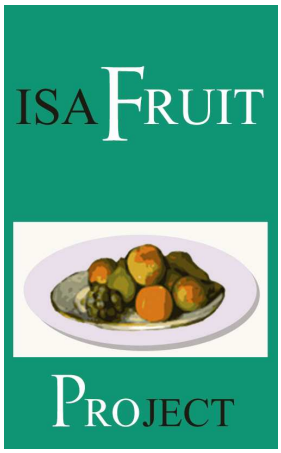


Project no.: 016279

Project acronym: ISAFRUIT

Project title: Increasing fruit consumption through a trans disciplinary approach leading to high quality produce from environmentally safe, sustainable methods

Instrument: Integrated project

Thematic Priority: Food Quality and Safety

D1.2.7: Cross-cultural benefit segmentation of consumers

Due date of deliverable: July, 2009
Actual submission date: December 29th, 2009

Start date of project: 01-01-2006 Duration: 57 months

Organisation name of lead contractor for this deliverable: Wageningen UR – Agricultural Economics Research Institute (WUR-LEI)

Revision: final

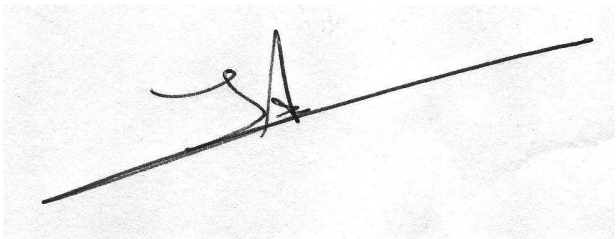
Project co-funded by the European Commission within the Sixth Framework Programme (2002-2006)		
Dissemination Level		
PU	Public	X
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

Description of deliverable

The present work was carried out within the Project 'ISAFruit'. The strategic objective of this project is to increase fruit consumption and thereby improve the health and well-being of Europeans and their environment, by taking a total chain approach and identifying bottlenecks and opportunities in the fruit chain from a consumer perspective. The report is a deliverable of Workpackage 1.2 (CONPREF) of Pillar 1, which focuses on the area of 'Consumer driven and responsive supply chain'.
The aim of Workpackage 1.2 is to understand the forces that drive consumer preferences with respect to fruit and fruit products in order to identify consumer segments to stimulate consumption. This deliverable (D1.2.7) presents the outcomes of a cross-cultural benefit segmentation in relation to fruit consumption. The presentation is split into two main chapters, which are to be separately submitted to journals for publication. The first chapter focuses more on the segmentation method that has been applied. It shows that, although it is rarely applied in the food domain, benefit segmentation seems a promising area for both research and practice. Furthermore, this study shows that it is relevant to take into account both product benefits and situations when aiming at a useful segmentation of the market. The second chapter focuses more on the implications of the results for increasing fruit consumption. This chapter aims to formulate strategies to support promotion campaigns and product development with regard to fruit based on the benefit segmentation across different situations and countries.

Connection of deliverable with project goals:
This deliverable identifies the trade-offs that consumers in different cross-cultural and cross-situational segments make between the benefits of food products. This identification gives us better insight in the importance of different fruit –consumption motives and barriers, which were already investigated in Workpackage 1.2 on the basis of the existing literature and by means of focus-group discussions (see D1.2.2 and D1.2.3). In a consumer-driven approach, these motives and barriers are the starting point for thinking about strategies to increase fruit consumption and in this way this deliverable contributes to the objective of Pillar 1 "… the development of consumer-driven, efficient, responsive, and innovative supply chains for the growth of fruit consumption in Europe and for a competitive and sustainable fruit industry,", and ISAFRUIT's overall strategic objective.

This deliverable was made in cooperation between the partners 10 (WUR-LEI), 24 (UPM), 38 (WAU), 29 (AUA), and 4 (IRTA).



Wageningen, January 14th, 2010

Ivo A. van der Lans
Scientific coordinator of Pillar 1
10 (WUR-LEI)

D1.2.7: Cross-cultural benefit segmentation of consumers

Authors: Machiel J. Reinders[1], Marleen C. Onwezen[1], Siet J. Sijtsema, Karin L. Zimmermann[1], Isabelle van den Berg[1], Anna Jasiulewicz[2], M. Dolors Guardia[3], and Lluis Guerrero[3]
[1] LEI Wageningen UR – The Netherlands, [2] Warsaw Agricultural University (WAU) – Poland
[3]IRTA – Spain

Acknowledgement
The present work was carried out within the Project 'ISAFRUIT '. The strategic objective of this project is to increase fruit consumption and thereby improve the health and well-being of Europeans and their environment, by taking a total chain approach, identifying the bottlenecks and addressing them by consumer-driven preferences. The report is a deliverable of Pillar 1, which focuses on the area of 'Consumer driven and responsive supply chain'.

The authors want to thank the European Union for financing the ISAfruit project (www.isafruit.org). In this way they support the cooperation of research with the fruit industry to gather and integrate insights in a whole lot of different aspects from farm-to-fork. These insights will help the fruit industry playing into consumer demands and needs, and improve in the price, quality, safety, availability and sustainable production of fruit and fruit based products.

The authors also thank their partners in the project: Julian Briz, Teresa Briz, Sara Peña, Érika Valério, M. Cristina Fernández, Isabel de Felipe and Dimitris Kapetanakis from Universidad Politécnica de Madrid, Agnieszka Bolek from Warsaw Agricultural University, and Andreas Drichoutis and Panagiotis Lazaridis from Agricultural University Athens.

More information: www.ISAfruit.org

Project no. 40381 / 40706

Agricultural Economics Research Institute (LEI B.V.)
Of Wageningen University and Research centre

Address	:	Alexanderveld 5, P.O. box 29703, The Hague, 2502 LS, The Netherlands
	:	
Tel.	:	+31 70 3358330
Fax	:	+31 70 3615624
E-mail	:	info.lei@wur.nl
Internet	:	www.lei.wur.nl

Table of contents

Summary

The present report, deliverable D.1.2.7, gives a final view of the work done in ISAFruit Work Package (WP) 1.2. Average Europe fruit consumption is below the recommended level and moreover the consumption level is still decreasing in Europe. A large survey was carried out in four European countries that consisted of questions regarding the importance consumers attach to food related benefits in general and for specific situations, personal orientations of the consumers, personal characteristics of the consumers, the perception of fruit products, and the fruit consumption behaviour of the consumers. A cross-cultural benefit situation segmentation was conducted. Based on the results of this cross-cultural benefit segmentation two scientific papers are presented.

The first paper shows that it is relevant to take into account both benefits and situations. The results reveal that it is important to take multiple situations and consumption moments into account, as well as multiple benefits regarding different aspects of health, convenience, safety, sensory and personal norms. The exploration of benefit situation segmentation is a challenging and interesting route which seems promising for application in the domain of food.

The second paper aims to formulate strategies to support promotion campaigns and product development with regard to fruit based on benefit segmentation in different situations. The results of this study describe segments in terms of what product benefits are most important, what the characteristics of the consumers in this segment are and what kind of lifestyle and fruit consumption behaviour these consumers have. This study shows that the importance attached to the product benefits convenience, health and safety seem to differ a lot between the segments. Practical recommendations for fruit promotion campaigns and product development are provided.

To conclude, deliverable 1.2.7 shows that multiple benefits and different situations are important for the identification of cross cultural consumer segments. Moreover, these consumer segments can be used to formulate strategies to support promotion campaigns and product development with regard to fruit.

1. Consumer segmentation based on situational differences in food-choice motives in the context of fruit consumption[1]

1.1 Abstract

Average Europe fruit consumption is below the recommended level and moreover the consumption level is still decreasing in Europe. The aim of this study is to explore the role of situations in the importance consumers attach to benefits in the context of fruit. A large survey was carried out in four European countries that consisted of questions regarding the importance consumers attach to food related benefits in general and for specific situations, personal orientations of the consumers, and the perception of fruit products and non food products. A cross-cultural benefit segmentation with regard to fruit in different situations was conducted. The present study shows that taking into account both benefits and situations is relevant. Moreover, the results reveal that it is important to take multiple situations and consumption moments into account, as well as multiple benefits regarding different aspects of health, convenience, safety, sensory and personal norms. The exploration of benefit situation segmentation is a challenging and interesting route which seems promising for application in the domain of food.

[1] This study is sponsored by the European ISAFRUIT-project: www.isafruit.org.

1.2 Introduction

Heterogeneity among consumers is challenging food-supply chains for several decades. In order to address this heterogeneity, consumer segmentation is applied and studied from different perspectives (e.g., see Gil, Gracia, and Sánchez, 2000; Green, Carmone, and Wachspress, 1976; Wedel and Kamakura, 2002). Segmentation refers to a classification of similar subjects into groups, where often the number as well as the composition of groups is unknown (Smith, 1956; Wedel and Kamakura, 2002). There are multiple ways in which consumers differ from each other and therefore there are multiple ways to segment them. The literature distinguishes between basic segmentation, based on geographical, socio-economic, psychographic variables (Kotler, 2002; Solomon, 2006), different kinds of hybrid segmentation and segmentation based on lifestyle (Glanz et al., 1998; Veal, 2000; Senkus, 2007). Earlier research has demonstrated that the benefits, which are the desires consumers seek to fulfill with the purchase of a product (Botschen, Thelen, and Pieters, 1997; Gutman, 1982) are the fundaments of market segments (Haley, 1968; Kotler, 1991; Van Duyn and Pivonka, 2000; Wind, 1978). This implies that segmentation of consumers on the base of these underlying benefits of product attributes is an effective way to conduct marketing strategies (Costa, Dekker, and Jongen, 2004; Young and Feigin, 1975) or supports advertising and promotional campaigns (Solomon, 2006; Glanz et al., 1998).

Although benefit segmentation is stated to be an appropriate approach to support promotion campaigns and product development, to our best knowledge applications in the food domain are rare. Recently some segmentation studies have been carried out in the food domain. Geeroms, Verbeke, and Van Kenhove (2008) use health-related motive orientations to segment consumers and Buckley, Cowan, and McCarthy (2007) use attitudes with regard to a convenience-related lifestyle. But segments can also be based on actual consumption and the underlying consumption motives, like for example the study of Wansink and Westgren (2003).

Since benefit segmentation seems a promising area for both research and practice and is rarely applied in the food domain, the aim of this study is to explore consumer segmentation with regard to food benefits. We apply this approach in the context of a consumer survey on fruit consumption. Fruit consumption can lead to a lower risk for diseases like coronary heart diseases and specific types of cancer or premature death (Brug et al., 1995; Gerster, 1991; Hertog et al., 1993). Also in the perception of consumers fruit is a generally perceived as healthy (Briz et al., 2007). Nevertheless consumption all over Europe is decreasing. Therefore, the aim of this study is to explore benefit segmentation with regard to fruit. Although it is outside the scope of this research those segments are likely to support interventions and new product development.

Several interesting and novel aspects of this consumer segmentation will be studied for the fruit domain. First, we would like to argue that the differences in evaluation of food benefits may account for significantly different consumer segments with respect to the evaluation of food benefits. Second, in addition to studies that pay attention to the role of health-related (Geeroms et al., 2008) or convenience-related (Buckley et al., 2007) motives of people's food choice behaviour, we pay attention to the combination of these different food benefits (health and convenience). Besides health and convenience, taste is one of the main motives in food choice (Glanz et al., 1998). These are together regarded as the most important food choice motives (Rozin, 2006). Those three are included, but also additional benefits like safety, personal norms, and hedonic issues are taken into consideration. Third, already in the 70's and 80's of the

last century, the influence of situational factors on consumer behaviour was discussed in the marketing literature. Belk (1974) discusses that consumer research has much to gain by the explicit recognition of purchase and consumption situations, especially relationships of attitudes, personality (and brand loyalty) to consumer behaviour seem to benefit from situational research. In addition, since the 80's the role of situations is also discussed in the food literature from a new-product development and a sensory perspective. Especially Meiselmann stresses the impact of situation (for a review, see Meiselmann, 2007). From a social psychological perspective, Rozin (2006) states that food choice is also determined by momentary features, like the location or the time of day, in addition to relatively stable features, like the properties of the food products themselves. However, despite its relevance in determining consumption choice, the role of situations only recently attracts attention from the academic literature (e.g., King, Weber and Meiselman, 2004). Moreover, in a food context there are to our best knowledge no segmentation studies that include situation. Therefore in this study we explicitly want to take the role of situations into consideration by focusing on the relative importance of food benefits in a number of different situations. Fourth, this study will explore whether several segments may exist across four European countries for which different food benefits or motives are important. According to Steenkamp and Baumgartner (1998), a fuller understanding of consumer behavior requires cross-validation in different countries.

Fifth, this study investigates possible linkages between consumer benefit segmentation and consumer perception of fruit and two competitor food products.

In sum, in this study we use the instrument of segmentation to explore the heterogeneity in terms of different benefits as possible motives for fruit consumption, both across consumers and across consumption situation.

1.3 Method

Participants.

A cross-cultural study was conducted in The Netherlands (n=560), Greece (n=514), Poland (n=515), and Spain (n=494) with a total amount of 2083 respondents. Participants were recruited from online panels and embody a representative sample of the country populations in terms of age, gender, educational and income level.

The demographic characteristics of these respondents were as follows. The sample consisted of 50.3% females and 49.7% males. The age of the respondents in the sample ranged from 12 to 79 years (M = 38.3; SD =12.3). With regard to education, each country has a different educational system. To make comparison between countries possible, three educational levels, which are more or less comparable across countries, were distinguished: low (e.g., elementary school), medium (e.g., high school) and high (e.g., college or university). Of the total sample 4.4 % of the respondents had an educational level that was considered as low, 46.4 % of the respondents had an educational level that was considered as medium, and subsequently 49.2% of the respondents had a high educational level. An overview of these demographics for each country is presented in Table 1.

Design of the questionnaire.

The respondents completed an on-line questionnaire on benefits for food consumption in general and benefits for food consumption in more specific situations. The specific situations were constructed according to a 2 × 3 design including one between-subjects factor (Consumption moment: Main meal versus Snack) and one within-subjects factor (Location of consumption: At home versus At work versus On the road). Half of the respondents evaluated the importance of benefits for a main meal in three different consumption locations (n=1045) and half of the respondents evaluated the importance of benefits for snacks in the three consumption locations (n=1038). Subsequently, respondents filled out questions from established multi-item scales measuring their health and convenience orientation in the context of food. Respondents' scores on these scales were used to validate differences in terms of benefit importances. Then, respondents were asked for their perception as to the extent the benefits are applicable to four fruits (apple, peach, orange juice, dried fruit) and two non-fruit products (candy bar, salty snack). Finally, some demographics were asked.

Measurements.

Food benefit importances (14 items). Focus-group discussions were held to identify the most relevant food benefits in the context of fruit consumption. In total twelve focus groups were carried out in February 2007. In each of the four countries, three focus groups of 6-10 persons (total n=94) were conducted. The identified benefits refer to health, convenience, sensory aspects, safety, personal norms and hedonism. . The health-related benefits were 'Prevents diseases', 'Giving energy', 'Satisfying hunger', and 'Making me feel healthy', The convenience-related benefits were 'Not giving dirty hands', 'Easy to take along', 'Easy to eat', and 'Not taking much time to eat'. Besides that a sensory benefit 'Having a good taste' a safety-orientated benefit 'Containing no pesticides', benefits related to personal norms 'Making me feel doing the right thing' and 'Making me feel responsible parent' and benefits related to hedonism 'Brings back good memories from my childhood' and 'Is fun' were taken into account.

In the present study respondents were asked to rate the importance of these benefits. (see Appendix A for the questionnaire). The importance of the benefits was measured on five-point rating scales ranging from 1 ("very unimportant") to 5 ("very important"). As mentioned, respondents were asked to rate the importance of these benefits not only for food consumption in general, but also for food consumption in specific situations. The importance of the benefit 'Contains no pesticides' was not asked in relation to specific situations as it turned out in a pilot study that respondents became annoyed by especially seeing this question over and over again.

Convenience orientation (5 items) refers to the extent one believes it is important that food is easy to prepare buy and consume. The used items were selected from the original convenience orientation scale developed by Olsen et al. (2007). Likert scale items were used to measure the convenience orientation ranging from 1 ("strongly disagree") to 5 ("strongly agree"). The selected items were tested in a pilot study (see Reinders, Jager and Bartels, 2008).

Health orientation (6 items) aims to measure the general health interest and the natural product interest of consumers. This scale was originally developed by Roininen, Lähteenmaki, and Tuorila (1999). In the present study a selection of twelve of the original items was made based on their content and a pilot study (see Reinders, Jager, and Bartels, 2008). Based on factor analyses six items were selected which measure health orientation. Likert scale items were used to measure the health orientation (ranging from 1 = "strongly disagree" to 5 = "strongly agree").

Food benefit perceptions (14 items). Consumer perceptions as to the extent the benefits are applicable to four fruits (apple, peach, orange juice, dried fruit) and two non-fruit products (candy bar, salty snack) were measured with Likert scale items ranging from 1 ("strongly disagree") to 5 ("strongly agree"). As a pilot study (Reinders, Jager, and Bartels, 2008) showed that respondents were confused by questions asking for their perceptions as to the extent that chocolate bars and salty snacks do not contain pesticides, this benefit was left out for these two non-fruit products.

Analysis.

The analysis of the data consisted of three main steps. At first, factor analyses and reliability analyses were conducted to reveal the reliability and validity of the scales for health and convenience orientation. Secondly, cluster analysis was carried out by means of a finite mixture model. Finally, the emerging clusters were profiled in terms of benefit importances and situations. Moreover, the clusters were validated in terms of convenience and health orientation and checked for differences in product perceptions vis-à-vis the food benefits, while controlling for differences in countries. Each of these four steps is described in detail below.

Validity and reliability. The items for convenience and for health orientation both revealed a KMO above the 0.8 and a significant Bartlett's test of sphericity. In addition, the results revealed a clear one-factor structure for both scales. Both scales revealed a much stronger first factor compared tot the other factors. This indicates that the scales were one-dimensional. The explained variance of the scales was 69.3% for convenience orientation and 50.0% for health orientation. Finally, the Cronbach's α of the health orientation scale was 0.80 and of the convenience orientation scale 0.89. Taken together these findings indicate that the scales have an acceptable level of internal consistency.

Clustering: data preparation. The data was prepared for the finite mixture modeling in two main steps. At first, the general and situation-specific benefits that

are taken into account in the cluster analysis were centered. That is, respondents'' mean benefit importance in general was calculated and subtracted from all (both general and situation-specific) benefit importances. The benefit 'Being a responsible parent' was not taken into account for the calculation of the mean score, as not every respondent is a parent and the inclusion of the importance of 'Being a responsible parent' may easily lead to biases in mean importances between parents and non-parents. The centering step has two main advantages. At first, by centering the scores, possible response tendencies were cancelled out (Cleaver and Wedel, 2001). Some consumers have a tendency to score high on all different questions, while others have a tendency to score low on all questions, as a result of their answering strategies. This will result in clusters of respondents with high answering tendencies versus clusters with respondents with low answering tendencies. The centering step is especially relevant in the case of a cross-cultural segmentation like here, as it seems possible that consumers in different countries have different answering tendencies. By centering the data and not standardizing them, the range of scoring is still taken into account (Martens and Martens, 2000; Vigneau and Qannari, 2002). The second main advantage of the centering step was that it makes the effect of the different consumption moments and locations in comparison with the basic (general) situation more clear.

