrition labelling is high, the costs of controls on the presence of nutrition labelling and, where necessary, the accuracy of that labelling are expected to be relatively low. By contrast, where the existing prevalence of nutrition labelling is low, costs of control will be higher. However, a determining factor is of course the priority given to the controls by the Member States – the highest cost likely to be in a country in which verifying both compliance and accuracy is a high priority and where the prevalence of nutrition labelling is low.

1.4. Additional guidance to economic operators

Compliance with complex and technical pieces of legislation is logically more demanding for food operators. In such cases additional guidance in various forms might need to be developed by national administrations (where such guidance is absent or insufficient in EU legislation). Such guidance could include written practical guidelines, training workshops for food operators, on-line calculators to help with the calculation of labelling values etc. The development of guidance and on-going support would require additional resources. The responsibility for written guidelines and ongoing support often lies with the responsible ministry and/or the control authorities.

2. REDUCING THE BURDEN OF THE CONTROL OF NUTRITION LABELLING

A number of measures could be considered (some of which are already in operation in some Member States) to reduce the burden on control authorities and increase compliance with mandatory nutrition labelling legislation:

- The provision of detailed guidance and ongoing support to companies (particularly SMEs) on the purpose of nutrition labelling and how to develop nutrition labels.
- Training workshops for companies (particularly SMEs) to provide practical hands-on guidance on how to correctly label nutritional information.
- Long lead-time for the introduction of nutrition labelling to permit companies time to phase in nutrition labelling and allow existing stocks to sell out.
- Pragmatic approach to implementation and an understanding by the control authorities of the role of nutrition labelling and proportionate response to mistakes or mislabelling.
- Clarification of key technical elements on developing nutrition labels. In this respect Article 6 of the nutrition labelling Directive states: 'The rules for implementing the first paragraph with regard in particular to the differences between the declared values and those established in the course of official checks shall be decided upon in accordance with the procedure laid down in Article 10'. It would be desirable that Article 6 of Directive 90/496/EEC, which has never been completed, should be considered and the rules developed.
- Establishment of on-line calculator(s) for both enforcement officials and companies to permit the development of a nutrition label or specific on-line sectoral guidance (eg cheese, meat).

3. CONCLUSIONS

There is a wide range of interrelated factors associated with the introduction of mandatory nutrition labelling and its impact on the resources of control authorities. These include the prioritisation and allocation of resources, the systems of control in place, the existence of common technical guidance across the EU, the existing prevalence of nutrition labelling and the level of support available to manufacturers to help them develop labels that are in conformity with the law. In discussions with the four Member States, no concern was expressed that there would be significant resource implications for the control authorities.

E. APPENDIXES

Economic Impact Assessment Questionnaire

(English version)

Economic impact assessment questionnaire

DEADLINE 16/08/2004

Since January 2003, the European Commission's Health and Consumer Protection Directorate General (DG SANCO) has been in consultation with stakeholders on the amendment of Nutrition Labelling Directive 90/496/EEC.

One element being considered by the Commission is to what extent mandatory nutrition labelling would prove burdensome to food industry operators. The Commission has therefore engaged a Brussels-based consultancy, European Advisory Services, to facilitate and co-ordinate the collection and analysis of data on the potential costs and economic impact of changes to existing nutrition labelling rules.

This online questionnaire will provide information that will assist the Commission in assessing the impact of different policy options and will indicate how operators will be affected by any changes to labelling rules.

IMPORTANT: The names of individual companies will NOT be included in any assessment provided to the Commission.

Your cooperation in completing the attached questionnaires is very much appreciated.

Economic impact
assessment
questionnaire

[Completing the questionnaire](#)

Completing the Questionnaire

Please read the following before starting the questionnaire.

The Questionnaire contains 3 sections:

Section A (Business Characteristics)

requests general information relating to your business operations.

Section B (Cost of nutrition labelling)

asks you to provide information on how your products are currently labelled. On providing this information the approximate costs to your business will be calculated for you automatically. **This questionnaire can therefore only be completed online.**

Section C (Impact on business)

asks you to reflect on different cost-scenarios and the potential impact on your business.

To preview/print the full questionnaire: [PDF Questionnaire](#)

Important: this questionnaire can however only be completed and submitted online.

Economic impact
assessment
questionnaire

Before you complete the questionnaire you will need to have the following data available:

The approximate size of average sales (in number of units) of your best-selling and least-selling product.

The approximate turnover of your company.

The type of labelling used on the majority of your products i.e. labels printed on pack or labels applied to the pack (adhesives)

An overview of currently labelling practice i.e.