The second main step to prepare the data for the cluster analysis was the formation of an extended data matrix. The benefit importances data essentially gives a three-way (respondents $\times$ benefits $\times$ situations) data matrix. Respondents rated the importance of the fourteen benefits in general and for three different situations. In this way the respondents rated the importance of the benefits four times. This three-way data matrix was transformed into a so-called extended data matrix (a.o., see Dillon, Frederick, and Tangpanichdee, 1985). That is, the data was structured, such that there are fourteen variables, one for each of the fourteen different benefits, and 4×2083 cases, one for each respondent-situation combination. In this way the variables contain the scores of the respondents on the general and the situation-specific benefits. Thus, one respondent has four different scores on each variable. As a consequence, respondents can be placed in multiple clusters, depending on the differences between the importances they attach to the benefits in different situations. This makes it possible to investigate the role of the situations in consumer segments.

Finite-mixture model. For clustering, a so-called finite-mixture model is applied, using the Latent GOLD 4.0 program (Vermunt and Magidson, 2005). The finite-mixture, or latent class, model is a type of cluster analysis based on probability-based classification, such that objects are classified into clusters based upon membership probabilities estimated directly from the model (Vermunt and Magidson, 2005). Fifteen alternative models were estimated, each model having a different number (1 till 15) of clusters. To avoid suboptimal solutions, each alternative model was fitted 10 times (Wedel and DeSarbo, 2002) from different random starting values, and for each model the best-fitting estimates were retained. Eventually the alternative model with the lowest CAIC value was chosen, as the one with the best trade-off between model fit and parsimony (Vermunt, 2003)[2]. After selecting the optimal number of clusters, we checked whether all benefits had a distinctive impact on the identification of the clusters. Benefits which showed to have a negative score for all of the clusters were removed. These benefits are not that interesting in terms of marketing strategies and make the interpretation of the clusters more difficult. For

these reasons the benefits ‘is fun’ and ‘brings back good memories from my childhood’ were excluded from further analysis.
The same procedure was repeated for the remaining twelve benefits. Fifteen alternative models were estimated (1 till 15 clusters) 10 times. Eventually the model with the amount of clusters with the lowest CAIC value was chosen. This model represents the optimal number of cross-cultural benefit segments.

Profiling the clusters. The role of the different benefits within the identification of the clusters was investigated with the use of ANOVAs. In this way it was checked whether there are clusters that are for example health related or convenience related or both.
Then, the role of situations was checked. It was analyzed whether there are clusters in which particular situations are overrepresented and other situations are underrepresented.
The role of the benefits was underlined with convenience and health orientation and the product perceptions. ANOVAs were performed to check whether health or convenience related clusters based on the benefits are also in general more health or convenience oriented. Finally, ANOVAs were used to check whether different clusters perceive the different products differently on the benefits.

1.4 Results

The finite mixture model reveals an optimal solution of fourteen consumer segments with distinct patterns of benefit importances in general and in specific situations. It has the best model fit in terms of the CAIC (= 171196). In addition, the entropy R^2 (= 0.90) is comparable with the alternative sub models. Table 2 represents the model fit of the fifteen alternative sub models (Cluster 1 until Cluster 15).

Distinctiveness of benefit importances.

The finite mixture model allocates respondent-situation combinations to clusters based on posterior probabilities. These posterior probabilities represent the chance that a respondent-situation combination belongs to a cluster. The entropy R^2 represents how well the model predicts the cluster membership, the score ranges from 0 to 1. The entropy R^2 of 0.90 indicates that the found clusters are clearly distinguishable from each other (McCutcheon, 1987). To simplify the interpretation, each respondent-situation combination has been assigned to the cluster for which it has the largest posterior probability. Table 3a and 3b present the mean (centered) importance scores of the benefits in the fourteen clusters across all situations. The effect size reveals a high explained variance for all benefits, except the safety-related benefit 'Contains no pesticides', which has a normal effect size (Kittler, Menard and Phillips, 2007). Across all clusters, the relative important benefits are 'Is tasty' (sensory), 'Containing no pesticides' (safety) and different health-related benefits 'Giving me energy', 'Helping me to satisfy my hunger', 'Prevents diseases' and 'Making me feel healthy'. Convenience-related benefits (i.e., 'Not giving me dirty hands', 'Easy to take along', 'Easy to eat', and 'Not taking much time to eat') are relatively less important food benefits. Benefits related to personal norms ('Making me feel like a responsible parent' and 'Making me feel like doing the right thing') are also relatively unimportant food benefits.

However, differences in the importance of these food benefits between the clusters can be observed ($p<0.001$). Some clusters place relatively more importance to convenience-related benefits (e.g., Cluster 4 and 8), whereas other clusters place relatively more importance to health-related benefits (e.g., Cluster 2, 9, 10 and 11). Furthermore, clusters differ in their relative importance of specific health benefits. For example, Cluster 4 shows negative scores on 'Prevents diseases' and 'Make me feel healthy', while positive scores are reported on 'Helping to satisfy my hunger' and 'Gives me energy'. In addition, Cluster 10 rates all health-related benefits important, except for 'Helping to satisfy my hunger'.

Safety ('Containing no pesticides') seems to be related with the health-related benefits. Cluster 2 and 10 attach relatively high importance to 'Containing no pesticides' and the health-related benefits. On the other hand, Cluster 12 attaches importance to the safety-related benefit and not to the health-related benefits. There are some clusters which score high on the benefits related to personal norms (e.g. Cluster 10 and 11). These clusters also attach importance to the health-related benefits.

Situations.

Table 4 represents the way in which the consumption moments and locations are distributed across the fourteen clusters. The results reveal that the representation of situations differs across the clusters χ^2 (78, n=8354), p <.001. As can be seen in the table, Cluster 13 and 14 are clusters that are associated with specific situations. Furthermore, the prevalence of clusters differs over situations. For example, Cluster 2 and 5 mainly represent the home situations, whereas Cluster 4 and 8 mainly represent

the out-of-home situations (i.e., at work or on the move). When comparing this distribution of the clusters across the situations with the centered benefit-importance scores as reported in Table 3, we see that the clusters that are more related to the out-of-home situations (i.e., Cluster 4 and 8) place relatively high importance to convenience-related benefits. The clusters that mainly represent home situations (i.e., Cluster 2 and 5) attach relatively low importance to convenience-related benefits. Cluster 2 attaches high importance to the health-related benefits, while cluster 5 does not attach importance to any of the benefits. Cluster 2 and 10, which are underrepresented in the work/school and on the move situations attach relatively low importance to convenience-related benefits. These clusters place relatively high importance to the benefits regarding health and personal norms.

Convenience and health orientation.
ANOVAs are conducted with convenience and health orientation as dependent variables and cluster membership and country as predictors. Country is included to control for between-country differences. Therefore, only main effects are estimated. ANOVAs are conducted separately for the several respondent-situation combinations. Respondents can be placed in a different cluster for each situation. For some situations different benefits are more important, such that the division of respondents over the clusters can be different for the situations. It is interesting to check whether the clusters that attach importance to certain benefits are also more convenience or health orientated across the different situations. The results of the ANOVAs are summarized in Table 5 and 6. The results indicate significant effects of country for all situations. This indicates that the health and convenience orientations differ across the countries. Moreover, the results indicate significant effects of cluster membership for all situations. The results in Table 5 represent the convenience orientation of the clusters across different situations. The effect sizes of convenience orientation are ranging from small to medium (Kittler et al., 2007). The effect sizes are the largest for the benefit importances in general and the smallest for the benefit importances of a snack at work/school and a snack at home. Inspection of the means of convenience orientation demonstrates that the differences between the clusters in the mean scores are the largest for the clusters on the basis of benefit importances in general and the smallest for the clusters based on the benefit importances of having a main meal at work/school. In addition, the clusters that score the highest on convenience orientation (Cluster 4 and 8) are the clusters that attach relatively high importance at the convenience-related benefits. Moreover, Cluster 2, 5 and 10, which have the lowest score on convenience orientation, are also the clusters which attach relatively low importance at the convenience-related benefits.
In relation to the on-the-move situations (both main meal and snack), convenience orientation reveals the same pattern, such that the convenience-orientated clusters have a higher score on convenience orientation than the clusters that do not attach importance to convenience. In relation to the at-home situations, convenience orientation reveals different patterns. For snack consumption, the at-home situation reveals the highest convenience orientation for Cluster 3, 5 and 14. For main meal, Cluster 8, 9, and 14 reveal the highest convenience orientation.

The results in Table 6 represent the health orientation of the clusters across different situations. For health orientation the effect sizes are larger than for convenience orientation. The effect sizes for health orientation can be described as large for all situations (Kittler et al., 2007). The differences in effect size across the situations are smaller for health orientation than for convenience orientation. The

general situation reveals the largest effect size and the smallest effect size is for main meal at home. Inspection of the means of health orientation demonstrates that the differences between the clusters in the mean scores are the largest for the clusters on the basis of benefit importances in general and the smallest for the clusters based on the benefit importances having a snack at work school and a main meal on the move. In addition, clusters that have the highest health orientation (Cluster 2, 9, 10 and 11) also attach relatively high importance to the health-related benefits. Moreover, the clusters with the lowest health orientation (Cluster 3, 5 and 8) also attach relatively low importance to the health-related benefits. Surprisingly, respondents that belong to Cluster 4 on the basis of benefit importances in general reveal the lowest health orientation, though this cluster does not exhibit an extremely low importance of health related benefits.
For the specific situations, Cluster 3, 4 and 5 have the lowest health orientation in all different situations. It has already been mentioned that health-related benefits are unimportant in Cluster 3 and 8. Accordingly, Cluster 3 is over all situations the lowest in health orientation. Cluster 8 is however only low in health orientation in the At-home situations. Cluster 4 shows negative scores on a few health-related benefits ('Prevents diseases' and 'Make me feel healthy') and positive scores on the other health-related benefits ('Helping to satisfy my hunger' and 'Gives me energy'). Cluster 5 shows negative scores on all benefits, including the health related ones. Cluster 9 and 10 have the highest health orientation in all different situations. These clusters also attach relatively high importance to the health related benefits.

Perception of fruit and food products
ANOVAs were conducted with perceptions of the fruit and non-fruit products as dependent variables and the fourteen clusters as predictors. Country and situation were added as controls. Only main effects were estimated. The results are summarized in Table 7 till Table 12. The results reveal significant effects of country for all benefits. This indicates that the respondents in the different countries perceive the fruit and food products in a different way. The effect sizes are ranging from small to large for the perceptions of the different products. The effect sizes are the largest for the perception of orange juice and the smallest for the perception of a chocolate bar. For the apple the effect sizes are the largest for 'Preventing diseases and illnesses' and 'Not taking much time to eat. For the perception of a peach the effect sizes are the largest for the benefits related to personal norms and the health-related benefits regarding 'Preventing diseases and illnesses' and 'Giving me energy'. For the perception of a chocolate bar the effect sizes for 'Preventing diseases and illnesses' is the largest. The effect sizes for the perception of orange juice are the largest for the benefits related to personal norms, some health-related benefits ('Making me feel healthy' and 'Preventing diseases/illness') and some convenience-related benefits ('Giving me energy ' and 'Not giving me dirty hands'). The salty snack has the largest effect size for 'Preventing diseases and illnesses and the benefits related to personal norms. Dried fruit also has the largest effect size for 'Preventing diseases and illnesses' and the benefits related to personal norms. However,' Not taking much time to eat' has the largest effect size in the perception of dried fruit.

Inspection of the means reveals that the health-related clusters perceive the fruit products (apple, peach, orange juice and dried fruit) to be more healthy. Moreover, these health-related clusters perceive the fruit-products as more tasty and score higher on the benefits related to personal norms. These health-related clusters

score the apple and the peach as less convenient. The health-related clusters perceive dried fruit as less easy to take along and less easy to eat compared to the other clusters. The convenience-related clusters do not show clearly different answers on the perception of the fruits and non-fruit products than the clusters which do not attach importance to the convenience–related benefits.

1.5 Discussion

This study shows that, although to our knowledge hardly applied within the area of food, the exploration of benefit segmentation over situations is a promising approach to segment consumers. Since different situations as well as different benefits are included, the approach is close to the decision making process in everyday life.

Theoretical Implications

Product benefits

The mean importance scores of the benefits in this study show that the sensory benefit regarding taste is considered to be the most important issue compared to the other benefits (i.e., health, personal norms, hedonism, safety and convenience). This is in line with the literature, where taste often is found to be a key predictor of food consumption (Roberts, 2005; Laramee, 2004; Abbot Hess, 1997). The general pattern we found for taste, health and convenience, in order of decreasing importance, is also in accordance with literature (Rozin, 2006). The hedonic benefits were found to be relatively unimportant to all respondents. These benefits were not used for the identification of the clusters and the further analyses. The focus groups however indicated that these hedonic benefits are relevant for consumers. Respondents indicated in a projective task that the affective aspects of food are important to them. The habit of consuming fruit since childhood appears to be crucial of fruit at the moment. Many consumers recall eating certain fruits at home with their parents or on vacation somewhere and these thoughts bring back nice memories. Moreover, the focus groups revealed that the respondents have positive feelings toward fruit. They associate it with bright colors, nature and even more with health, enjoyment and pleasure. These positive feelings toward fruit in general can not simply be transformed to fruit consumption. Although eating fruit is associated with enjoyment and pleasure respondents also express themselves in negative ways for example related to fruit safety, residues, amount of nutritious ingredients in fruit, the inconsistence of the taste of fruit and the amount of fruit they should eat (Briz et al., 2007). The safety-related benefit is considered to be relatively important. The benefits which were related to personal norms are considered to be relatively unimportant.

Dealing with benefits is especially interesting for promotion activities. Product benefits can in relation to attitudes and orientations of consumers be formulated more concrete. Product benefits can therefore be more easily translated to product characteristics and be more easily applied in promotion strategies than attitudes and orientations.

Benefit Segmentation

Till now, segmentation studies in the food area have mainly focused on single motives or benefits (e.g., Geeroms et al., 2008; Buckley et al., 2007). The additional value of including multiple benefits is that trade-offs among benefits can be investigated. For some clusters, all benefits are important, while for other clusters all benefits are unimportant or a mixture of relevance of the benefits is found. Although some clusters are roughly comparable to others, still interesting differences can be found. Some clusters are less outspoken with regard to certain benefits than others. We indeed find that generally considered benefits such as health-, convenience- and sensory-related benefits are represented in the different clusters, but even more interesting is that we find different scores between clusters on benefits that are less often taken into account in the literature such as personal norms and safety. Thus not only the most dominant

product benefits like taste, health and convenience are of interest for promotion activities, but also other benefits can be used in targeting specific niche markets. The benefits that were related to hedonic aspects were excluded because all respondents attached a low importance to these benefits. This indicates that hedonic benefits as 'Is fun' and 'Bringing good memories from childhood' are not very relevant for promotion activities.

In benefit segmentation different benefits are combined and judged by consumers. In everyday life consumers also consider different benefits, therefore the results of this approach might be closer to everyday life decisions compared to a segmentation based on a single motive, like for example health or convenience. Of course, a benefit segmentation based on benefits from different categories can never be as detailed as segmentation based on one general benefit such as health, which also consists of different aspects (Geeroms et al., 2008). Nevertheless, the benefit segmentation in this study also takes several aspects of the health-related and convenience-related benefits into account. The inclusion of multiple benefits for health and convenience reveals that clusters can differ on specific aspects of health or convenience. The clusters that for example rate health as important, do not necessarily think all health-related benefits are equally important. This reveals that consumer segments differ on specific aspects of health and convenience. However, notice that a closer look at the different clusters reveals that the differences between the several convenience-related benefits are less clear than the differences between the several health-related benefits.

Situation

This study measures the importance of product benefits not only in general, but also in different situations. Although literature shows that segmentation combined with situation is important we hardly found any study in the context of food which takes situation into account. This study shows that situation indeed is an important factor in segmentation and provides empirical evidence for the important role of situation in the food domain, as already stated by Rozin (2006) and Meiselmann (2007). The results indicate that there are different benefits important in different situations. And moreover, these benefits in relation to situations seem to be important in segmenting consumers. As a result, specific segments are found based on benefits in combination with situation (i.e., the out of home or the home situation). Clusters that place relatively more importance to convenience-related benefits are more related to the out-of-home situations. This seems to be logical, since convenience may be regarded as an important product benefits when being on the move or at work or school. In addition, safety and health are benefits that seem to be more closely tied to the home situation.

The situational approach in this study is of interest given the trend that people spend more and more hours out of home (in their offices and on the way). This trend is probably the biggest challenge to those seeking to promote healthy food consumption (Guthrie et al., 2004). The described benefit situation segmentation offers results to take this challenge. In sum, the results of this study stress the importance of including situation in promotion activities.

Validating segments: Convenience and health orientation

Differences between segments in terms of benefit importances are to some extent confirmed by differences in convenience and health orientation. Clusters which are convenience orientated also place relatively high importance at the convenience

orientated benefits. Except for the clusters based on the benefit importances of the home situations where this link is much less clear. Similarly, consumers with a higher health orientation are reflected by higher scores on health related benefits. The clusters with the highest health orientation in all situations also attach relatively high importance to the health-related benefits. However, the clusters that attach high importance to health related benefits are not always the highest in health orientation. Health consists of multiple elements (Geeroms et al., 2008), which can result in a more ambiguous linkage between a more general orientation and the more specific health related benefits. As such, it seems of importance to include control variables. Thus for future research we learned that the inclusion of orientations underlines the findings. The effect sizes of health orientation were larger than the effect sizes of convenience orientation. For convenience orientation the effect sizes of the situation specific clusters are smaller than for the clusters based on the benefit importances in general. For health orientation the effect sizes are comparable across the different situations.
Second, we included product perceptions in order to check whether different segments perceive different fruits and food products in a dissimilar way. An interesting finding is that health-related segments perceive the fruit products as more healthy, as expected, but also as less convenient. This is a surprising result in the sense that although convenience does not seem to be a very important product benefit for the consumers in these segments, these consumers are still the ones that have the most negative beliefs of fruit as being convenient.

Countries
Country seems to affect both convenience and health orientations as the product perceptions. This implies that cultural differences between countries impact the importance consumers attach to health and convenience. Moreover, it implies that consumers in different countries perceive products differently in terms of their benefits. Investigating the specific role of country goes beyond the scope of the present study. However, it does indicate the importance of taking into account multiple countries.

Practical implications
Geeroms et al. (2008, p. 482) stated that segmentation is useful for designing tailored health marketing campaigns that are responsive to the individual needs and motives of the target audience. Based on the results of this study practical implications can be offered for companies who want to use benefit segmentation in their communication and promotion strategies in general and for policy makers and firms who aim to promote fruit consumption among European consumers in particular. Such practical implications are beyond the scope of this paper, but are discussed in a companion paper.

Limitations and suggestions for future research
Selection of benefits.
We take a lot of benefits into account. These benefits are identified on the base of qualitative interviews and existing literature. However, we do not measure these benefits in a very detailed way. The focus was not set on one food motive or benefit, but on the interplay between multiple motives (e.g. health, convenience, taste). As a result it is possible that some specific aspects of these benefits are not taken into account in the present study.

In this study multiple health- and convenience related benefits are taken into account. For the benefits regarding sensory, safety, hedonism and personal norm only one or two benefits are taken into account. As a result the chances that health and convenience have an impact on the identification of clusters are increased. It is possible that the benefits related to personal norms, hedonism and safety were found to be more or less important if more specific aspects were taken into account. The importance of health and convenience on the clusters found could have been compared more honest with safety, health, sensory and personal norms if they were all measured with the same amount of benefits. The fact that we identified many clusters diminishes the impact of this limitation. Each and every one of the benefits has the chance of being the most important benefit in a specific cluster.

In this study, the benefits are related to the product itself, but external attributes could also be important determinants of food choice that may differ between consumers (i.e., packaging, labeling, organic or fair trade production, brand).

Four different countries were taken into account in the present study. The results revealed that the countries differed from each other on the base of convenience and health orientation and the product perceptions. This implies that it is important to take multiple countries into account. Interesting future research might further investigate the differences between countries in situational benefits.

Concluding remarks

The exploration of benefit situation segmentation is a challenging and interesting route which seems promising for application in the domain of food. The present study shows that taking into account both benefits and situations is relevant. Moreover, the results reveal that it is important to take multiple situations and consumption moments into account, as well as multiple benefits regarding different aspects of health, convenience, safety, sensory and personal norms.

1.6 References

Abbot Hess, M. (1997). Taste: The neglected nutritional factor. *Journal of American Dietetics Association, 97* (10), 205-207.

Belk, R.W. (1974). An exploratory assessment of situational effects in buyer behavior. *Journal of Marketing Research, 11 (2),* 156-163.

Botschen, G., Thelen, E.M., and Pieters, R. (1999). Using means–end structures for benefit segmentation: An application to services. *European Journal of Marketing, 33*, 38–58.

Briz, T., Martínez-Noriega, P., Fernández, M.C., Briz, J. Guardia, M.D., Guerrero, L., Sijtsema, S., Van der Kroon, S., Jager, L., and Van den Berg, I. (2007). *Report on Focus Group Results*. Isafruit Project, Deliverable 1.2.2. Universidad Politécnica de Madrid.

Brug, J., Debie, S., Van Assema, P., and Weijts, W. (1995). Psychosocial determinants of fruit and vegetable consumption among adults: Results of focus group interviews. *Food Quality Preference, 6*, 99-107.

Buckley, M., Cowan, C., and McCarthy, M. (2007). The convenience food market in Great Britain: Convenience food lifestyle (CFL) segments. *Appetite*, 49, 600-617.

Cleaver, G. and Wedel, M. (2001). Identifying random-scoring respondents in sensory research using finite regression models. *Food Quality and Preference, 12*, 373–384.

Costa, A.I.A., Dekker, M., and Jongen, W.M.F. (2004). An overview of means-end theory: Potential application in consumer-oriented food product design. *Trends in Food Science and Technology, 15*, 403-415.

Dillon, W.R., Frederick, D.G., and Tangpanichdee, V. (1985). Decision issues in building perceptual product spaces with multi-attribute rating data, *Journal of Consumer Research, 12*, 47-63.

Geeroms, N., Verbeke, W., and Van Kenhove, P. (2008). Health advertising to promote fruit and vegetable intake: Application of health-related motive segmentation. *Food Quality and Preference, 19,* 481-497.

Gerster, H. (1991). Potential role of beta-carotene in the prevention ofcardiovascular disease. *International Journal of Vitamin Nutrition Research, 61(4),* 277-91.

Gil, J.M., Gracia, A., and Sánchez, M. (2000). Market segmentation and willingness to pay for organic products in Spain. *International Food and Agribusiness Management Review, 3 (2),* 207-226.

Glanz, K, Basil, M., Maibach, E., Goldberg, J., and Snyder, D. (1998). Why Americans eat what they do: Taste, nutrition, cost, convenience and weight control concerns as influence on food consumption, *Journal of American Dietetics Association, 98 (10),* 1118-1126.

Green, P.E., Carmone, F.J., and Wachspress, D.P. (1976). Consumer segmentation via latent class analysis. *The Journal of Consumer Research, 3(3),* 170-174.

Guthrie, J.F. (2004). Understanding fruit and vegetable choices: Economic and behavioral influences. *Agriculture Information Bulletin, 791*, 3.

Gutman, J. (1982). A means-end chain model based on consumer categorization processes. *Journal of Marketing, 46 (2),* 60-72.

Haley, R.I. (1968). Benefit segmentation: A decision-oriented research tool. *Journal of Marketing, 32*, 30-35.

Hertog, M.G., Feskens E.J., Hollman P.C., Katan M.B., and Kromhout D. (1993). Dietary antioxidant flavonoids and risk of coronary heart disease. *The Lancet, 342*, 1007-1011.

King, S.C., Weber, A.J., and Meiselman, H.L. (2004). The effect of meal situation, social interaction, physical environment and choice on food acceptability. *Food Quality and Preference, 15*, 645–54.

Kittler, J.E., Menard, W., and Phillips, K.A. (2007). Weight concerns in individuals with body dysmorphic disorder. *Eating Behaviors, 8*, 115–120.

Kotler, P. (1991). *Marketing Management*, 7th ed., Prentice-Hall, Englewood Cliffs, NJ.

Kotler, P.H. (2002). *Principles of Marketing*, 2nd European ed., PWE S.A., 266-278

Laramee, S.H. (2004). Summertime: Fresh fruits, fresh vegetables, and a healthy life. *Journal of American Dietetics Association, 104 (8)*, 1205-1236.

Martens, H. and Martens, M. (2000). Modified Jack-knife estimation of parameter uncertainty in bilinear modelling by partial least squares regression (PLSR). *Food Quality and Preference, 11*, 5-16

Meiselman, H. (2007). The impact of context and environment on consumer food choice. In: L. Frewer and H. van Trijp (eds), *Understanding consumers of food products*, Woodhead, Cambridge, pp. 67-92.

McCutcheon, A.L. (1987). *Latent class analysis*, Sage, Newbury Park (California).

Olsen, S.O., Scholderer, J., Brunsø, K., and Verbeke, W. (2007). Exploring the relationship between convenience and fish consumption: A cross-cultural study, *Appetite, 49*, 84–91.

Reinders, M., Jager, L., and Bartels, J. (2008). *Validation of the Measurement Instruments*. Isafruit Project, Deliverable 1.2.5. LEI - Wageningen UR, The Hague, The Netherlands.

Roberts Jr., W.A. (2005), Function takes form, Prepared Foods websie, 1 May 2005.http://www.preparedfoods.com/Articles/Feature_Article/f97d82da26788010VgnVCM100000f932a8c0

Roininen, K. Lähteenmäki, L., and Tuorila, H. (1999). Quantification of consumer attitudes to health and hedonic characteristics of foods. *Appetite, 33*, 71–88.

Rozin, P. (2006). The integration of biological, social, cultural and psychological influences on food choice. In: R. Shepherd and M. Raats (eds), *The psychology of food choice*, CABI, Cambridge, MA, pp. 19–39.

Senkus, P. (2007). New generic lifestyle the multidimensional consumer segmentation analysis. *SERiA Sientific Annuals*, 264-269.

Smith, W. (1956). Product differentiation and market segmentation as alternative marketing strategies. *Journal of Marketing, 21*, 3–8.

Solomon, M.R. (2006). *Consumer behavior*. Sixth Edition. Helion S.A., pp. 27-31

Steenkamp, J.E.M. and Baumgartner, H. (1998). Assessing measurement invariance in cross-national consumer research. *Journal of Consumer Research, 25*, 78-90.

Van Duyn, M.A. and Pivonka, E. (2000). Overview of the health benefits of fruits and vegetable consumption for the dietetics professional: Selected literature. *Journal of American Dietetic Association, 100 (12)*, 1511-1521

Veal, A.J. (2000). *Leisure and the Lifestyle*. School of Leisure. SportandTourism, Sydney University of Technology.

Vermunt, J. K. (2003). Multilevel latent class models. *Sociological Methodology, 33*, 213-239.

Vermunt, J.K. and Magidson, J. (2005). *Technical Guide for Latent GOLD 4.0: Basic and Advanced*. Belmont, Massachusetts: Statistical Innovations Inc; 2005.

Vigneau, E. and Qannari, E.M. (2002). Segmentation of consumers taking account of external data: A clustering of variables approach. *Food Quality and Preference, 13*, 515–52.

Wansink, B. and Westgren, R. (2003). Profiling taste-motivated segments. *Appetite, 41*, 323-327.

Wedel, M. and DeSarbo, W.S. (2002). Market segment derivation and profiling via a finite mixturemodel framework. *Marketing Letters, 13*, 17–25.

Wedel, M. and Kamakura, W.A. (2002). Introduction to the special issue on market segmentation. *International Journal of Research in Marketing, 19*, 181-183.

Wind, Y. (1978). Issues and advances in segmentation research. *Journal of Marketing Research, 15* (3), 317-337.

Young, S. and Feigin, B. (1975). Using the benefit chain for improved strategy formulation. *Journal of Marketing, 39*, 72-75.

1.7 Tables

Table 1: Demographics for each country

Demographics	**The Netherlands**	**Greece**	**Poland**	**Spain**	**Total**
Gender					
Male	48.90%	50.40%	48.00%	50.60%	49.70%
Female	50.20%	49.60%	52.00%	49.40%	50.30%
Age	41.98 (12.7)	31.66(8.3)	39.79 (14.9)	39.57 (9.5)	38.32 (12.3)
Educational background					
Low	10.5%	0.6%	4.3%	1.6%	4.4%
Medium	61.6%	31.3%	46.0%	45.3%	46.4%
High	27.9%	68.1%	49.7%	53.0%	49.2%

Table 2: Model fit for mixture models

Models	CAIC	Log-L (parameters)	Entropy R^2
1-cluster	295092	-147423 (24)	1.00
2-clusters	269913	-134706 (49)	.82
3-clusters	259126	-129185 (74)	.86
4-clusters	219421	-109206 (99)	.86
5-clusters	210862	-104799 (124)	.86
6-clusters	203141	-100811 (149)	.88
7-clusters	194634	-96430 (174)	.89
8-clusters	194075	-96023 (199)	.90
9-clusters	186691	-92204 (224)	.90
10-clusters	184360	-90910 (249)	.91
11-clusters	179394	-88300 (274)	.91
12-clusters	180667	-88809 (299)	.90
13-clusters	176261	-86478 (324)	.89
14-clusters	171131[a]	-83786 (349)	.90
15-clusters	171313	-83749 (374)	.90

[a] Denotes the lowest CAIC-value.

Table 3a: Cluster-level mean (centered) benefit-importances (Benefit 1-6)

Cluster (size)	**Benefit**					
	BF1	BF2	BF3	BF4	BF5	BF6
Cluster 1 (28%)	0.19 (.01)	0.21 (.01)	-0.52 (.01)	-0.22 (.01)	-0.14 (.01)	0.27 (.01)
Cluster 2 (12%)	0.50 (.02)	0.44 (.02)	-1.72 (.03)	-1.63 (.03)	-1.19 (.03)	0.62 (.02)
Cluster 3 (11%)	-0.63 (.03)	-0.06 (.02)	-0.11 (.02)	0.11 (.02)	0.18 (.02)	0.31 (.02)
Cluster 4 (9%)	-0.35 (.04)	0.54 (.03)	0.79 (.02)	0.98 (.01)	0.92 (.02)	0.12 (.04)
Cluster 5 (7%)	-0.72 (.06)	-0.36 (.05)	-1.00 (.06)	-1.04 (.06)	-0.67 (.06)	-0.01 (.04)
Cluster 6 (6%)	0.00 (.00)	0.00 (.00)	0.00 (.00)	0.00 (.00)	0.00 (.00)	0.02 (.01)
Cluster 7 (6%)	-0.10 (.03)	0.17 (.00)	-0.21 (.03)	0.17 (.00)	0.17 (.00)	0.03 (.03)
Cluster 8 (5%)	-0.30 (.04)	0.22 (.02)	0.06 (.03)	0.44 (.00)	0.44 (.00)	0.10 (.03)
Cluster 9 (4%)	0.40 (.00)	0.40 (.00)	-0.56 (.05)	-0.09 (.05)	-0.07 (.04)	0.22 (.04)
Cluster 10 (4%)	0.84 (.01)	0.65 (.02)	-1.28 (.06)	-1.02 (.06)	-0.77 (.05)	0.47 (.04)
Cluster 11 (3%)	0.59 (.00)	0.59 (.00)	-0.68 (.07)	-0.38 (.07)	-0.23 (.06)	0.09 (.06)
Cluster 12 (3%)	0.02 (.04)	-0.01 (.02)	-0.17 (.03)	-0.09 (.00)	-0.09 (.00)	0.42 (.04)
Cluster 13 (2%)	-0.84 (.03)	-0.80 (.02)	-0.83 (.02)	-0.83 (.02)	-0.83 (.02)	0.30 (.05)
Cluster 14 (1%)	0.99 (.01)	0.99 (.01)	0.82 (.06)	0.99 (.01)	0.99 (.01)	0.35 (.09)
F	304.44***	204.95***	514.25***	724.78***	561.13***	44.04***
(df1,df2)	(13, 9876)	(13, 9876)	(13, 9876)	(13, 9876)	(13, 9876)	(13, 9876)
Partial η^2	0.286	0.213	0.404	0.489	0.425	0.055

NB. Reported means are based on centered scores;
***< 0.001; **< 0.01; *< 0.05;
BF1= Preventing diseases/illness; BF2= Giving me energy; BF3= Not giving me dirty hands; BF4= Being easy to take along; BF5= Being easy to eat; BF6= Containing no pesticides

Table 3b: Cluster-level mean (centered) benefit-importances (Benefit 7-12)

Cluster (size)	**Benefit**					
	BF7	BF8	BF9	BF10	BF11	BF12
Cluster 1 (28%)	-0.35 (.02)	0.02 (.01)	0.20 (.01)	-0.07 (.01)	-0.04 (.02)	0.37 (.01)
Cluster 2 (12%)	-0.67 (.04)	-0.58 (.04)	0.53 (.02)	0.13 (.02)	0.30 (.03)	0.68 (.02)
Cluster 3 (11%)	0.03 (.02)	0.01 (.02)	-0.62 (.02)	-0.97 (.02)	-0.87 (.04)	0.40 (.02)
Cluster 4 (9%)	0.76 (.02)	0.79 (.02)	-0.18 (.04)	-0.44 (.04)	-0.35 (.05)	0.73 (.02)
Cluster 5 (7%)	-0.53 (.06)	-0.58 (.06)	-0.75 (.06)	-1.04 (.06)	-1.14 (.07)	0.24 (.05)
Cluster 6 (6%)	0.00 (.00)	0.00 (.00)	0.00 (.00)	0.00 (.00)	0.00 (.00)	0.00 (.00)
Cluster 7 (6%)	0.17 (.00)	0.17 (.00)	0.04 (.02)	-0.15 (.03)	-0.22 (.04)	0.17 (.00)
Cluster 8 (5%)	0.44 (.00)	0.22 (.03)	-0.18 (.03)	-0.54 (.04)	-0.54 (.05)	0.40 (.02)
Cluster 9 (4%)	-0.42 (.05)	0.40 (.00)	0.40 (.00)	0.40 (.00)	0.40 (.00)	0.38 (.02)
Cluster 10 (4%)	-0.70 (.07)	-0.09 (.06)	0.84 (.01)	0.84 (.01)	0.84 (.01)	0.54 (.03)
Cluster 11 (3%)	-0.34 (.07)	0.18 (.05)	0.59 (.00)	0.59 (.00)	0.59 (.00)	0.44 (.03)
Cluster 12 (3%)	-0.09 (.00)	-0.09 (.00)	-0.09 (.00)	-0.09 (.00)	-0.24 (.05)	0.01 (.02)
Cluster 13 (2%)	-0.81 (.03)	-0.84 (.02)	-0.82 (.02)	-0.82 (.02)	-0.86 (.04)	-0.75 (.03)
Cluster 14 (1%)	0.86 (.04)	0.99 (.01)	0.99 (.01)	0.99 (.01)	0.98 (.01)	0.92 (.05)
F	240.87***	197.09***	383.04***	383.81***	217.26 ***	141.61***
(df1,df2)	(13, 9876)	(13, 9876)	(13, 9876)	(13, 9876)	(13, 9876)	(13, 9876)
Partial η^2	0.241	0.206	0.335	0.336	0.283	0.157

NB. Reported means are based on centered scores;
***< 0.001; **< 0.01; *< 0.05;
BF7= Not taking much time to eat; BF8= Helping me to satisfy my hunger; BF9= Making me feel healthy; BF10= Making me feel like doing the right thing; BF11= Making me feel a responsible parent; BF12= Having a good taste

Table 4: Distribution of situations over the different clusters (in column percentages)

	Cluster													
Situation	1	2	3	4	5	6	7	8	9	10	11	12	13	14
General	26.4	12.0	11.8	1.0	6.6	19.1	11.0	5.5	18.8	17.7	14.2	14.1	0.0	0.0
Situation 1 (Home, meal)	14.7	39.5	5.1	1.9	16.5	14.1	4.1	1.9	10.9	25.0	17.6	7.3	10.6	14.1
Situation 2 (Home, snack)	11.7	30.3	10.8	2.1	33.0	9.1	7.2	4.4	10.2	15.4	14.2	11.0	20.7	7.7
Situation 3 (Work, meal)	15.1	5.9	14.4	18.5	8.9	17.9	19.1	19.0	14.6	15.0	14.6	16.2	15.2	15.4
Situation 4 (Work, snack)	10.2	4.8	19.0	21.6	11.1	12.7	21.2	25.3	16.4	10.4	13.8	21.5	20.2	20.5
Situation 5 (Move, meal)	12.3	4.3	17.3	28.8	9.7	15.3	19.4	18.7	15.3	9.2	13.0	11.5	13.6	23.1
Situation 6 (Move, snack)	9.6	3.3	21.5	26.0	14.1	11.7	18.0	25.1	13.8	7.3	12.6	18.3	19.7	19.2

Table 5: Cluster-level estimated marginal means for convenience orientation

Cluster		General	Situation 1; Main meal at home	Situation 2; Snack at home	Situation 3; Main meal work/school	Situation 4; Snack work/school	Situation 5; Main meal on the move	Situation 6; Snack on the move
Cluster 1		3.27	3.37	3.38	3.17	3.21	3.10	3.20
Cluster 2		2.86	3.14	3.14	2.95	2.74	2.82	2.74
Cluster 3		3.53	3.64	3.34	3.34	3.29	3.37	3.33
Cluster 4		3.95	3.44	3.30	3.37	3.30	3.34	3.38
Cluster 5		3.02	3.31	3.33	3.27	3.26	3.11	3.21
Cluster 6		3.36	3.25	3.13	3.22	3.23	3.26	3.13
Cluster 7		3.45	3.09	3.06	3.35	3.19	3.34	3.21
Cluster 8		3.74	3.21	3.48	3.37	3.50	3.47	3.47
Cluster 9		3.19	3.28	3.42	3.36	3.33	3.18	3.19
Cluster 10		2.93	2.84	2.94	2.88	3.00	3.01	2.79
Cluster 11		3.06	3.21	3.30	3.21	3.31	3.14	3.24
Cluster 12		3.47	3.39	3.31	3.09	3.43	3.29	3.28
Cluster 13			3.26	3.14	3.33	3.22	3.30	3.11
Cluster 14			3.51	3.83	3.16	3.29	3.32	3.33
Main effect Cluster	F (df1,df2) Partial η^2	12.23*** (11, 2068) 0.061	3.86*** (13, 1285) 0.038	2.58** (13, 1279) 0.026	2.63** (13, 1285) 0.026	2.76** (13, 1279) 0.027	3.10*** (13, 1285) 0.030	2.99*** (13, 1279) 0.030
Main effect country (covariate)	F (df1,df2) Partial η^2	24.27*** (3, 2068) 0.034	15.98*** (3, 1285) 0.036	11.51*** (3, 1279) 0.026	14.01*** (3, 1285) 0.032	11.75*** (3, 1279) 0.027	12.83*** (3, 1285) 0.029	12.08*** (3, 1279) 0.028
Main effects Cluster and country	F (df1,df2) Partial η^2	13.56*** (14, 2068) 0.084	5.76*** (16, 1285) 0.067	4.06*** (16, 1279) 0.048	4.72*** (16, 1285) 0.056	4.21*** (16,1285) 0.050	5.12*** (16, 1285) 0.060	4.40*** (16, 1279) 0.052