The number of products not including nutrition labelling

How many products contain labelling in tabular or linear form

The number of products for which 4 or 8 items are labelled (see examples below)

The number of product for which the inclusion of a table with 8 items would require a fundamental change of label concept design

An idea of how the potential costs (that will be calculated automatically for you) will impact your company and whether this may lead to a change in product prices.

Examples of labelling with 4 items and 8 items:

4 items

Typical values	Per 100g
Energy	710kJ 170kcal
Protein	8g
Carbohydrates	13g
Fat	10g

8 items

Typical values	Per 100g
Energy	710kJ 170kcal
Protein	8g
Carbohydrates	13g
Of which sugars	3g
Fat	10g
Of which saturates	4g
(Fibre)	(1g)
Sodium	Trace

[Start completing the questionnaire](#)

The Economic Impact of Mandatory Nutrition Labelling

Please enter your Company name and contact details. This information is purely to facilitate the co-ordination of responses and to follow up on any missing information. The names of individual companies will NOT be included in any assessment provided to the Commission.

Company Name	<input type="text"/>
Contact tel.no.	<input type="text"/>
Contact e-mail	<input type="text"/>

A. Business Characteristics

Q.1. In which of the following sectors is your company active?

- | | |
|----------------------------------|------------------------------------|
| Beer | Processed meat |
| Bread | Raw material for bakery/
pastry |
| Breakfast cereals | Roasted coffee |
| Chilled food | Salt |
| Chocolate/biscuits/confectionary | Sauces & Spices |
| Dairy products | Semolina |
| Dietetic products | Snacks |
| Flours | Soft drinks |
| Frozen products | Soluble coffee |
| Fruit and vegetable conserves | Soups |
| Fruit and vegetable juices | Starch |
| Herbal infusions | Stocks/soups |
| Ice cream | Sugar |
| Margarine | Tea |
| Oils | Transformed potatoes |
| Packaged Waters | Vegetal proteins |
| Pasta | Yeast |

Other :

Q.2. On average how many units (i.e. individual bottles/tins/cans/packets) does your best-selling/least selling product sell per year?

Best selling product:

- < 50,000
- 50 - 100,000
- 100,000 - 250,000
- 250,000 - 1 million
- 1 million - 50 million
- > 50 million

Least selling product:

- < 50,000
- 50 - 100,000

- 100,000 - 250,000
 - 250,000 - 1 million
 - 1 million - 50 million
 - > 50 million
-

Q.3. What is your average annual turnover?

- Turnover up to 2 million euro
 - Turnover up to 5 million euro
 - Turnover up to 10 million euro
 - Turnover up to 50 million euro
 - Turnover over 50 million euro
-

Q.4. In which EU Member State is your company based?

- | | | |
|------------|-------------|----------|
| Austria | Greece | Poland |
| Belgium | Hungary | Portugal |
| Cyprus | Ireland | Slovakia |
| Czech Rep. | Italy | Slovenia |
| Denmark | Latvia | Spain |
| Estonia | Lithuania | Sweden |
| Finland | Luxembourg | UK |
| France | Malta | |
| Germany | Netherlands | |
-

Q.5. Do you export your products to other EU Member States?

- yes no
-

Q.6. What sort of labels do you use on the majority of your products?

- Label Printed on Pack Label Applied to Pack (adhesives)
-

B. Cost of Nutrition Labelling

Q.7. Do all your products/stock-keeping units (SKUs) already include nutrition labelling of 8 items in the form of a table?

- yes no

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Q.8.a. How many of your products/SKUs do NOT contain nutrition labelling at all (either in a tabular or linear form)?

Please fill in numerals (e.g. '7' not 'seven')

Q.8.b. How many of your products/SKUs include either 4 or 8 items of nutrition labelling in a linear or tabular form?

Table 1: Current labelling practice

	4 items	8 items
Linear labelling	<input type="text"/>	<input type="text"/>
Tabular labelling	<input type="text"/>	<input type="text"/>

Q.8.c. Do you currently use multilingual labels?

yes

no

Q.8.d. The addition of nutrition labelling in tabular form may not be possible for either technical reasons (lack of space) or legal reasons (restrictions on permitted size of packaging)? For how many of your products/SKUs would this be the case?

Q.8.e. Imagine the following scenario. You are obliged to include nutrition labelling in a tabular form on all your products. Including a table is feasible (there is enough space), but would require a fundamental change in the layout/format of the product labelling design (i.e. these are not small changes that can easily be accommodated).

i. If the above scenario applies to you, for how many of your products/SKUs would a fundamental change to label design be needed if you were asked to include 4 items ?