N.B. Answering scale was ranging from 1 to 5; ***< 0.001; **< 0.01; *< 0.05

Table 6: Cluster-level estimated marginal means for health orientation

Cluster		General	Situation 1; Main meal at home	Situation 2; Snack at home	Situation 3; Main meal work/school	Situation 4; Snack work/school	Situation 5; Main meal on the move	Situation 6; Snack on the move
Cluster 1		3.26	3.21	3.29	3.34	3.36	3.37	3.40
Cluster 2		3.36	3.28	3.33	3.39	3.59	3.53	3.45
Cluster 3		2.88	3.00	3.05	2.98	3.12	3.11	3.13
Cluster 4		2.32	3.22	3.19	2.99	2.98	3.00	3.01
Cluster 5		2.92	2.87	2.97	3.01	2.98	3.04	3.03
Cluster 6		3.36	3.35	3.38	3.39	3.35	3.36	3.38
Cluster 7		3.35	3.37	3.42	3.43	3.39	3.39	3.42
Cluster 8		2.79	3.07	3.11	3.16	3.23	3.17	3.20
Cluster 9		3.53	3.68	3.76	3.52	3.60	3.57	3.70
Cluster 10		3.56	3.64	3.64	3.73	3.63	3.65	3.80
Cluster 11		3.53	3.40	3.44	3.52	3.55	3.63	3.52
Cluster 12		3.35	3.46	3.27	3.30	3.23	3.44	3.37
Cluster 13			3.22	3.30	3.07	3.18	3.18	3.26
Cluster 14			3.34	3.37	3.23	3.44	3.36	3.52
Main effect Cluster	F (df1,df2) Partial η^2	17.73*** (11, 2068) 0.086	7.32*** (13, 1285) 0.069	7.96*** (13, 1279) 0.075	9.28*** (13, 1285) 0.086	8.73*** (13, 1279) 0.082	8.60*** (13, 1285) 0.080	9.29*** (13, 1279) 0.086
Main effect country (covariate)	F (df1,df2) Partial η^2	51.94*** (3, 2068) 0.070	24.17*** (3, 1285) 0.053	27.98*** (3, 1279) 0.062	30.43*** (3, 1285) 0.066	28.47*** (3, 1279) 0.063	31.50*** (3, 1285) 0.069	27.48*** (3, 1279) 0.061
Main effects Cluster and country	F (df1,df2) Partial η^2	27.94*** (14, 2068) 0.159	11.42*** (16, 1285) 0.125	13.51*** (16, 1279) 0.145	13.12*** (16, 1285) 0.140	14.19*** (16, 1279) 0.151	12.53*** (16, 1285) 0.135	14.68*** (16, 1279) 0.155

N.B. Answering scale was ranging from 1 to 5; ***< 0.001; **< 0.01; *< 0.05

Table 7: Cluster-level estimated marginal means for the product characteristics of an apple

Cluster		BF1	BF2	BF3	BF4	BF5	BF6	BF7	BF8	BF9	BF10	BF11	BF12
Cluster 1		3.78	3.76	2.37	2.00	2.06	2.57	2.31	3.77	4.00	3.95	3.85	4.10
Cluster 2		3.98	3.84	2.18	1.77	1.90	2.46	2.08	3.85	4.17	4.08	3.96	4.29
Cluster 3		3.59	3.53	2.56	2.04	2.13	2.66	2.47	3.62	3.77	3.66	3.50	3.93
Cluster 4		3.76	3.60	2.56	1.96	2.11	2.66	2.36	3.60	3.86	3.79	3.66	4.02
Cluster 5		3.57	3.53	2.37	1.86	2.06	2.45	2.33	3.64	3.82	3.62	3.28	3.97
Cluster 6		3.66	3.60	2.71	2.50	2.37	2.62	2.51	3.54	3.71	3.70	3.75	3.78
Cluster 7		4.00	3.94	2.32	2.17	2.14	2.45	2.30	3.88	4.17	4.05	3.97	4.25
Cluster 8		3.72	3.80	2.56	2.00	2.09	2.69	2.36	3.88	4.01	3.91	3.63	4.08
Cluster 9		4.22	4.13	2.26	1.78	1.91	2.52	2.01	4.04	4.39	4.36	4.37	4.37
Cluster 10		4.09	3.87	2.10	1.71	1.83	2.64	2.15	3.95	4.32	4.27	4.41	4.31
Cluster 11		4.11	4.07	2.31	1.88	1.97	2.50	2.08	3.97	4.26	4.19	4.08	4.22
Cluster 12		3.86	3.65	2.56	2.20	2.15	2.66	2.58	3.55	3.81	3.66	3.61	3.76
Cluster 13		3.55	3.63	2.56	2.28	2.33	2.63	2.40	3.54	3.62	3.50	3.42	3.95
Cluster 14		3.80	3.71	2.38	2.20	2.30	2.72	2.46	3.88	3.94	3.78	3.81	4.01
Main effect Cluster	F (df1,df2)	27.69*** (13, 9876)	23.0*** (13, 9876)	14.16*** (13, 9876)	24.55*** (13, 9876)	10.83*** (13, 9876)	4.91*** (13, 9876)	14.18*** (13, 9876)	14.90*** (13, 9876)	32.37*** (13, 9876)	34.63*** (13, 9876)	33.73*** (13, 9876)	24.37*** (13, 9876)
	Partial η^2	.035	.029	.018	.031	.014	.006	.018	.019	.041	.044	.059	.031
Main effect situation	F (df1,df2)	1.10 (6, 9876)	1.01 (6, 9876)	3.01* (6, 9876)	2.08 (6, 9876)	1.51 (6, 9876)	1.07 (6, 9876)	1.98 (6, 9876)	.68 (6, 9876)	2.41* (6, 9876)	3.04* (6, 9876)	3.58* (6, 9876)	2.07 (6, 9876)
	Partial η^2	.001	.001	.002	.001	.001	.001	.001	.000	.001	.002	.003	.001
Main effect country	F (df1,df2)	310.24*** (3, 9876)	196.57** (3, 9876)	97.26*** (3, 9876)	244.53*** (3, 9876)	130.24*** (3, 9876)	92.44*** (3, 9876)	419.44*** (3, 9876)	65.40*** (3, 9876)	230.37*** (3, 9876)	196.07*** (3, 9876)	105.96*** (3, 9876)	58.50*** (3, 9876)
	Partial η^2	.086	.056	.029	.069	.038	.027	.113	.020	.066	.056	.041	.017
Main effects Cluster, situation and country	F (df1,df2)	64.16*** (22, 9876)	41.66*** (22, 9876)	21.70*** (22, 9876)	49.00*** (22, 9876)	24.88*** (22, 9876)	15.48*** (22, 9876)	68.14*** (22, 9876)	18.15*** (22, 9876)	53.10*** (22, 9876)	50.07*** (22, 9876)	38.02*** (22, 9876)	23.93*** (22, 9876)
	Partial η^2	.125	.085	.046	.099	.053	.033	.130	.093	.106	.101	.102	.051

***< 0.001; **< 0.01; *< 0.05

Table 8: Cluster-level estimated marginal means for the product characteristics of a peach

Cluster		BF1	BF2	BF3	BF4	BF5	BF6	BF7	BF8	BF9	BF10	BF11	BF12
Cluster 1		3.55	3.63	3.32	2.62	2.66	2.57	2.63	3.57	4.00	3.77	3.69	4.08
Cluster 2		3.69	3.73	3.36	2.46	2.53	2.46	2.40	3.61	4.17	3.88	3.81	4.27
Cluster 3		3.31	3.40	3.70	2.85	2.96	2.66	2.88	3.36	3.77	3.50	3.39	3.97
Cluster 4		3.37	3.55	3.84	2.81	3.00	2.66	2.82	3.41	3.86	3.60	3.57	4.12
Cluster 5		3.34	3.42	3.48	2.63	2.73	2.45	2.62	3.33	3.82	3.42	3.16	3.96
Cluster 6		3.59	3.50	3.12	2.85	2.66	2.62	2.85	3.43	3.71	3.57	3.61	3.72
Cluster 7		3.63	3.74	3.34	2.55	2.63	2.45	2.68	3.61	4.17	3.84	3.74	4.10
Cluster 8		3.42	3.59	3.73	2.73	2.96	2.69	2.82	3.56	4.01	3.67	3.51	4.06
Cluster 9		3.94	4.01	3.34	2.56	2.49	2.52	2.43	3.88	4.39	4.27	4.28	4.43
Cluster 10		3.89	3.90	3.27	2.49	2.41	2.64	2.58	3.84	4.32	4.15	4.27	4.27
Cluster 11		3.89	3.92	3.29	2.37	2.48	2.50	2.37	3.82	4.26	3.92	3.86	4.13
Cluster 12		3.43	3.47	3.44	2.90	2.84	2.66	2.86	3.41	3.81	3.65	3.58	3.72
Cluster 13		3.42	3.45	3.31	2.69	2.65	2.63	2.75	3.24	3.62	3.38	3.32	3.74
Cluster 14		3.77	3.72	3.09	2.91	2.76	2.72	3.05	3.49	3.94	3.89	3.82	4.05
Main effect Cluster	F (df1,df2)	26.92*** (13, 9876)	24.28*** (13, 9876)	21.34*** (13, 9876)	10.19*** (13, 9876)	14.61*** (13, 9876)	4.91*** (13, 9876)	15.67*** (13, 9876)	19.00*** (13, 9876)	32.37*** (13, 9876)	34.34*** (13, 9876)	35.76*** (13, 9876)	23.88*** (13, 9876)
	Partial η^2	.034	.031	.027	.013	.019	.006	.020	.024	.041	.043	.059	.031
Main effect situation	F (df1,df2)	2.75* (6, 9876)	1.44 (6, 9876)	4.11*** (6, 9876)	2.25* (6, 9876)	3.50* (6, 9876)	1.07 (6, 9876)	3.84** (6, 9876)	1.13 (6, 9876)	2.41* (6, 9876)	3.07* (6, 9876)	2.51* (6, 9876)	.94 (6, 9876)
	Partial η^2	.002	.001	.002	.001	.002	.001	.002	.001	.001	.002	.002	.001
Main effect country	F (df1,df2)	262.50*** (3, 9876)	330.42** (3, 9876)	91.78*** (3, 9876)	263.04*** (3, 9876)	115.20*** (3, 9876)	92.44*** (3, 9876)	300.53*** (3, 9876)	207.18*** (3, 9876)	230.37*** (3, 9876)	289.85*** (3, 9876)	152.15*** (3, 9876)	193.97*** (3, 9876)
	Partial η^2	.074	.091	.027	.074	.034	.027	.084	.059	.066	.081	.058	.056
Main effects Cluster, situation and country	F (df1,df2)	57.48*** (22, 9876)	65.02*** (22, 9876)	28.03*** (22, 9876)	45.33*** (22, 9876)	27.75*** (22, 9876)	15.48*** (22, 9876)	52.62*** (22, 9876)	43.47*** (22, 9876)	53.10*** (22, 9876)	64.41*** (22, 9876)	46.61*** (22, 9876)	43.82*** (22, 9876)
	Partial η^2	.114	.127	.059	.092	.058	.033	.105	.088	.106	.126	.122	.089

***< 0.001; **< 0.01; *< 0.05

Table 9: Cluster-level estimated marginal means for the product characteristics of a chocolate bar

Cluster		BF1	BF2	BF3	BF4	BF5	BF6	BF7	BF8	BF9	BF10	BF11	BF12
Cluster 1		1.92	3.62	2.57	1.84	1.83		1.90	3.58	2.20	2.26	2.31	4.00
Cluster 2		1.69	3.73	2.44	1.62	1.65		1.73	3.53	1.94	1.95	2.00	4.08
Cluster 3		1.83	3.73	2.59	1.74	1.76		1.87	3.61	2.11	2.16	2.21	4.12
Cluster 4		1.73	3.79	2.46	1.58	1.62		1.68	3.66	1.91	1.99	2.09	4.25
Cluster 5		1.63	3.62	2.57	1.59	1.67		1.72	3.44	1.86	1.90	1.90	4.04
Cluster 6		2.45	3.52	2.57	2.33	2.21		2.23	3.49	2.74	2.76	2.72	3.69
Cluster 7		1.91	3.68	2.65	1.86	1.85		1.88	3.65	2.22	2.20	2.25	4.07
Cluster 8		1.94	3.75	2.58	1.79	1.73		1.82	3.71	2.20	2.26	2.34	4.15
Cluster 9		1.89	3.73	2.46	1.57	1.59		1.89	3.53	2.11	2.05	2.05	4.00
Cluster 10		1.47	3.70	2.32	1.59	1.57		1.75	3.46	1.68	1.69	1.78	4.04
Cluster 11		1.85	3.71	2.58	1.63	1.64		1.81	3.65	2.20	2.13	1.99	4.03
Cluster 12		1.98	3.57	2.69	1.92	1.85		2.01	3.46	2.33	2.31	2.37	3.80
Cluster 13		2.07	3.39	2.68	2.03	1.99		2.16	3.22	2.18	2.33	2.38	3.64
Cluster 14		1.99	3.49	2.82	2.09	2.17		2.17	3.50	2.14	2.24	2.06	3.54
Main effect Cluster	F (df1,df2)	35.97*** (13, 9876)	5.15*** (13, 9876)	4.10*** (13, 9876)	35.71*** (13, 9876)	25.01*** (13, 9876)		18.27*** (13, 9876)	5.06*** (13, 9876)	39.95*** (13, 9876)	41.44*** (13, 9876)	27.58*** (13, 9876)	17.92*** (13, 9876)
	Partial η^2	.045	.007	.005	.045	.032		.024	.007	.050	.052	.047	.023
Main effect situation	F (df1,df2)	2.29* (6, 9876)	.21 (6, 9876)	.21*** (6, 9876)	1.32 (6, 9876)	.74 (6, 9876)		.71 (6, 9876)	.60 (6, 9876)	2.54* (6, 9876)	2.90* (6, 9876)	2.10 (6, 9876)	.61 (6, 9876)
	Partial η^2	.001	.000	.000	.001	.000		.000	.000	.002	.002	.002	.000
Main effect country	F (df1,df2)	197.14*** (3, 9876)	38.40** (3, 9876)	134.61*** (3, 9876)	168.82*** (3, 9876)	111.31*** (3, 9876)		66.51*** (3, 9876)	91.61*** (3, 9876)	82.32*** (3, 9876)	100.17*** (3, 9876)	92.21*** (3, 9876)	165.07*** (3, 9876)
	Partial η^2	.057	.012	.039	.049	.033		.020	.027	.024	.030	.036	.048
Main effects Cluster, situation and country	F (df1,df2)	51.25*** (22, 9876)	8.30*** (22, 9876)	20.72*** (22, 9876)	47.13*** (22, 9876)	31.70*** (22, 9876)		21.39*** (22, 9876)	16.00*** (22, 9876)	36.68*** (22, 9876)	41.18*** (22, 9876)	32.72*** (22, 9876)	33.91*** (22, 9876)
	Partial η^2	.103	.018	.044	.095	.066		.046	.034	.076	.084	.089	.070

***< 0.001; **< 0.01; *< 0.05

Table 10: Cluster-level estimated marginal means for the product characteristics of orange juice

Cluster		BF1	BF2	BF3	BF4	BF5	BF6	BF7	BF8	BF9	BF10	BF11	BF12
Cluster 1		4.13	4.06	2.43	3.29	1.97	2.39	3.12	3.18	4.21	4.14	4.01	4.33
Cluster 2		4.32	4.19	2.17	3.35	1.71	2.17	3.16	3.01	4.39	4.31	4.14	4.52
Cluster 3		4.04	3.92	2.57	3.56	2.00	2.46	3.41	2.93	4.07	3.94	3.73	4.29
Cluster 4		4.12	3.96	2.42	3.68	1.95	2.40	3.42	2.82	4.22	4.08	3.84	4.32
Cluster 5		3.98	3.88	2.34	3.43	1.82	2.16	3.19	2.83	4.10	3.91	3.49	4.24
Cluster 6		3.78	3.77	2.64	3.09	2.48	2.55	2.95	3.36	3.80	3.77	3.78	3.79
Cluster 7		4.28	4.21	2.36	3.20	1.97	2.23	2.99	3.22	4.27	4.20	4.00	4.37
Cluster 8		4.19	4.12	2.49	3.36	2.03	2.35	3.31	3.08	4.25	4.12	3.96	4.36
Cluster 9		4.48	4.41	2.21	3.17	1.92	2.25	3.05	3.39	4.53	4.46	4.42	4.55
Cluster 10		4.41	4.34	2.24	3.26	1.64	2.33	2.95	3.05	4.53	4.52	4.47	4.54
Cluster 11		4.50	4.51	2.33	3.29	1.63	2.30	3.33	3.23	4.56	4.51	4.38	4.59
Cluster 12		3.91	3.91	2.72	3.20	2.02	2.52	3.11	3.09	3.90	3.89	3.68	3.90
Cluster 13		3.93	3.97	2.62	3.28	2.12	2.39	3.23	3.00	3.95	3.76	3.60	4.08
Cluster 14		4.02	4.06	2.58	3.45	2.05	2.62	3.24	3.33	4.09	3.96	3.90	4.07
Main effect Cluster	F (df1,df2)	34.16*** (13, 9876)	31.17*** (13, 9876)	11.03*** (13, 9876)	10.91*** (13, 9876)	23.27*** (13, 9876)	10.10*** (13, 9876)	10.06*** (13, 9876)	18.07*** (13, 9876)	38.61*** (13, 9876)	38.66*** (13, 9876)	33.55*** (13, 9876)	34.76*** (13, 9876)
	Partial η^2	.043	.039	.014	.014	.030	.013	.013	.023	.048	.049	.056	.055
Main effect situation	F (df1,df2)	1.02 (6, 9876)	2.02 (6, 9876)	2.07 (6, 9876)	1.14 (6, 9876)	2.39* (6, 9876)	1.64 (6, 9876)	1.22 (6, 9876)	1.63 (6, 9876)	1.68 (6, 9876)	2.16* (6, 9876)	2.99* (6, 9876)	1.48 (6, 9876)
	Partial η^2	.001	.001	.001	.001	.001	.001	.001	.001	.001	.001	.002	.001
Main effect country	F (df1,df2)	461.40*** (3, 9876)	511.09*** (3, 9876)	482.43*** (3, 9876)	63.42*** (3, 9876)	461.40*** (3, 9876)	48.33*** (3, 9876)	379.88*** (3, 9876)	152.06*** (3, 9876)	286.37*** (3, 9876)	315.78*** (3, 9876)	223.77*** (3, 9876)	182.48*** (3, 9876)
	Partial η^2	.123	.135	.128	.004	.019	.015	.104	.044	.080	.088	.084	.053
Main effects Cluster, situation and country	F (df1,df2)	89.38*** (22, 9876)	94.93*** (22, 9876)	76.69*** (22, 9876)	21.51*** (22, 9876)	89.38*** (22, 9876)	12.22*** (22, 9876)	59.75*** (22, 9876)	34.55*** (22, 9876)	66.85*** (22, 9876)	71.68*** (22, 9876)	56.27*** (22, 9876)	53.00*** (22, 9876)
	Partial η^2	.166	.175	.146	.019	.046	.027	.118	.072	.130	.138	.145	.106

***< 0.001; **< 0.01; *< 0.05

Table 11: Cluster-level estimated marginal means for the product characteristics of salty snack

Cluster		BF1	BF2	BF3	BF4	BF5	BF6	BF7	BF8	BF9	BF10	BF11	BF12
Cluster 1		1.90	2.88	3.13	2.10	2.02		2.25	3.35	2.20	2.11	2.17	3.72
Cluster 2		1.72	2.92	3.17	1.94	1.79		2.06	3.45	1.94	1.91	1.87	3.88
Cluster 3		1.84	2.99	3.25	2.12	1.97		2.25	3.49	2.11	2.09	2.11	3.86
Cluster 4		1.71	3.07	3.38	2.01	1.85		2.14	3.47	1.91	1.90	1.99	4.03
Cluster 5		1.72	2.76	3.17	2.08	1.89		2.12	3.20	1.86	1.87	1.99	3.82
Cluster 6		2.41	3.04	2.86	2.37	2.32		2.45	3.22	2.74	2.57	2.56	3.50
Cluster 7		1.97	2.92	2.99	2.07	1.92		2.15	3.33	2.22	2.06	2.15	3.80
Cluster 8		1.83	2.96	3.38	2.06	1.97		2.22	3.61	2.20	2.09	2.16	3.89
Cluster 9		1.65	2.80	3.08	2.03	1.88		2.12	3.32	2.11	1.85	1.80	3.91
Cluster 10		1.68	2.95	3.36	1.83	1.77		2.07	3.20	1.68	1.89	1.75	3.91
Cluster 11		1.80	2.79	3.13	1.93	2.04		2.31	3.40	2.20	2.03	2.12	3.81
Cluster 12		2.04	2.84	2.99	2.12	2.05		2.24	3.34	2.33	2.13	2.28	3.59
Cluster 13		2.12	2.84	2.95	2.29	2.23		2.45	3.02	2.18	2.27	2.45	3.51
Cluster 14		2.13	2.71	3.17	2.21	2.25		2.18	3.00	2.14	2.11	2.23	3.65
Main effect Cluster	F (df1,df2)	32.72*** (13, 9876)	4.58*** (13, 9876)	9.90*** (13, 9876)	10.61*** (13, 9876)	16.84*** (13, 9876)		7.87*** (13, 9876)	9.81*** (13, 9876)	39.95*** (13, 9876)	27.40*** (13, 9876)	24.18*** (13, 9876)	13.96*** (13, 9876)
	Partial η^2	.041	.006	.013	.014	.022		.010	.013	.050	.035	.041	.018
Main effect situation	F (df1,df2)	1.42 (6, 9876)	.59 (6, 9876)	1.24 (6, 9876)	.46 (6, 9876)	.94 (6, 9876)		.91 (6, 9876)	1.74 (6, 9876)	2.5* (6, 9876)	1.17 (6, 9876)	1.3 (6, 9876)	.92 (6, 9876)
	Partial η^2	.001	.000	.001	.000	.001		.001	.001	.002	.001	.001	.001
Main effect country	F (df1,df2)	510.76*** (3, 9876)	230.25*** (3, 9876)	129.11*** (3, 9876)	222.50*** (3, 9876)	12.69*** (3, 9876)		96.68*** (3, 9876)	154.87*** (3, 9876)	82.32*** (3, 9876)	339.38*** (3, 9876)	234.28*** (3, 9876)	216.16*** (3, 9876)
	Partial η^2	.135	.066	.038	.063	.004		.029	.045	.024	.094	.087	.062
Main effects Cluster, situation and country	F (df1,df2)	94.55*** (22, 9876)	34.45*** (22, 9876)	23.90*** (22, 9876)	39.46*** (22, 9876)	12.54*** (22, 9876)		19.17*** (22, 9876)	27.63*** (22, 9876)	36.68*** (22, 9876)	67.67*** (22, 9876)	52.13*** (22, 9876)	37.77*** (22, 9876)
	Partial η^2	.174	.071	.051	.081	.027		.041	.058	.076	.131	.135	.078

***< 0.001; **< 0.01; *< 0.05

Table 12: Cluster-level estimated marginal means for the product characteristics of dried fruit

Cluster		BF1	BF2	BF3	BF4	BF5	BF6	BF7	BF8	BF9	BF10	BF11	BF12
Cluster 1		3.21	3.53	2.38	2.17	2.19	2.40	2.60	3.42	3.30	3.20	3.23	3.40
Cluster 2		3.27	3.64	2.16	2.00	1.98	2.24	2.50	3.45	3.32	3.18	3.27	3.41
Cluster 3		3.06	3.42	2.42	2.25	2.25	2.39	2.54	3.25	3.09	2.98	2.95	3.23
Cluster 4		3.08	3.52	2.31	2.12	2.04	2.29	2.47	3.26	3.09	3.08	2.95	3.08
Cluster 5		2.90	3.19	2.18	2.04	2.10	2.16	2.32	3.05	2.91	2.86	2.66	3.00
Cluster 6		3.16	3.40	2.59	2.53	2.48	2.63	2.72	3.32	3.25	3.28	3.20	3.42
Cluster 7		3.20	3.65	2.35	2.10	2.14	2.21	2.61	3.46	3.30	3.26	3.25	3.47
Cluster 8		3.26	3.55	2.37	2.16	2.19	2.29	2.76	3.40	3.20	3.13	3.19	3.31
Cluster 9		3.61	3.98	2.19	1.93	1.87	2.14	2.62	3.82	3.65	3.57	3.64	3.72
Cluster 10		3.58	3.76	2.16	1.73	1.70	2.23	2.39	3.61	3.61	3.62	3.48	3.62
Cluster 11		3.65	3.84	2.50	2.16	2.04	2.31	2.66	3.79	3.56	3.59	3.62	3.42
Cluster 12		3.27	3.54	2.42	2.25	2.28	2.47	2.47	3.39	3.25	3.20	3.14	3.37
Cluster 13		2.89	3.25	2.57	2.57	2.47	2.59	2.59	2.95	2.91	2.88	2.70	3.12
Cluster 14		3.15	3.32	2.25	2.30	2.25	2.34	2.07	3.33	3.25	3.23	3.15	3.52
Main effect Cluster	F (df1,df2)	25.51*** (13, 9876)	22.79*** (13, 9876)	10.69*** (13, 9876)	21.71*** (13, 9876)	22.07*** (13, 9876)	13.40*** (13, 9876)	11.13*** (13, 9876)	23.59*** (13, 9876)	24.22*** (13, 9876)	22.84*** (13, 9876)	36.33*** (13, 9876)	16.93*** (13, 9876)
	Partial η^2	.033	.029	.014	.028	.028	.017	.014	.030	.031	.034	.052	.022
Main effect situation	F (df1,df2)	2.61* (6, 9876)	.83 (6, 9876)	1.23 (6, 9876)	1.09 (6, 9876)	.90 (6, 9876)	.64 (6, 9876)	.69 (6, 9876)	1.90 (6, 9876)	2.93* (6, 9876)	3.57* (6, 9876)	6.13*** (6, 9876)	1.73 (6, 9876)
	Partial η^2	.002	.001	.001	.001	.001	.000	.000	.001	.002	.002	.004	.001
Main effect country	F (df1,df2)	542.95*** (3, 9876)	397.15*** (3, 9876)	55.52*** (3, 9876)	156.67*** (3, 9876)	76.75*** (3, 9876)	123.87*** (3, 9876)	1575.05*** (3, 9876)	247.34*** (3, 9876)	258.53*** (3, 9876)	258.14*** (3, 9876)	304.52*** (3, 9876)	148.01*** (3, 9876)
	Partial η^2	.142	.108	.017	.046	.023	.036	.324	.070	.073	.083	.095	.043
Main effects Cluster, situation and country	F (df1,df2)	99.89*** (22, 9876)	73.91*** (22, 9876)	14.69*** (22, 9876)	37.19*** (22, 9876)	25.93*** (22, 9876)	25.81*** (22, 9876)	227.03*** (22, 9876)	53.37*** (22, 9876)	55.79*** (22, 9876)	57.57*** (22, 9876)	68.16*** (22, 9876)	31.66*** (22, 9876)
	Partial η^2	.182	.142	.032	.077	.055	.054	.336	.106	.111	.129	.147	.066

***< 0.001; **< 0.01; *< 0.05

2. Cutting fruit into pieces: Using benefit segmentation to promote fruit consumption in Europe[3]

2.1 Abstract

Average European fruit consumption still remains below the recommended level and many fruit promotion activities have not been very successful. The aim of this study is to formulate strategies to support promotion campaigns and product development with regard to fruit based on benefit segmentation in different situations. A large survey was carried out in four European countries that consisted of questions regarding the importance consumers attach to food related benefits, personal characteristics of the consumers, and the fruit consumption behaviour of the consumers. The results of this study describe segments in terms of what product benefits are most important, what the characteristics of the consumers in this segment are and what kind of lifestyle and fruit consumption behaviour these consumers have. This study shows that the importance attached to the product benefits convenience, health and safety seem to differ a lot between the segments. Practical recommendations for fruit promotion campaigns and product development are provided.

[3] This study is sponsored by the European ISAFRUIT-project: www.isafruit.org.

2.2 Introduction

Over the past decades, research has confirmed that consumption of fresh fruit contributes to someone's health (WHO, 2003). Fruit consumption can lead to a lower risk for diseases like coronary heart diseases and specific types of cancer or premature death (Brug et al., 1995; Gerster, 1991; Hertog et al., 1993). The World Health Organisation recommends eating 400 gram of fruit and vegetables per day. This advice is also supported by the European Commission in its European strategy on nutrition, overweight and obesity related health issues. However, average European fruit consumption remains well below the recommended level (Groot et al., 2007; Pomerleau et al., 2004; Schreuder et al., 2007). Despite promotion efforts (e.g. national "five times a day fruit and vegetable" campaigns in Poland and Spain), only a few Mediterranean countries, where availability of fruit is high, are currently meeting the recommendation on a population level (Groot et al., 2007).

In order to increase fruit consumption, the effectiveness of promotion campaigns are studied. However, although these studies focus on specific groups like children (e.g. Klepp et al., 2005; Tak et al., 2008) or specific locations like worksites (Sorensen et al., 2004), these studies look at both fruit and vegetables, thereby neglecting differences between both product groups in for example consumption moments. In addition, the use of different communication messages are examined, such as more general messages that promote the benefits of fruit consumption (e.g. Heimendinger et al., 1996) or tailored messages based on stages of change that consumers are in (e.g. Williams- Piehota et al., 2009; Van Duyn et al., 1998; Brug et al., 1997). These studies show that combinations of communication strategies are most effective. Furthermore, research shows that the majority of the fruit promotion campaigns take place in North-West Europe; South-West and South-East Europe have a limited amount of campaigns due to their nutritional habits which already contain a high intake of fruit and vegetable products, whereas the new EU member states in North-East Europe also have a limited number or no fruit promotion campaigns at all (Kozarzewska and Zimmermann, 2007).

Next to fruit campaigns, new product development is an important vehicle to increase fruit consumption. Studies have been carried out with regard to different types of fruit innovations, like new varieties, organic fruit, fruit snacks, enhanced fruit juices and new packaging. Many of these studies have a technical focus based on production (growth, storage, and so on) or, using sensory panels, a focus on sensory characteristics (e.g. Pascal et al., 2009; Endrizzi, et al., 2009) and do not investigate consumer preferences and acceptance directly. In addition, the few studies that indeed focus on intentions to buy and consume fruit are very country-specific (e.g. Sabbe et al., 2008).

Evaluations of campaigns and studies on the acceptance of fruit innovations show that although many activities are going on, they are still not very successful. From the literature it is known that market segmentation is an effective tool to develop effective intervention strategies and new fruits and fruit products that are highly accepted (e.g. Kozarzewska and Zimmermann, 2007; Pomerleau et al., 2005). Market segmentation refers to a classification of similar consumers into groups, for which tailored marketing mixes are to be developed. There are multiple ways to classify consumers, for example on the base of geographic location or demographic characteristics, but also on the importance that consumers attach to product benefits. Earlier research has demonstrated that the benefits consumers seek in consumption behaviour are the fundamental basis for the existence of true market segments (Haley, 1968; Wind, 1978). Segmentation of consumers on the base of these underlying benefits of products is an effective way to conduct marketing strategies (Young and Feigin, 1975). So, for both profit and non-profit

organizations targeting specific consumer segments based on their importance attached to specific benefits of fruit and fruit products can be advantageous.

However, previous studies on consumer segmentation in the context of food, and more particularly in the context of fruit, did not provide such an attempt to segment European consumers based on their underlying evaluation of product benefits neither for food in general nor for food in specific consumption situations. Although some recent studies identified consumer segments based on health (Geeroms et al., 2008) or convenience (Buckley et al., 2007), to the best of our knowledge no studies identified consumer segments based on a combination of these, and other, benefits. More specifically, next to health and convenience, the present study adds taste, safety, and feelings as important benefits that consumers take into consideration when choosing food products.

The aim of this study is to formulate strategies to support promotion campaigns and product development with regard to fruit based on benefit segmentation in different situations. Incorporating usage situations in the benefit segmentation is a useful basis for targeting marketing strategy (Dickson, 1982). A large survey was carried out in four European countries. For the five most interesting segments we explore what product benefits are most important, what the characteristics of the consumers in this segment are and what kind of lifestyle and fruit consumption behaviour these consumers have. The following sections will explain the method and results of this study. The final part of this article will discuss the results and offers practical recommendations to enhance fruit consumption in Europe.

2.3 Method

Participants

To meet the objectives of this study, a large-scale consumer study was conducted among European consumers. In total the sample consisted of 2083 respondents, divided over The Netherlands (n=560), Greece (n=514), Poland (n=515), and Spain (n=494). Subjects were recruited from online panels and embody a representative sample of the country populations in terms of age, gender, educational and income level.

The demographic characteristics of these respondents were as follows. Age was ranging from 12 to 79 years (M = 38.8). The sample consisted of 50.3% females and 49.7% males. With regard to education, notice that all countries have very distinctive educational systems. To make comparison between countries possible three educational levels, which are more or less comparable over countries, are composed: low (e.g., elementary school), medium (e.g., high school) and high (e.g., college or university). Of the total sample 4.4 % of the respondents had an educational level that was considered as low, 46.4 % of the respondents had an educational level that was considered as medium, and consequently 49.2% of the respondents had an educational level that was considered as high. A detailed overview of the sample characteristics for each country is presented in Table 1.

Questionnaire

The respondents completed an online questionnaire[4]. The questionnaire (see Appendix A) consisted of questions regarding the importance consumers attach to food related benefits (Part IV), personal characteristics of the consumers (Part VI), lifestyle characteristics of the consumers (Part V), and the fruit consumption behaviour of the consumers (Part I). These four parts (I, IV, V, and VI) answer the following questions "Which food-product benefits are important for consumers?", "What is the demographic description of the consumers?", "What kind of lifestyle do these consumers have?" and "What fruit consumption behaviour do they have?". Each part of the questionnaire (I, IV, V, and VI) is explained in detail below.

Part IV. Importance of product benefits

Consumer food product benefits were identified based on the literature (e.g., Rozin, 2006) as well as on a qualitative study consisting of total twelve focus groups, carried out in February 2007. Three focus groups of 6-10 persons (total N=94) were conducted in The Netherlands, Greece, Poland and Spain. The results of the focus groups are used as input for the identification of twelve relevant benefits for food. A detailed explanation of the qualitative research is beyond the scope of this article (for details we refer to Briz et al., 2007). The importance of food benefits is measured in general and for specific contexts. With regard to the context-specific evaluation, respondents rated the importance of the food benefits in three different situations (i.e., at home, at school/work, and on the move) for one of two consumption moments (i.e., main meal and snack). Respondents were randomly assigned to one of the two consumption moments. In this way respondents rated the importance of the food benefits four times, one general rating of the benefits and three ratings for a specific situation.

Food benefits. The identified benefits refer to health, convenience, safety, taste, satiety, and affective benefits. The benefits concerning *health* are 'Preventing diseases/illness' and 'Making me feel healthy'. 'Not giving me dirty hands', 'Being easy to take along', 'Being easy to eat', and

[4] For details about the construction of the questionnaire and the results of the subsequent pilot study we refer to Reinders et al. (2008).

'Not taking much time to eat' are benefits that refer to *convenience*. 'Containing no pesticides' is a *safety* orientated benefit. *Taste* is represented by the benefit 'Having a good taste'. Benefits that refer to *satiety* are 'Giving me energy', and 'Helping me to satisfy my hunger'. Finally, in this study some *affective benefits* are incorporated: 'Making me feel like doing the right thing' 'Making me feel healthy' and 'Making me feel like a responsible parent'. Respondents are asked to rate the importance of these benefits for their food consumption in general and for their food consumption in a specific context. More specifically, respondents rate the importance of the benefits for a main meal or a snack (consumption moment) in three different consumption situations: at home, at work or school and on the move. An example of an item for a specific context is 'When having your main meal at home- Giving me energy is…'. All the items should be answered on a 5-point scale (ranging from 1 = "very unimportant" to 5 = "very important").

Part VI. Personal characteristics

This part of the questionnaire aims to measure who the consumers are with regard to demographics. The questions about the personal characteristics of respondents concerned age, gender, family status (Married/Living together, Single/Divorced/Widow or Living with your parents), number of members of households, number of children below 18 years old, educational level (Low, Medium or High), employment status (Employed, Retired, Student, Unemployed, Housewife or In the army). With regard to household income, nine categories are developed based on the minimum wage of each country. The nine different categories were a multiplication of this minimum wage (e.g. 4-6 times minimum wage and 6-8 times minimum wage). This makes the income level comparable over countries. Finally, respondents are asked whether they are the person in the household that regularly buys the food (Yes/No) and whether they are the person that regularly prepares the food (Yes/No).

Part V. Lifestyle

This part of the questionnaire aims to measure respondents' food-related lifestyles (i.e., psychographic characteristics). The impact of psychographic characteristics on food preferences of consumers is underlined by multiple studies (e.g. Rozin, 2006). In the present study a selection of these characteristics is made on the base of 1) relevance, 2) reliability, 3) validity, and 4) feasibility. All the scales that are taken into account in the present study affect the importance that consumers attach to the different food benefits. Moreover, all scales are already proven to be reliable and valid within the literature. For each scale a short description and the original source is mentioned below.

Health orientation (6 items) exist of two subscales that aim to measure the general health interest and the natural product interest of consumers. This scale was originally developed by Roininen, Lähteenmaki, and Tuorila (1999). In the present study a selection of the items is made on the base of content. The Cronbach's alpha of this scale was 0.79.

Convenience orientation (6 items) refers to the extent one believes it is important that food is easy to prepare buy and consume. The used scale is originally developed by Olsen et al.(2007). Cronbach's alpha of this scale was 0.79.

Price orientation (3 items) is one dimension of the Food-related lifestyle measurement instrument of Grunert, Brunsø, and Bisp (1993). This scale aims to measure the extent to which consumers notice prices and look for bargains. The Cronbach's alpha of this scale was 0.77.