Do not include those products counted in 8.d.

ii. For how many of ADDITIONAL products/SKUs would a fundamental change to label design be needed if you were asked to include 8 items ?

Do not include those products counted in 8.d. or 8.e.i.

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Estimated costs to your business of mandatory nutrition labelling

On the basis of the information you have provided so far, and taking into account the average costs of analysis, labelling production, disposal and administrative costs and design costs, the table below provides you with an estimated cost to your business. These costs reflect a change of nutrition labelling rules to mandatory labelling of 7 items in a tabular form on the basis of comparative analysis using established data. (The policy option of mandatory labelling of an eighth item is generally not favoured due to the complications and cost of fibre analysis).

Costs	Estimated cost to your business
A. Analysis costs (using established data such as comparative tables)	x €
B. Labelling costs (including minor design changes, production costs, administration costs and disposal costs)	x €
C. Costs of redesigning product labels	x €
<i>Total Cost of Nutrition Labelling</i>	x €

Q.9. Please evaluate the relevance of the costs in the table above to your business:

9.a. I consider that the analysis costs (A) are:

- approximately correct
- overestimated
- underestimated
- don't know

9.b. I consider that costs associated with changing the label, administration and disposal (B) are:

- approximately correct
- overestimated
- underestimated
- don't know

9.c. I consider that costs associated with redesign (C) are:

- approximately correct
- overestimated
- underestimated
- don't know

C. Impact on Business

During consultation with stakeholders, the Commission has discussed different policy options such as labelling 4 or 7 items, different types of analysis, exemptions and transition periods. Some of these policy options are reflected in the scenarios below. The cost of each scenario has been calculated for you.

Q.10. Please read the statement below and then provide your opinion on the 5 cost scenarios using a scale of 1 to 7 (1= strongly disagree: 7= strongly agree).

There is a growing demand for full information about the products we eat. Nutrition labelling provides important information about the nutrient content of food and can facilitate the food choices of informed consumers. Manufacturers can use nutrition labelling to draw attention to the particular health-related properties of their own products and consumers can select foods that may bring potential long-term benefits to health."

In the light of the above, I consider the following costs (incurred due to the mandatory provision of more comprehensive nutrition labelling) to be acceptable to my business.

Scenario 1 : 1 euro (single payment, not yearly)

1	2	3	4	5	6	7
strongly disagree						strongly agree

Scenario 2 : 1 euro (single payment, not yearly)

1	2	3	4	5	6	7
strongly disagree						strongly agree

Scenario 3 : 1 euro (single payment, not yearly)

1	2	3	4	5	6	7
strongly disagree						strongly agree

Scenario 4 : 1 euro (single payment, not yearly)

1	2	3	4	5	6	7
strongly disagree						strongly agree

Scenario 5 : 0 euro as a yearly cost over 3 years

1	2	3	4	5	6	7
strongly disagree						strongly agree

Q.11. Do you feel that the costs incurred due to the introduction of mandatory nutrition labelling would have (please tick as relevant):

NO impact on the end costs of the product as sold to the consumer

MARGINAL impact on the end costs of the product as sold to the consumer

SIGNIFICANT impact on the end costs of the product as sold to the consumer

Q.12. Do you anticipate significant costs not taken into account in this questionnaire? If so what would you consider to be the impact of such costs per product?

Once the questionnaire is completed, please click on the submit button below.

Nutrition labelling company questionnaire
breakdown by country with indication of food category and turnover

**NUTRITION LABELLING COMPANY QUESTIONNAIRE
BREAKDOWN BY COUNTRY WITH INDICATION OF FOOD
CATEGORY AND TURNOVER**

Category	Austria		
	Turnover in €		
	≤ 2 million	> 2 million - < 50 million	> 50 million
Beer			
Bread			
Chocolate/biscuits/confectionary			
Fruit and vegetable juices			
Herbal infusions			1
Packaged waters			
Sauces and spices			
Soft drinks			
Tea			
Bread			1
Chocolate/biscuits/confectionary			1
Bread	1		
Chocolate/biscuits/confectionary			
Chocolate/biscuits/confectionary			
Ice cream			1
Sauces & Spices			
Dairy products			2
Dietetic products			
Fruit and vegetable conserves			1
Fruit and vegetable juices			
Packaged waters	1		
Raw material for bakery/pastry			1
Salt			1
Sauces and spices			
Sugar			1
Wide range of food products			1

Category	Belgium		
	Turnover in €		
	≤ 2 million	> 2 million - < 50 million	> 50 million
Beer	2	4	2
Bread	1		
Cereals			1
Chilled food		1	
Dairy Products			1
Packaged Waters			1
Sauces and Spices			1
Soups			
Fruit and vegetable juices			1
Starch			1