Safety orientation (6 items) this instrument aims to measure consumers' worries and desires about the safety of food. The items which are used to measure the safety orientation are based on

the items suggested by De Jonge et al. (2007). Items are selected form this original scale on the base of content. Cronbach's alpha of this scale was 0.88.
Childhood habits (3 items) refers to the extent one eats fruit routinely. The scale is originally developed by Reinaerts et al. (2007). Cronbach's alpha of this scale was 0.88.
Social norm (4 items) measures the extent to which an individual is influenced by his or her social environment. The scale was based on Ajzen and Fishbein's (1980) original measure of subjective norm: 'Most people who are important to me think I should (not) eat healthy'. We distinguish between friends, relatives, doctors or experts, and promotion campaigns as relevant, important social influence sources. Cronbach's alpha of this scale was 0.80.

Part I. Consumption behaviour
Finally, the consumption of different fruits (apple, peach, orange juice and dried fruit) and non-fruit products (candy bar, salty snack) is asked. Respondents are asked to estimate how often they consume different fruits (apple, peach, orange juice and dried fruit) and non-fruit products (candy bar, salty snack). The items can be answered on a 5-point scale (i.e., 1 = "More than 2 times a day", 2 = "2 times a day", 3 = "Once a day", 4 = "3-6 times a week", 5 = "1-2 times a week", 6 = "Less than once a week" and 7 = "Never").

Cluster analysis
To identify consumer segments according to the importance of food benefits in general and for specific contexts a cluster analysis is performed. A so-called finite mixture model is used to identify the optimal number of benefit segments with the use of the statistical program Latent Gold (Vermunt and Magidson, 2005). To account for answering tendencies the scores of the respondents were centered. There are respondents who have a tendency to score low on all different questions, while others have a tendency to score high on all questions. This may possibly result in clusters of respondents with high answering tendencies versus clusters of respondents with low answering tendencies. Centering is an often used method in the consumer segmentation literature, which reduces the potential impact of answering tendencies on the results.

In addition, to take into account both the general food benefits and the context-specific food benefits the data was formed in an extended data matrix (a.o., see Dillon, Frederick, and Tangpanichdee, 1985). Respondents rated the importance of the fourteen benefits in general and for three different situations. In this way the respondents rated the importance of the benefits four times. The data was structured, such that there are twelve variables, one for each of the twelve different benefits. These variables have 4×2083 cases, one for each respondent-situation combination. In this way the variables contain the scores of the respondents on the general and the situation-specific benefits. As such, a single respondent can be placed in multiple clusters based on his or her four benefit scores (general and context-specific).

The finite mixture model revealed an optimal solution of fourteen clusters based on the pattern of (centered) importance scores of the twelve benefits This fourteen-cluster model had the best model fit in terms of the CAIC (= 171196) and the log-likelihood (= -83786). The entropy R^2 (= 0.90) revealed that the found clusters are clearly distinguishable from each other (McCutcheon, 1987).

2.4 Results

Benefits

Table 2 shows the means of the importance of the different product benefits for each of the 14 clusters. The first column reports the mean importance scores of all respondents across the benefits in general and in relation to specific contexts (i.e. across all clusters). Relative important benefits are (1) 'Having a good taste', (2) 'Giving me energy' and 'Helping to satisfy my hunger' (i.e., satiety), (3) 'Containing no pesticides' (i.e., safety) and (4) 'Prevents diseases' and 'Making me feel healthy' (i.e., health). Convenience-related benefits (i.e., 'Not giving me dirty hands', 'Easy to take along', 'Easy to eat', and 'Not taking much time to eat') are relatively less important product benefits. However, differences in evaluation of these product benefits between the clusters can be observed. Some clusters place relatively more importance to convenience-related benefits (e.g., Cluster 7), whereas other clusters place relatively more importance to health-related benefits (e.g., Cluster 9, 10 and 11).

In addition, Table 3 shows the distribution of the clusters over the different contexts. As can be seen in the table, Cluster 13 and 14 are context-specific clusters. Furthermore, the prevalence of consumer segments differs over situations. For example, Clusters 2 and 5 mainly represent the home situations, whereas Clusters 4 and 8 mainly represent the out-of-home situations (i.e., at work or on the move). Notice that we corrected in this table for the fact that the respondents did not evaluate the benefits in all situations (in fact, each respondent evaluated only half of the situations as was described in the method section), but that all respondents evaluated the product benefits in general.

Segments

In the sections below a detailed description is provided for the five most interesting market segments. These segments are selected based on (1) the relative size, which indicates the market potential of the segment, (2) the relative importance of certain product benefits, which indicates how to seduce the consumers in the segment, and (3) the representation of these segments in certain situations, which indicates where these segments should be reached. Or it could be a combination of these criteria. Together, these segments cover about 60% of the total amount of clusters. Figure 1 shows the share of these segments relative to the other segments. In addition, Figure 2 shows a graphical presentation of the means of the product benefits for the five segments. Finally, Figure 3 shows a graphical presentation of the means of the different psychographic characteristics for the five segments.

Indifferent and Average

The segment *Indifferent and Average* is the largest segment (27% of the person-situation combinations can be placed in this cluster) and reflects Cluster 1 as shown in Table 2 and 3.

Which product benefits are important for these consumers? - The prevalence of benefits in *Indifferent and Average* does not represent a specific situation, but it is slightly linked to specific consumption moments like the main meal situation at home or at work. As shown in Figure 2, members of this segment do not have a very distinctive evaluation of the product benefits. Their scores on the evaluation of the benefits are very close to the overall mean scores on these benefits, as can be seen in Table 2. Focussing on the relative importance of benefits within the segment, it can be seen that 'Having a good taste' and 'Contains no pesticides' have a relatively high score compared to the other benefits. Respondents in this segment perceive 'Not giving dirty hands' and 'Easy to take along' as relatively unimportant. Notice, however, that related to the other segments, these latter benefits are still relatively important for this segment.

Who are these consumers? - Profiling *Indifferent and Average* reveals that on average the respondents are around 40 years old and relatively more men (53%) then women belong to this segment. With regard to educational level and income, this segment performs on an average level. A high percentage is married (71.7%) and the household consists in general of 2 or 4 people, and relatively more households with children that are under 18 years old (38.3%) are represented. As we look at the prevalence of this cluster in the four European countries, more Dutch respondents (28.8%) and less Greek respondents (21.3%) belong to this segment.
What kind of lifestyle and fruit consumption behaviour do they have? – This segment does not stand out on any of the lifestyle characteristics, as can be seen in Figure 3. Compared to the other segments the consumption of fruit products, candy bar and salty snacks of the people in *Indifferent and Average* is average. In contrast, the respondents in this segment prefer self squeezed orange juice above a whole fresh apple or peach.

Safety! and Health
This segment is based on Cluster 2 as shown in Table 2 and 3 and represents 12% of the total cases. The respondents within this segment perceive some benefits more, and other benefits less important compared to other segments.
Which product benefits are important for these consumers? - *Safety! and Health* has a higher representation of the home situations. This means that the importance of the food benefits is influenced by the home situation. The benefits which are relatively important compared to other segments are 'Contains no pesticide', 'Preventing diseases', 'Makes me feel healthy' and 'Gives me energy'. Benefits of relative unimportance compared to the other segments are the convenience related benefits 'Not giving dirty hands', 'Easy to take along', and 'Easy to eat'.
Who are these consumers? - Compared with other segments the respondents within the *Safety! and Health* segment are on average 37 years old and have a medium to high educational level (96.9%), but in contrast to what should be expected based on the education level of this segment, they have a low to medium income (71.9%). Most of them are working people (72.3%) and students (11.3%). Moreover, a considerable amount of people live with their parents (17.6%). More Greek respondents (35.8%) and less Dutch respondents (19.2%) belong to this segment.
What kind of lifestyle and fruit consumption behaviour do they have? - This segment has a relatively high percentage of consumers that buy the food (79.5%). This segment is average on health orientation (M=3.38) and safety orientation (M=3.22) and is less convenience oriented (M=3.03) than other segments. They have an average consumption on apples and eat less than average peaches. They drink slightly more self squeezed orange juice than other segments.

Convenience - Quick and easy satiety
Convenience - Quick and easy satiety is based on Cluster 4 as shown in Table 2 and 3 and represents about 9% of the total cases.
Which product benefits are important for these consumers? - This segment has a high representation in the out-of-home situation. The importance of benefits is largely influenced by the situations work/school and on the move for as well main meal (18.4% and 28.5%) as snacks (21.4% and 25.8%). In contrast with the segment *Safety! and Health*, members of *Convenience - Quick and easy satiety* perceive all benefits related to convenience as relatively important. 'Easy to eat', 'Easy to take along', 'Not take much time to eat', 'Not giving me dirty hands' are very important for this group. Beside the convenience related benefits, benefits as 'Taste' and 'Satisfy my hunger' are also relatively important. The members of *Convenience-Quick and Easy Satiety* perceive 'Contains no pesticides' and 'Prevent diseases' as relatively unimportant.

Who are these consumers? - A relatively high percentage of the people in *Convenience-Quick and Easy Satiety* are women (54.7%) and young people (*M*=35.27). They have a relatively high educational level (56.8%) and higher average income level (15.5%). Furthermore, a higher percentage of students (16.6%) is represented in this segment, while less than an average number of housewives are represented (4.5%). More people are living with their parents (21.8%) and less of the people are married (60.6%). In accordance with the aforementioned, these consumers have on average less children under 18 years old (69.3%). Looking at the distribution of this segment over the four countries, on average more Dutch respondents (28.4%) and Polish respondents (27.3%) and less Spanish respondents (19.2%) are represented in this group.
What kind of lifestyle and fruit consumption behaviour do they have? - Generally, consumers in this segment are relatively less the ones who buy (28.9%) and prepare the food (39%). When looking at the personal orientations they are more convenience oriented (*M*=3.33) and price oriented (*M*=3.37). They are less than average health oriented (*M*=2.99) and safety oriented (*M*=2.84) and less concerned about social norms (*M*=2.71). In addition, they are less influenced by childhood habits (*M*=3.58). This segment consumes significantly less apples than other segments and has the lowest consumption of peaches.

Snacking pragmatics
This segment is based on Cluster 5 as shown in Tables 2 and 3. Comparable to this segment is Cluster 3 as shown in Tables 2 and 3. Cluster 5 contains 7% of all person-situation combinations, and together with Cluster 3 19% of the total cases are represented.
Which product benefits are important for these consumers? - The segment *Snacking pragmatics* is also relatively dependent upon consumption moments, such that the importance of the benefits is extremely influenced by the snacking situations (snacking at home and snacking on the move). For the segment *Snacking pragmatics* none of the benefits is more important compared to the other segments. But there are benefits that are relatively **un**important compared to other segments which concerns mainly the affective and health-related benefits: 'Feeling a responsible parent', 'Feel like doing the right thing', 'Feeling healthy', and 'Prevents diseases'. Finally, there is also a benefit of relative importance within the segment: 'Taste'.
Who are these consumers? - On average the respondents within *Snacking pragmatics* are relatively young: 35.6 years old. Among them, a relatively high percentage is single (21.3%) or living with their parents (20.3%) and they are not married. The average number of persons in their household is 1 till 3 persons, not 4 or more persons. And the consumers in this segment are less often the ones that buy the food (61%). They have a low income (30.4%) and a relatively high education level (50.4%). This segment has more Greek (31.7%) and less Spanish respondents (16.5%).
What kind of lifestyle and fruit consumption behaviour do they have? – With regard to the lifestyle characteristics of this segment, most of the scores on the personal orientations are less than average: respondents in this segment are less health oriented (*M*=2.99), safety oriented (*M*=2.95) and price oriented (*M*=3.38), less concerned about social norms (*M*=2.69) and less influenced by childhood habits (*M*=3.51). These consumers do not have a very high fresh fruit consumption (whole apple, peach and self squeezed orange juice). Moreover, they also have a relatively low consumption of dried fruit.

Caring women - Health and Feelings

This segment is based on Cluster 10 as shown in Tables 2 and 3. Comparable to this segment are Clusters 9 and 11 as shown in Tables 2 and 3. Cluster 10 contains 4% of all person-situation combinations, and together with Clusters 9 and 11, 11% of the total cases are represented.

Which product benefits are important for these consumers? - Representation of the segment *Caring woman-Health and Feelings* differs over situations and consumption moments, such that the importance of the benefits are far more than average influenced by the main meal at home. In contrast to the *Snacking pragmatics*, the consumers in the *Caring woman-Health and Feelings* segment are engaged to the affective benefits. They give relative more weight to the benefits 'Responsible parent', 'Preventing diseases', 'Making me feel healthy', 'Doing the right thing', 'Gives me energy', 'Tasty' and 'Contains no pesticide'. Benefits of relative **un**importance are convenience related: 'Not giving me dirty hands', 'Easy to take along' and 'Not taking much time to eat'.

Who are these consumers? - The percentage of women within *Caring women - Health and Feelings* (61.4%) clearly outnumbers the percentage of women in the other segments. The average age is 38 years old and a relatively large percentage of people in this segment is married (66.6%). They have a high education level (55.6%), but their income is low (38.2%). On average this segment has a relatively high percentage of housewives (10.7%). A large amount of people in this segment have a household size of 3 persons (30%), and less 1-person households are represented in this segment (5.5%). Looking at the distribution over the four countries, this segment consists of less Dutch consumers (12.7%) and more Greek (32%) and Polish (33%) consumers.

What kind of lifestyle and fruit consumption behaviour do they have? - The consumers in this segment are the ones that buy (82.7%) or prepare the food (70.9%). Their orientation on health (*M*=3.69) and safety (*M*=3.45) is high. And they are high in price orientation (*M*=3.67). On average they are not interested in convenience (*M*=2.95). The consumers of *Caring women - Health and Feelings* have higher scores on childhood habits (*M*=3.99) and social norms (*M*=3.12). This segment contains the real fruit consumers: the actual consumption of whole fresh apple, peach, self squeezed orange juice and dried fruit is significant higher compared to the other segments. On the other hand, the consumption of salty snacks is also higher compared to the consumption of the other segments.

2.5 Discussion

In this paper a consumer segmentation study has been presented based on different product benefits. In this discussion we will first briefly explain the usefulness of this benefit segmentation compared to other segmentation methods in the literature, followed by practical recommendations for fruit promotion campaigns and product development in general and for each segment specifically.

Usefulness of benefit segmentation

As already known from the literature the motives taste, health and convenience are usually the most mentioned motives when asking consumers about their food choices (Rozin, 2006). The mean scores of the benefits in this study show that taste is considered to be the most important benefit compared to the other benefits (i.e., health, convenience, safety, satiety, and feelings). This is in accordance with the literature (e.g., Steptoe and Wardle, 1995; Pohjanheimo et al., 2009). Those sources also show that health is a relatively more important motive in food choice than convenience. This is in line with the outcomes of the projective task in the qualitative study that preceded this study (see Briz et al., 2007) as well as the findings in the current study, where convenience-related benefits are regarded as less important than health-related benefits.

Despite the overall importance of taste, a number of segments also have relatively high scores on the other benefits. This suggests that there are consumers who have, in particular situations, a broader interest in food. On the other hand, there are also segments that have relatively low scores on all benefits, which suggests that those consumers are (in specific situations) less interested in food. Furthermore, although there is not a specific segment that is solely interested in health or convenience, these benefits are able to make a distinction between the different segments. Also in the literature, those two general benefits are often used to segment consumers. For example, Buckley et al. (2007) performed a segmentation study based on the convenience food lifestyle, whereas Granzin et al. (1998), Geeroms et al. (2008a, 2008b), and Glanz et al. (1998) developed segments based on health-related motivations and subsequently made recommendations for targeted health-promotion dependent on the main characteristics associated with each segment identified in their studies. In addition, the health conscious scale is also used to group consumers with regard to health (Sijtsema et al., 2009; Hoek et al., 2004). However, those scales, used to segment/group consumers with regard to health and convenience, are useful to get insights in a specific benefit or motive. In order to come closer to daily life it is more useful to include several benefits. Our research shows that most consumers are interested in a combination of benefits or motives and not just convenience or health. In addition, our study shows that the importance attached to the product benefits convenience, health and safety seem to differ a lot between the segments. For example, the largest segment (Segment 1) has an average score on all benefits, whereas the smaller segments are more outspoken about a few benefits. So, it appears to be very relevant to develop and apply different marketing strategies to these different segments.

Recommendations for fruit promotion campaigns and product development

Based on the discussion above, specific suggestions and recommendations for promotion campaigns and/ or product development can be proposed.

Overall strategy

As mentioned earlier, taste is the most important benefit overall and across all segments, thus should be always taken into consideration in the promotion of fruit and the development of new

fruit products. Thus, instead of focusing on the importance of health in attempting to change consumers' fruit consumption, the more promising strategy could be encouraging people to eat fruits for taste reason, as is already acknowledged in past studies (see Wansink and Westgren, 2003; Glanz et al., 1998). However, although taste seems to be an overall important motive for consumers to base their fruit choices on, our study reveals that consumers within different segments also attach importance to other product benefits. As a consequence, solely focusing promotion strategies on taste without taking other important benefits into consideration can lead to missed opportunities for some market segments. Therefore, in the next paragraphs we give an overview of more specific suggestions for fruit promotion for the five benefit segments described in this study.

Indifferent and average

Above all, this is a large and very general and average segment. Although there are some small differences between countries, this segment is also more or less equally distributed across the four European countries. In addition, the profile of the segment indicates that this is the segment of the average family (married couples with children under the 18 years old). Moreover, in this study, the segment represents about a relatively large amount of the person-situation combinations in this study. As such, we can expect that this segment has a relatively large representation across the European population and, as a consequence, a high market potential, at least in the four countries that were subject to this study (i.e., Spain, The Netherlands, Greece, and Poland). Because of this high market potential, this segment is very interesting for fruit campaigns and new product development. Based on the fact that this segment reveals average scores on all benefits, we suggest that in promotion campaigns all these benefits should be emphasized. On the other hand, because all benefits are more or less equally important, consumers in this segment are also addressed in specific campaigns aimed at specific benefits. However, taste and food safety (containing no pesticides) may be stressed somewhat more as these benefits are perceived as relatively more important compared to the other benefits within the segment. A slogan for this segment may be: *Fruit suits in everyday life, it is tasty, healthy, convenient and safe*. With regard to product development, for this segment a well balanced combination of benefits which results in a product with overall quality can be used. Especially the consumption of freshly squeezed orange juice is popular in this segment. It would be interesting to explore why this segment consumes this product and translate these motives to other fruit products. Nevertheless, the relative high consumption of freshly squeezed orange juice suggests that it might be fruitful for product development to concentrate on freshly prepared fruit products.

Safety! and Health

Emphasis in this segment is on the benefits safety and health, especially for situations at home. The results show that both employed people and students (who are living with their parents) have a relatively high representation in this segment, but both groups do the shopping. This segment is more heavily represented in the South-Eastern European regions than in the North-Western European regions. Fruit marketers can elaborate on this safety and health aspect of fruit by emphasizing the home situation, being together, and preparing fresh fruit, in their promotion campaigns. An example of a slogan for this segment is: *Take care of yourself, fruit will take care of you*. Fruit product development for this segment should also focus on the aspects of safety and health. The popularity of self-squeezed orange juice indicates that preparing fresh fruit products by themselves is very familiar for the people in this segment.

Convenience - Quick and easy satiety
This is an out-of-home segment in the sense that the consumption moments (main meal and snacks) are strongly related to the consumption situations of being at work or on the move. Promotion campaigns as well as product development can focus their efforts to increase fruit consumption on the out-of-home channel. The relevance of the convenience-related product benefits for the consumers in this segment together with out-of-home consumption situations and the fact that they do not buy or prepare food themselves indicates that the consumers in this segment can almost solely be targeted by convenience in promotion campaigns. Appealing to health and safety aspects of fruit in promotion campaigns does not seem to make much sense for this segment. A potential slogan for this segment may be: *Run, jump, move, go, …..fruit suits in between everything*. Product development can focus on fresh ready-to-eat products such as juices or salads, also because this segment contains consumers with a relatively higher income.

Snacking pragmatics
This segment can be called the 'snack' segment in the sense that especially the snack situations are represented in this segment (e.g., snacking at home as well as snacking on the move).. In fact only taste is of relevance for consumers in this segment. All the other benefits are not important, especially when compared to the other segments. Moreover, consumers in this segment are totally not attracted by the affective benefits. This indicates that this segment is not involved with food, the safety of food nor with consumers' own health, also expressed by a low health orientation and a low safety orientation. The amount of singles in this segment is relatively high and the segment appears to be characterized by consumers who do not have to take eating schedules of family members into consideration and possibly create their own consumption moments. This might result in an irregular eating pattern including more snacking behaviours (i.e., for this group, the main meal is increasingly replaced by snacking or grazing). Promotion campaigns can allude to the characteristics of this segment by positioning fruit as a snack. For example, a slogan for this segment can be: *Take a break take a banana!* In addition, for this segment firms could develop fruit products that can be used as a snack product. It is important to keep in mind that these consumers care about the taste and not about any other benefit. As such, we recommend firms not to focus on the health, safety or other characteristics of the snack, but only on the taste aspect, when they are going to develop products aimed at this segment.

Caring women - Health and Feelings
The situation main meal at home is the most important factor that affects the benefits of this segment. Most important benefits for this segment are the affective benefits. Maintaining physical and emotional health (of the whole family) and a long-term focus seems to be leading food choice motives for the consumers in this segment. Convenience is no issue for the consumers in this segment. In this segment, women are at the head of the family; they are responsible for buying and preparing the food. This is in line with a more traditional view of the family. Maybe that is also the reason why the North-Western European region has a relatively low representation in this segment, since traditional role patterns are rapidly changing in this region. Promotion campaigns could aim at women who feel responsible for the health and wellbeing of the whole family. These campaigns should also pay attention to the fact that the consumers in this segment consciously keep their eye on their expenditures with regard to food. Moreover, these campaigns should focus on healthy and emotion related aspects of fruit. In addition, since norms of friends, relatives, and experts with regard to food consumption are very

important for the consumers in this segment, campaigns could strategically make use of these information sources. A suitable slogan for this segment may be: *Enjoy fruit, eating it together with your loved ones*. Fruit campaigns in the past (like the 5-a-day campaign) seem to have sorted the highest effect in this segment. However, this segment still remains a niche segment, something that should always be taken into consideration.

Overall conclusions

This study shows that based on benefit segmentation a more balanced strategy can be applied to promote fruit consumption among European consumers by means of product development and promotion campaigns. Strategies based on benefit segmentation can more effectively inform and reach consumers with fruit products that are more in line with their motives and lifestyles. While some segments can be reached with more general fruit campaigns, either because these segments already have a high fruit intake or because they attach importance to all benefits, other segments demand a more targeted approach to enhance fruit consumption. More importantly, when targeting specific segments, the segments that can be reached by a general campaign are also addressed. For example, our study showed that fruit campaigns aimed at health may be interesting for *Safety! and Health* and *Caring women*, whereas positioning fruit as a quick and tasty snack is may be more interesting for *Convenience - Quick and easy satiety* and *Snacking pragmatics*. In addition, either strategy can be used to effectively communicate to the members of the first segment.

The same applies for product development. Some segments can be reached with a whole range of different fruit products, whereas other segments have specific product needs. In our study, product development for the *Convenience - Quick and easy satiety* and *Snacking pragmatics* can focus on convenience aspects of the product (for example, ready-to-eat or quick to prepare products), whereas product development for the segments *Safety! and Health* and *Caring women* should incorporate health as an important product benefit (for example by means of labeling or packaging).

2.6 References

Ajzen, I. and Fishbein, M. (1980). *Understanding Attitudes and Predicting Social Behavior*, Prentice-Hall Inc., Englewood Cliffs, New Jersey.

Briz, T., Martínez-Noriega, P., Fernández, M.C., Briz, J. Guardia, M.D., Guerrero, L., Sijtsema, S., Van der Kroon, S., Jager, L., and Van den Berg, I. (2007) "*Report on Focus Group Results*". Isafruit Project, Deliverable 1.2.2.. Universidad Politécnica de Madrid.

Brug, J., Debie, S., Van Assema, P., and Weijts, W. (1995). Psychosocial determinants of fruit and vegetable consumption among adults: Results of focus group interviews. *Food Quality Preference*, 6, 99-107.

Brug, J., Glanz, K., and Kok, G. (1997). The relationship between self-efficacy, attitudes, intake compared to others, consumption, and stages of change related to fruit and vegetables. *American Journal of Health Promotion*, 12 (1), 25-30.

Buckley, M., Cowan, C., and McCarthy, M. (2007). The convenience food market in Great Britain: Convenience food lifestyle (CFL) segments. *Appetite*, 49, 600-617.

De Jonge, J., Van Trijp, H., Renes, R. J., and Frewer, L. (2007). Understanding consumer confidence in the safety of food: Its two dimensional structure and determinants. *Risk Analysis, 27* (3), 729-740.

Dickson, P. R. (1982), "Person-situation: segmentation's missing link," *Journal of Marketing*, 46 (Fall), 56-64.

Dillon, W.R., Frederick, D.G., and Tangpanichdee, V. (1985). Decision issues in building perceptual product spaces with multi-attribute rating data. *Journal of Consumer Research*, 12, 47-63.

Endrizzi, I., Pirretti, G., Calò, D.G., and Gasperi, F. (2009). A consumer study of fresh juices containing berry fruits. *Journal of the Science of Food and Agriculture* 89 (7) 1227-1235.

Geeroms, N., Verbeke, W., and Van Kenhove, P. (2008 a). Consumers' health-related motive orientations and ready meal consumption behavior. *Appetite*, 51 (3), 704-712.

Geeroms, N., Verbeke, W., and Van Kenhove, P. (2008b). Health advertising to promote fruit and vegetable intake: Application of health related motive segmentation. *Food quality and Preference*, 19, 481-497.

Gerster, H. (1991). Potential role of beta-carotene in the prevention of cardiovascular disease. *International Journal of Vitamin Nutrition Research*, 61(4), 277-291.

Glanz, K., Basil, M., Maibach, E., Goldberg, J., and Snyder, D. (1998). Why Americans eat what they do: Taste, nutrition, cost, convenience, and weight control concerns as influences on food consumption. *Journal of the American Dietetic Association*, 98 (10), 1118-1126.

Granzin, K. L., Olsen, J. E., and Painter, J. J. (1998). Marketing to consumer segments using health-promoting lifestyles. *Journal of Retailing and Consumer Services*, 5 (3), 131-141.

Groot, M.J., Schreuder, S.A.M.M., Van der Wekken, J.W., and Bartels, J. (2007). *Quick Scan of European Fruit Consumption*. Wageningen UR – Applied Plant Research (WUR-PPO), Wageningen.

Grunert, K.G., Brunsø, K., and Bisp, S. (1993). *Food-Related Life Style: Development of a Cross-Culturally Valid Instrument for Market Surveillance*. MAPP project paper no.12. Aarhus: The Aarhus School of Business.

Haley, R. I. (1968). Benefit segmentation: A decision-oriented research tool. *Journal of Marketing*, 32, 30-35.

Heimendinger, J., Van Duyn, M.A., Chapelsky, D., Foerster, S., and Stables, G. (1996). The national 5 A Day for Bettter Health Program: A large scale nutrition intervention. *Journal of Public Health and Management and Practice*, 2 (2), 27-35.

Hertog, M.G., Feskens E.J., Hollman P.C., Katan M.B., and Kromhout D. (1993). Dietary antioxidant flavonoids and risk of coronary heart disease. *The Lancet*, 342, 1007-1011.

Hoek, A. C., Luning, P. A., Stafleu, A., and De Graaf, C. (2004). Food-related lifestyle and health attitudes of Dutch vegetarians, non-vegetarian consumers of meat substitutes, and meat consumers. *Appetite*, 42 (3), 265-272.

Klepp, K-I., Rodrigo, C.P., Thorsdottir, I., Due, P., Vaz De Almeida, M.D., Elmadfa, I., Wolf, A., Haraldsdóttir, J., Brug, J., Sjöström, M, Yngve, A, and De Bourdeaudhuij, I. (2005). Promoting and sustaining health through increased vegetable and fruit consumption among European schoolchildren: The Pro Children Project. *Journal of Public Health*, 13 (2), 97-101.

Kozarzewska, M.A. and Zimmermann, K.L. (2007). *Fruit and Vegetables' Promotion Campaigns in European Countries. Insight into fruit and vegetables' campaigns in four selected countries: Greece, the Netherlands, Poland and Spain*. Report ISAFRUIT.

McCutcheon, A.L. (1987). *Latent Class Analysis*. Sage, Newbury Park (California).

Olsen, S.O., Scholderer, J., Brunsø, K., and Verbeke, W. (2007). Exploring the relationship between convenience and fish consumption: A cross-cultural study. *Appetite*, *49* (1), 84-91.

Pascal, T., Iglesias Castellarnau, I., Blanc, P., and Pitiot, C. (2009). Joint experiments in France and Catalonia of new flat peaches-nectarines and canning peaches from INRA. *Acta Horticulturae*, 814 (20), 299-304.

Pohjanheimo, T., Paasovaara, R., Luomala, H., and Sandell, M. (2009 in press). Food choice motives and bread liking of consumers embracing hedonistic and traditional values. *Appetite*.

Pomerleau, J., Lock, K., McKee, M., and Altmann, D.R. (2004). The challenge of measuring global fruit and vegetable intake. *Nutrition Epidemiology*, 134, 1175-1180.

Pomerleau J., Lock K., Knai C., McKee M. (2005). *Effectiveness of interventions and programmes promoting fruit and vegetable intake*. European Centre on Health of Societies in Transition, London School of Hygiene and Tropical Medicine, United Kingdom Background paper for the Joint FAO/WHO Workshop on Fruit and Vegetables for Health, 1-3 September 2004 Kobe Japan, WHO.

Reinaerts, E., De Nooijer, J., Candel, M., and De Vries, N. (2007). Explaining school children's fruit and vegetable consumption: The contributions of availability, accessibility, exposure, parental consumption and habit in addition to psychosocial factors. *Appetite, 48*, 248-258.

Reinders, M. J., Jager, L., and Bartels., J. (2008), "*Validation of the Measurement Instruments*". Isafruit Project, Deliverable 1.2.5. LEI-Wageningen UR.

Roininen, K., Lähteenmaki, L., and Tuorila, H. (1999). Quantification of consumer attitudes to health and hedonic characteristics of foods. *Appetite, 33* (1), 71-88.

Rozin, P. (2006). *The integration of biological, social, cultural and psychological influences on food choice*. In: R. Shepherd and M. Raats, Editors, The psychology of food choice, CABI, Cambridge, MA (2006), pp. 19–39.

Sabbe, S., Verbeke, W., and Damme, P.V. (2008). Familiarity and purchasing intention of Belgian consumers for fresh and processed tropical fruit products. *British Food Journal*, 110 (8), 805-818.

Schreuder, S.A.M.M., Van der Wekken, J.W., and Groot, M.J. (2007). *Detailed Report on Fruit Consumption in 7 Countries*. Wageningen UR – Applied Plant Research (WUR-PPO), Wageningen.

Sijtsema, S., Backus, G., Linnemann, A., and Jongen, W. (2009). Linking perception of health-promoting food attributes to tangible product characteristics. *British Food Journal*, 111 (3), 207-222.

Sorensen, G., Linnan, L., and Hunt, M.K. (2004). Worksite-based research and initiatives to increase fruit and vegetable consumption. *Preventive Medicine*, 39 (2), S94-S100.

Steptoe, A., Pollard, T. M., and Wardle, J. (1995). Development of a measure of the motives underlying the selection of food: The Food Choice Questionnaire. *Appetite*, 25 (3), 267-284.

Tak, N.I., Te Velde, S., and Brug, J. (2008). Long-term effects of the Dutch Schoolgruiten Project – promoting fruit and vegetable consumption among primary-school children. *Public Health Nutrition*, 12 (8), 1213-1223.

Van Duyn, M.A.S., Heimendinger, J., Russek-Cohen, E., DiClemente, C.C., Dims, L.S., Subar, A.F., Krebs-Smith, S.M., Pivonka, E., and Kahle, L.L. (1998). Use of the Transtheoretical Model of Change to successfully predict fruit and vegetable consumption. *Journal of Nutrition Education*, 30, 371-380.

Vermunt, J.K. and Magidson, J. (2005). *Technical Guide for Latent GOLD 4.0: Basic and Advanced*. Belmont, Massachusetts: Statistical Innovations Inc.

Wansink, B. and Westgren, R. (2003). Profiling taste-motivated segments. *Appetite*, 41, 323-327.

Williams-Piehota, P., Latimer, A.E., Katulak, N.A., Cox, A., Silvera, S.A.N., Mowad, L., and Salovey, P. (2009). Tailoring messages to individual differences in monitoring-blunting styles to increase fruit and vegetable intake. *Journal of Nutrition Education and Behavior*, 41 (6), 398-405.

Wind, Y. (1978). Issues and advances in segmentation research. *Journal of Marketing Research*, 15, 317-337.

WHO (2003). *Diet, Nutrition and the Prevention of Chronic Diseases.* WHO, Geneva.

Young, S. and Feigin, B. (1975). Using the benefit chain for improved strategy formulation. *Journal of Marketing*, 39 (July), 72-74.

2.7 Tables

Table 1: Sample Characteristics

	The Netherlands	Greece	Poland	Spain	**Total**
Gender					
Male (%)	48.90%	50.40%	48.00%	50.60%	49.70%
Female (%)	50.20%	49.60%	52.00%	49.40%	50.30%
Age (years, mean and (in between brackets) standard deviation)	41.98 (12.7)	31.66(8.3)	39.79 (14.9)	39.57 (9.5)	38.32 (12.3)
Family status					
Married\Living together (%)	91.3%	46.7%	63.9%	67.2%	67.8%
Single\Divorced\Widow (%)	8.4%	27.4%	17.1%	22.3%	18.5%
Living with your parents (%)	0.4%	25.9%	19.0%	10.5%	13.7%
Children					
Yes (%)	42.1%	28.4%	31.7%	43.1%	36.4%
No (%)	57.9%	71.6%	68.3%	56.9%	63.6%
Number of household members					
1 (%)	1.3%	15.2%	6.4%	9.9%	8.0%
2 (%)	35.4%	26.7%	27.2%	23.7%	28.4%
3 (%)	20.2%	20.4%	31.5%	27.3%	24.7%
4 (%)	31.3%	26.5%	19.6%	31.6%	27.3%
5 (%)	7.9%	8.9%	10.1%	5.7%	8.2%
>= 6 (%)	3.9%	2.3%	5.2%	1.8%	3.4%
Educational background					
Low (%)	10.5%	0.6%	4.3%	1.6%	4.4%
Medium (%)	61.6%	31.3%	46.0%	45.3%	46.4%
High (%)	27.9%	68.1%	49.7%	53.0%	49.2%
Employment status					
Employed (%)	73.0%	76.8%	57.7%	77.5%	71.2%
Retired (%)	5.9%	.6%	14.4%	4.7%	6.4%
Student (%)	5.0%	14.0%	15.3%	4.5%	9.6%
Unemployed (%)	1.8%	3.9%	5.6%	6.3%	4.3%
Housewife (%)	13.9%	2.1%	6.8%	6.5%	7.5%
In the army (%)	0.4%	2.5%	0.2%	0.6%	0.9%

Table 1: Sample Characteristics (continued)

	The Netherlands	Greece	Poland	Spain	Total
Responsible for buying food?					
Yes (%)	68.0%	85.2%	80.6%	76.3%	77.3%
No (%)	32.0%	14.8%	19.4%	23.7%	22.7%
Responsible for preparing food?					
Yes (%)	67.0%	65.4%	67.0%	63.6%	65.8%
No (%)	33.0%	34.6%	33.0%	36.4%	34.2%
Income					
< minimum wage € (%)	1.4%	8.8%	3.7%	1.8%	3.9%
minimum wage – 2 * minimum wage (%)	1.8%	26.5%	9.5%	6.7%	10.9%
2* minimum wage – 3* minimum wage (%)	7.1%	20.4%	16.3%	13.2%	14.1%
3* minimum wage – 4* minimum wage (%)	10.7%	13.8%	16.9%	15.8%	14.2%
4* minimum wage – 6* minimum wage (%)	16.6%	8.0%	20.2%	24.1%	17.1%
6* minimum wage – 8* minimum wage (%)	16.3%	3.7%	10.1%	8.7%	9.8%
8* minimum wage – 10* minimum wage (%)	17.0%	0.2%	3.9%	5.7%	6.9%
10* minimum wage – 15* minimum wage (%)	5.0%	2.1%	1.4%	3.6%	3.1%
> 15* minimum wage (%)	2.3%	3.3%	2.1%	1.0%	2.2%
I do not know / I do not want to answer	21.8%	13.2%	15.9%	19.4%	17.7%

Table 2: Means for product benefits for fourteen clusters

Cluster	Total	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Prevents diseases (H)	3.95	4.05	4.21	3.47	3.58	3.30	3.79	4.17	3.80	4.65	4.71	4.66	4.04	3.45	4.53
Giving energy (Sa)	4.18	4.16	4.34	3.95	4.20	3.78	3.80	4.36	4.18	4.70	4.63	4.72	4.03	3.57	4.48
Not giving dirty hands (C)	3.52	3.51	3.13	3.55	3.67	3.27	3.74	3.78	3.66	3.85	3.18	3.68	3.80	3.31	3.85
Easy to take along (C)	3.66	3.66	3.34	3.65	3.72	3.37	3.76	4.10	3.84	4.07	3.39	3.89	3.74	3.37	4.04
Easy to eat (C)	3.76	3.75	3.44	3.78	3.86	3.53	3.78	4.19	3.96	4.15	3.53	4.02	3.80	3.41	4.10
Containing no pesticides (S)	4.19	4.20	4.52	4.19	3.84	3.81	3.83	4.25	4.12	4.60	4.46	4.33	4.36	4.25	4.00
Not taking much time to eat (C)	3.67	3.64	3.43	3.69	3.72	3.43	3.78	4.14	3.89	3.88	3.49	3.77	3.76	3.35	3.94
Satisfying hunger (Sa)	4.00	3.95	3.92	3.88	4.15	3.74	3.79	4.24	4.07	4.56	4.18	4.44	3.87	3.55	4.35
Making me feel healthy (H)	3.96	4.02	4.21	3.44	3.68	3.31	3.80	4.26	3.83	4.67	4.68	4.69	3.91	3.46	4.48
Making me feel doing the right thing (A)	3.77	3.82	3.91	3.17	3.42	3.05	3.78	4.11	3.53	4.64	4.65	4.64	3.87	3.41	4.43
Making me feel responsible parent (A)	3.88	3.85	4.09	3.29	3.67	3.04	3.76	4.18	3.65	4.73	4.74	4.72	3.80	3.40	4.40
Having a good taste (T)	4.30	4.26	4.48	4.27	4.43	4.08	3.82	4.41	4.30	4.71	4.57	4.59	4.04	3.61	4.44

H= health-related product benefits
C= convenience-related product benefits
S = safety-related product benefits
Sa = satiety-related product benefits
A = affective benefits
T = taste

NB. Evaluations of product benefits are measured on a scale ranging from 1 (Totally unimportant) to 5 (Very important).