Czech Republic

Category	Turnover in €		
	≤ 2 million	> 2 million - < 50 million	> 50 million
Chocolate/biscuits/confectionary		1	
Fruit and vegetable conserves			
Wide range of food products			1

Denmark

Category	Turnover in €		
	≤ 2 million	> 2 million - < 50 million	> 50 million
Chocolate/biscuits/confectionary			1
Chocolate/biscuits/confectionary		1	
Dietetic products			
Processed meat			
Soft drinks			
Snacks			
Chocolate/biscuits/confectionary			1
Frozen products			
Ice Cream			
Pasta			
Sauces/Spices			
Dairy products			1
Packaged waters		1	

Estonia

Category	Turnover in €		
	≤ 2 million	> 2 million - < 50 million	> 50 million
Chilled food			1

Finland

Category	Turnover in €		
	≤ 2 million	> 2 million - < 50 million	> 50 million
Chocolate/biscuits/confectionary			1
Chocolate/biscuits/confectionary			
Ice Cream			1
Sauces/Spices			

France

Category	Turnover in €		
	≤ 2 million	> 2 million - < 50 million	> 50 million
Beer			1
Bread			
Flours			1
Frozen products			
Raw material for bakery/pastry			
Chilled food		1	
Chilled food		2	
Processed meat			
Chocolate/biscuits/confectionary		1	2
Chocolate/biscuits/confectionary			
Ice cream			1
Sauces & spices			
Soups			
Starch			
Dairy products		2	4
Dietetic products		1	2
Frozen products		1	
Fruit and vegetable juices			1
Ice cream			1
Pasta		1	
Processed meat			1
Roasted coffee			1
Snacks			
Sauces & Spices			
Soups			1
Stocks/Soups			
Sauces & Spices			
Soups			1
Stocks/Soups			
Transformed potatoes			
Soluble coffee			1
Wide range of food products			2

Germany

Category	Turnover in €		
	≤ 2 million	> 2 million - < 50 million	> 50 million
Beer	1		
Chilled food			1
Processed meat			
Chilled food		1	
Processed meat			
Snacks			
Chocolate/biscuits/confectionary			2

Germany (continue)

Chocolate/biscuits/confectionary			
Fruit and vegetable conserves			
Ice cream			1
Pasta			
Sauces & Spices			
Transformed potatoes			
Dietetic products		1	
Dietetic products			
Sauces & Spices		1	
Soups			
Vegetal proteins			
Flours			
Ice Cream			1
Raw material for bakery/pastry			
Oils	1		
Processed meat		4	5
Sauces & spices			1
Soups			
Snacks			1
Soups			1
Wide range of products			1

Greece

Category	Turnover in €		
	≤ 2 million	> 2 million - < 50 million	> 50 million
Bread			
Chocolate/biscuits/confectionary			
Dairy products			
Ice Cream		1	
Margarine			
Oils			
Raw material for bakery/pastry			
Yeast			
Chocolate/biscuits/confectionary			1
Chocolate/biscuits/confectionary			
Dairy products			1
Ice Cream			
Sauces & Spices			
Dairy products			1
Flours			1
Margarine			
Oils		1	
Packaged waters			
Soft drinks			1
Pasta	1		
Wide range of food products			1

Hungary

Category	Turnover in €		
	≤ 2 million	> 2 million - < 50 million	> 50 million
Chocolate/biscuits/confectionary	1		
Sauces & Spices			
Sauces & Spices			
Soups			
Ice cream			
Margarine			1
Tea			
Oils			
Pasta			
Wide range of food products			1

Ireland

Category	Turnover in €		
	≤ 2 million	> 2 million - < 50 million	> 50 million
Breakfast cereals			
Chilled food	1		
Dairy products			
Breakfast cereals			
Flours			1
Raw material for bakery/pastry			
Chocolate/biscuits/confectionary		1	
Chocolate/biscuits/confectionary			
Pasta			1
Sauces & Spices			
Dairy products		1	1
Sauces & Spices		1	
Soups			
Snacks		1	
Soft drinks			1

Italy

Category	Turnover in €		
	≤ 2 million	> 2 million - < 50 million	> 50 million
Chocolate/biscuits/confectionary			1
Chocolate/biscuits/confectionary			
Frozen products			1
Sauces & spices			
Snacks			
Dairy products	1		
Dietetic products		1	
Food and vegetable conserves			
Stocks/Soups			1
Processed meat			

Italy (continue)

Fruit and vegetable conserves			1
Fruit and vegetable juices			
Fruit and vegetable conserves			1
Fruit and vegetable juices			
Soft drinks			
Margarines	1		
Processed meat		1	
Soft drinks	1		
Wide range of food products		1	1

Malta

Category	Turnover in €		
	≤ 2 million	> 2 million - < 50 million	> 50 million
Margarines		1	
Vegetal proteins		1	

Netherlands

Category	Turnover in €		
	≤ 2 million	> 2 million - < 50 million	> 50 million
Chocolate/biscuits/confectionary			
Ice cream			
Pasta			1
Sauces & Spices			
Soups			
Dietetic products		1	
Processed meat		1	
Snacks			
Soft drinks			1
Wide range of products			1

Poland

Category	Turnover in €		
	≤ 2 million	> 2 million - < 50 million	> 50 million
Chocolate/biscuits/confectionary		1	1
Chocolate/biscuits/confectionary			
Dairy products			1
Ice cream			
Sauces & Spices			
Chocolate/biscuits/confectionary			
Dietetic products			
Sauces & Spices			1
Soluble coffee			
Soups			

Portugal

Category	Turnover in €		
	≤ 2 million	> 2 million - < 50 million	> 50 million
Chocolate/biscuits/confectionary			1
Ice cream			
Dairy products		1	1
Dairy products			
Frozen products			
Fruit and vegetable juices			1
Herbal infusions			
Packaged waters			
Dietetic products	2		
Fruit and vegetable conserves		1	
Margarines			1
Wide range of food products		1	1

Slovakia

Category	Turnover in €		
	≤ 2 million	> 2 million - < 50 million	> 50 million
Chocolate/biscuits/confectionary		1	
Fruit and vegetable conserves			

Slovenia

Category	Turnover in €		
	≤ 2 million	> 2 million - < 50 million	> 50 million
Chocolate/biscuits/confectionary			
Ice Cream		1	
Sauces & Spices			
Sugar			

Spain

Category	Turnover in €		
	≤ 2 million	> 2 million - < 50 million	> 50 million
Bread		1	
Chilled food			
Chilled food		1	
Frozen foods			
Chilled food			
Pasta			
Sauces & Spices			1
Soups			
Stocks/Soups			
Chocolate/biscuits/confectionary		1	

Spain (continue)

Dairy products			1
Dietetic products			1
Dietetic products			
Fruit and vegetable conserves			
Herbal infusions			
Oils			1
Sauces & Spices			
Snacks			
Tea			
Fruit and vegetable conserves		1	
Oils	2	7	2
Packaged waters		1	
Processed meat	2	3	1
Sauces & Spices	1		
Soft drinks		1	

Sweden

Category	Turnover in €		
	≤ 2 million	> 2 million - < 50 million	> 50 million
Chilled food			
Frozen products			1
Processed meat			
Chilled food			
Frozen products			1
Pasta			
Processed meat			
Chocolate/biscuits/confectionary			
Frozen products			
Ice Cream			1
Pasta			
Sauces & Spices			
Chocolate/biscuits/confectionary			1
Dietetic products			1
Ice cream			
Wide range of food products			1

UK

Category	Turnover in €		
	≤ 2 million	> 2 million - < 50 million	> 50 million
Beer		2	1
Breakfast cereals			1
Breakfast cereals			
Snacks			2
Chilled food			1

UK (continue)

Chilled food			
Frozen products			
Fruit and vegetable juices			
Pasta			1
Processed meat			
Soups			
Stocks/Soups			
Vegetal proteins			
Chocolate/biscuits/confectionary			1
Chocolate/biscuits/confectionary			
Ice Cream			1
Sauces & Spices			
Stocks/Soups			
Chocolate/biscuits/confectionary			
Fruit and vegetable conserves			
Ice cream			
Pasta			1
Sauces and spices			
Soups			
Transformed potatoes			
Chocolate/biscuits/confectionary			
Dairy Products			
Processed meat			
Roasted coffee			1
Sauces & Spices			
Soft Drinks			
Soluble coffee			
Snacks			
Dietetic products		2	
Dietetic Products			1
Soft drinks			
Dietetic products			1
Soft drinks			
Snacks			
Dietetic Products			
Food and vegetable juices			1
Soft drinks			
Packaged waters			
Fruit and vegetable conserves			
Fruit and vegetable juices			
Pasta			
Salt			1
Sauces & Spices			
Snacks			
Stocks/Soups			
Pasta			
Processed meat			
Sauces & Spices			1
Soups			
Stocks/Soups			
Roasted coffee		1	
Tea			
Salt		1	
Wide range of food products			2