Table 3: Distribution of clusters over the different conditions (in percentages)

Cluster	1	2	3	4	5	6	7	8	9	10	11	12	13	14
General	26.4	12.0	11.8	1.0	6.6	19.1	11.0	5.5	18.8	17.7	14.2	14.1	0.0	0.0
Context 1 (Home, meal)	14.7	39.5	5.1	1.9	16.5	14.1	4.1	1.9	10.9	25.0	17.6	7.3	10.6	14.1
Context 2 (Home, snack)	11.7	30.3	10.8	2.1	33.0	9.1	7.2	4.4	10.2	15.4	14.2	11.0	20.7	7.7
Context 3 (Work, meal)	15.1	5.9	14.4	18.5	8.9	17.9	19.1	19.0	14.6	15.0	14.6	16.2	15.2	15.4
Context 4 (Work, snack)	10.2	4.8	19.0	21.6	11.1	12.7	21.2	25.3	16.4	10.4	13.8	21.5	20.2	20.5
Context 5 (Move, meal)	12.3	4.3	17.3	28.8	9.7	15.3	19.4	18.7	15.3	9.2	13.0	11.5	13.6	23.1
Context 6 (Move, snack)	9.6	3.3	21.5	26.0	14.1	11.7	18.0	25.1	13.8	7.3	12.6	18.3	19.7	19.2

NB. The percentages in this table are corrected for the fact that the respondents did not evaluate the benefits in all situations (in fact, each respondent evaluated only half of the situations as was described in the method section), but that all respondents evaluated the product benefits in general.

Figure 1: Relative size of the five consumer segments considered in this study

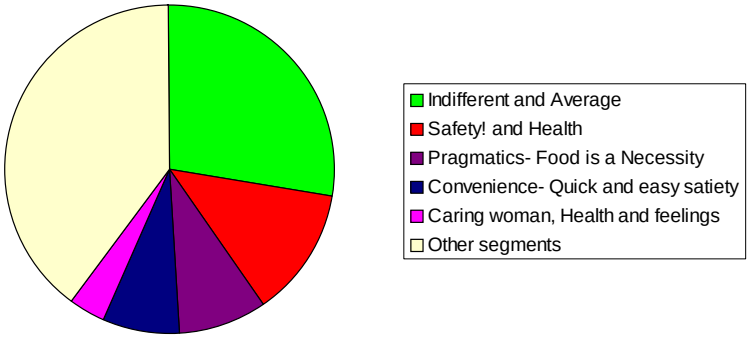


Figure 2: Mean scores of product benefit importances for the five segments

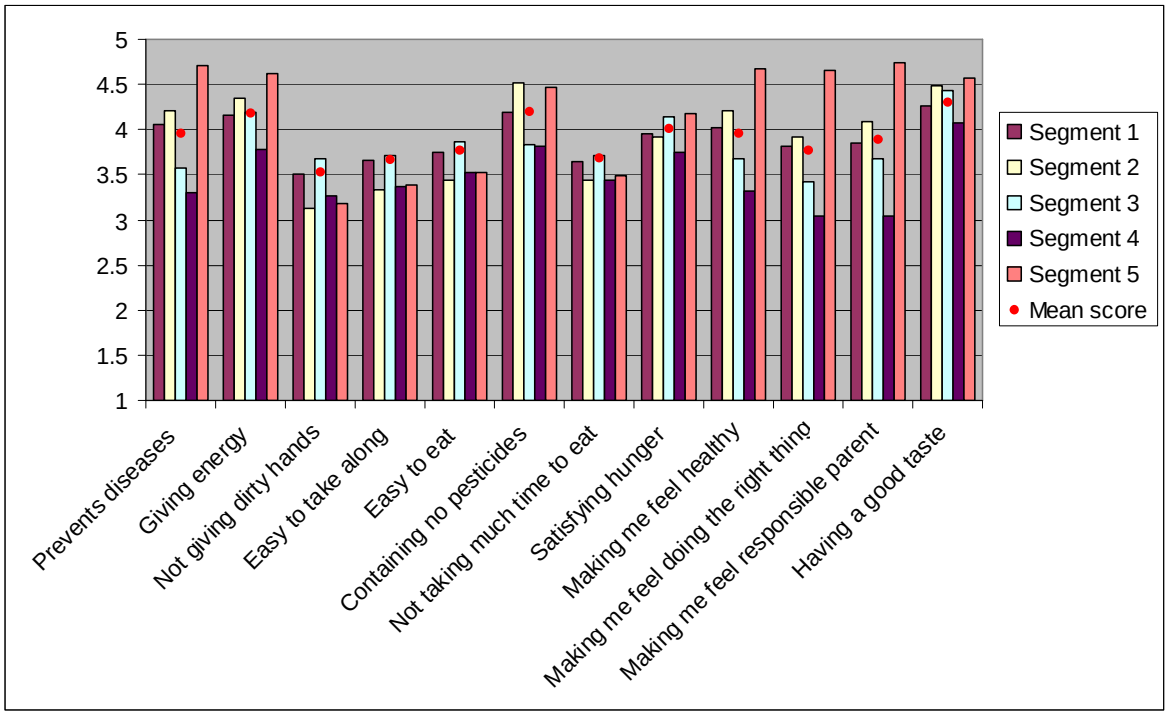
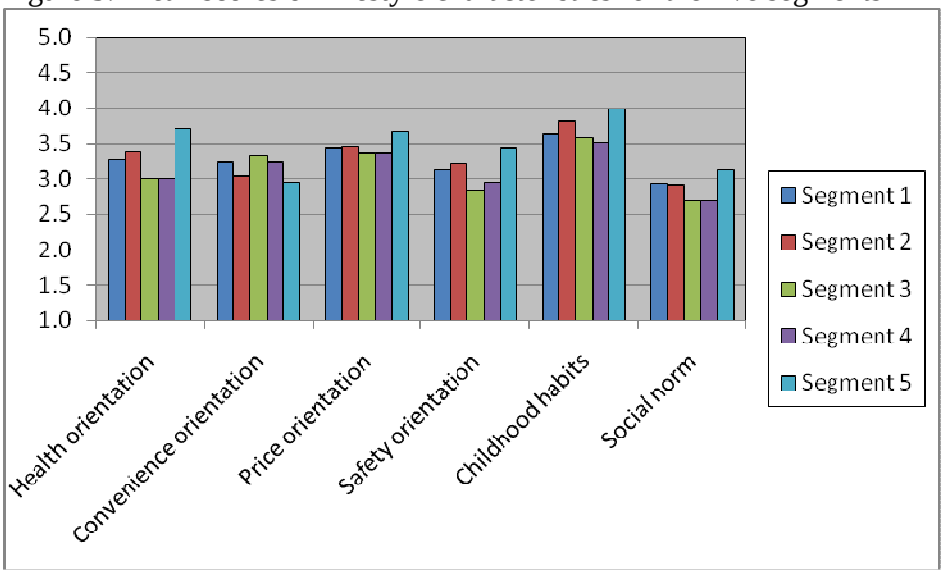


Figure 3: Mean scores on lifestyle characteristics for the five segments



3 Appendix

3.1 Questionnaire on fruit and fruit product preferences
Condition A, main meal
Condition B, snack

Dear Sir/Madam,

Four partners are carrying out an international study on preferences for fruit. We would be very pleased if you would be willing to spend some of your time to fill out the questionnaire for us. Your answers will be very valuable to us. Please note that there are no correct or wrong answers. The only thing that we are interested in is your own preferences for fruit. You do not have to think long about each question. Your first reaction is often the best. Of course, your answers will be processed in an anonymous way and kept confidential. It will take less than 30 minutes to fill in the questionnaire.

Thanking you in advance
The European research team of Netherlands, Greece, Poland and Spain

I. FRUIT CONSUMPTION

Question 1

On average, how often do you consume the following products?

	More than 2 times a day	**2 times a day**	**Once a day**	**3-6 times a week**	**1-2 times a week**	**Less than once a week**	**Never**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
a. Whole apple							
b. Whole peach							
c. Chocolate bar, for example Mars							
d. Orange juice squeezed by yourself							
e. Salty snacks, for example chips or peanuts							
f. Dried fruits, for example raisins and plums							

II. CONSUMER PREFERENCES

Answer the following questions for the 3 different situations, please indicate for each of the six how often you eat or drink it in a particular situation.

Question 2

Condition A: Imagine you are at home and you have your main meal, how often would you like to eat or drink each product as part of your main meal?

Condition B: Imagine you are at home and you have a snack, how often would you like to eat or drink each product?

	Never	**Sometimes**	**Regularly**	**Often**	**Always**
	(1)	(2)	(3)	(4)	(5)
a. Whole apple					
b. Whole peach					
c. Chocolate bar, for example Mars					
d. Orange juice squeezed by yourself					
e. Salty snacks, for example chips or peanuts					
f. Dried fruits, for example raisins or plums					

Question 3

Condition A: Imagine you are at work or at school and you have your main meal, how often would you like to eat or drink each product as part of your main meal?

Condition B: Imagine you are at work or at school and you have a snack, how often would you like to eat or drink each product?

	Never	**Sometimes**	**Regularly**	**Often**	**Always**
	(1)	(2)	(3)	(4)	(5)
a. Whole apple					
b. Whole peach					
c. Chocolate bar, for example Mars					
d. Orange juice squeezed by yourself					
e. Salty snacks, for example chips or peanuts					
f. Dried fruits, for example raisins or plums					

Question 4

Condition A: Imagine you are on the move and you have your main meal, how often would you like to eat or drink each product as part of your main meal?

Condition B: Imagine you are on the move and you have a snack, how often would you like to eat or drink each product?

	Never	**Sometimes**	**Regularly**	**Often**	**Always**
	(1)	(2)	(3)	(4)	(5)
a. Whole apple					
b. Whole peach					
c. Chocolate bar, for example Mars					
d. Orange juice squeezed by yourself					
e. Salty snacks, for example chips or peanuts					
f. Dried fruits, for example raisins or plums					

III. PERCEPTION OF FRUIT AND FRUIT PRODUCTS

For each of the 6 products that you saw in the previous questions, please indicate the extent to which you agree or disagree with the 14 statements.

Question 8

	Strongly disagree	**Rather disagree**	**Neither agree nor disagree**	**Rather agree**	**Strongly Agree**
(Eating) an apple:	(1)	(2)	(3)	(4)	(5)
- prevents diseases/illness					
- gives me energy					
- gives me dirty hands					
- is difficult to take along					
- is difficult to eat					
- contains a lot of pesticides					
- takes time					
- helps me to satisfy my hunger					
- makes me feel healthy					
- makes me feel I'm doing the right thing					
- makes me feel like a responsible parent (*only when you have children)*					
- is fun					
- has a good taste					
- brings back good memories from my childhood					

Question 9

	Strongly disagree	**Rather disagree**	**Neither agree nor disagree**	**Rather agree**	**Strongly Agree**
(Eating) a peach:	(1)	(2)	(3)	(4)	(5)
- prevents diseases/illness					
- gives me energy					
- gives me dirty hands					
- is difficult to take along					
- is difficult to eat					
- contains a lot of pesticides					
- takes time					
- helps me to satisfy my hunger					
- makes me feel healthy					
- makes me feel I'm doing the right thing					
- makes me feel like a responsible parent (*only when you have children)*					
- is fun					

- has a good taste					
- brings back good memories from my childhood					

Question 10

	Strongly disagree	**Rather disagree**	**Neither agree nor disagree**	**Rather agree**	**Strongly Agree**
(Eating) a chocolate bar, for example Mars:	(1)	(2)	(3)	(4)	(5)
- prevents diseases/illness					
- gives me energy					
- gives me dirty hands					
- is difficult to take along					
- is difficult to eat					
- takes time					
- helps me to satisfy my hunger					
- makes me feel healthy					
- makes me feel I'm doing the right thing					
- makes me feel like a responsible parent (*only when you have children)*					
- is fun					
- has a good taste					
- brings back good memories from my childhood					

Question 11

	Strongly disagree	**Rather disagree**	**Neither agree nor disagree**	**Rather agree**	**Strongly Agree**
Orange juice squeezed by yourself:	(1)	(2)	(3)	(4)	(5)
- prevents diseases/illness					
- gives me energy					
- gives me dirty hands					
- is difficult to take along					
- is difficult to drink					
- contains a lot of pesticides					
- takes time					
- helps me to satisfy my hunger					
- makes me feel healthy					
- makes me feel I'm doing the right thing					
- makes me feel like a responsible parent (*only when you have children)*					

- is fun					
- has a good taste					
- brings back good memories from my childhood					

Question 12

	Strongly disagree	**Rather disagree**	**Neither agree nor disagree**	**Rather agree**	**Strongly Agree**
(Eating) salty snacks, for example chips or peanuts:	(1)	(2)	(3)	(4)	(5)
- prevents diseases/illness					
- gives me energy					
- gives me dirty hands					
- is difficult to take along					
- is difficult to eat					
- takes time					
- helps me to satisfy my hunger					
- makes me feel healthy					
- makes me feel I'm doing the right thing					
- makes me feel like a responsible parent (*only when you have children)*					
- is fun					
- has a good taste					
- brings back good memories from my childhood					

Question 13

	Strongly disagree	**Rather disagree**	**Neither agree nor disagree**	**Rather agree**	**Strongly Agree**
(Eating) dried fruits, for example raisins or plums:	(1)	(2)	(3)	(4)	(5)
- prevents diseases/illness					
- gives me energy					
- gives me dirty hands					
- is difficult to take along					
- is difficult to eat					
- contains a lot of pesticides					
- takes time					
- helps me to satisfy my hunger					
- makes me feel healthy					
- makes me feel I'm doing the right thing					
- makes me feel like a responsible parent (*only when you have children)*					

- is fun					
- has a good taste					
- brings back good memories from my childhood					

IV. EVALUATION OF PRODUCT BENEFITS

The previous statements have been about different food products, but the following statements are about food products in general.

Please indicate the importance of the following 14 benefits for your food consumption in general.

Question 14 When consuming food

	Very unimportant	**Rather Unimportant**	**Neither important or unimportant**	**Rather Important**	**Very Important**
	(1)	(2)	(3)	(4)	(5)
- Preventing diseases/illness is					
- Giving me energy is					
- Not giving me dirty hands is					
- Being easy to take along is					
- Being easy to eat is					
- Containing no pesticides is					
- Not taking much time to eat is					
- Helping me to satisfy my hunger is					
- Making me feel healthy is					
- Making me feel like doing the right thing is					
- Making me feel a responsible parent is (*only when you have children)*					
- Being fun is					
- Having a good taste is					
- Bringing back good memories from my childhood is					

Could you now indicate the importance of the 13 benefits for each of the 3 situations you have seen before?

Condition A: When having your main meal at home

Condition B: When having a snack at home

Question 15

	Very unimportant	**Rather Unimportant**	**Neither important or unimportant**	**Rather Important**	**Very Important**
	(1)	(2)	(3)	(4)	(5)

- Preventing diseases/illness is					
- Giving me energy is					
- Not giving me dirty hands is					
- Being easy to take along is					
- Being easy to eat is					
- Not taking much time to eat					
- Helping me to satisfy my hunger is					
- Making me feel healthy is					
- Making me feel like doing the right thing is					
- Making me feel a responsible parent is (*only when you have children)*					
- Being fun is					
- Having a good taste is					
- Bringing back good memories from my childhood is					

Condition A: When having your main meal at work or at school

Condition B: When having a snack at work or at school

Question 16

	Very unimportant	**Rather Unimportant**	**Neither important or unimportant**	**Rather Important**	**Very Important**
	(1)	(2)	(3)	(4)	(5)
- Preventing diseases/illness is					
- Giving me energy is					
- Not giving me dirty hands is					
- Being easy to take along is					
- Being easy to eat is					
- Not taking much time to eat is					
- Helping me to satisfy my hunger is					
- Making me feel healthy is					
- Making me feel like doing the right thing is					
- Making me feel a responsible parent is (*only when you have children)*					

- Being fun is					
- Having a good taste is					
- Bringing back good memories from my childhood is					

Condition A: Situation 3: When having your main meal on the move

Condition B: Situation 6: When having a snack on the move

Question 17

	Very unimportant	**Rather Unimportant**	**Neither important or unimportant**	**Rather Important**	**Very Important**
	(1)	(2)	(3)	(4)	(5)
- Preventing diseases/illness is					
- Giving me energy is					
- Not giving me dirty hands is					
- Being easy to take along is					
- Being easy to eat is					
- Not taking much time to eat					
- Helping me to satisfy my hunger is					
- Making me feel healthy is					
- Making me feel like doing the right thing is					
- Making me feel a responsible parent is (*only when you have children)*					
- Being fun is					
- Having a good taste is					
- Bringing back good memories from my childhood is					

V. PERSONAL CHARACTERISTICS

- Please indicate the extent to which you agree or disagree with the next 3 statements.
Question 21

	Strongly disagree	**Rather disagree**	**Neither agree nor disagree**	**Rather agree**	**Strongly Agree**
	(1)	(2)	(3)	(4)	(5)
I eat fruits routinely					
Eating fruit suits me					
I have been eating fruits since I was a child					

- Please indicate the extent to which you agree or disagree with the next 14 statements.
Question 22

	Strongly disagree	**Rather disagree**	**Neither agree nor disagree**	**Rather agree**	**Strongly Agree**
	(1)	(2)	(3)	(4)	(5)
The healthiness of food has little impact on my food choices					
I am very particular about the healthiness of the food I eat					
I eat what I like and I do not worry much about the healthiness of food					
It is important to me that my diet is low in fat					
I always follow a healthy and balanced diet					
It is important to me that my daily diet contains a lot of vitamins and minerals					
The healthiness of snacks makes no difference to me					
I do not avoid foods, even if they may raise my cholesterol					
I try to eat foods that do not contain additives					
I do not care about colorants and taste enhancers in my daily diet					
I do not eat processed foods, because I do not know what they contain					
I would like to eat only organically grown fruit					
In my opinion, artificially flavoured foods are not harmful for my health					
In my opinion, organically grown foods are not better for my health than those grown conventionally					

- Please indicate the extent to which you agree or disagree with the next 5 statements.
Question 23

	Strongly disagree	**Rather disagree**	**Neither agree nor disagree**	**Rather agree**	**Strongly Agree**
	(1)	(2)	(3)	(4)	(5)
I prefer food that is easy to buy					
I prefer food that is easy to prepare					
The less physical effort (work, energy) I need to buy and prepare food, the better					
I prefer meals that can be prepared and consumed quickly					
I prefer food that requires only little planning					

- Please indicate the extent to which you agree or disagree with the next 3 statements.
Question 24

	Strongly disagree	**Rather disagree**	**Neither agree nor disagree**	**Rather agree**	**Strongly Agree**
	(1)	(2)	(3)	(4)	(5)
I always check prices, even on small items					
I notice when products I buy regularly change in price					
I look for ads in the newspaper for store specials and plan to take advantage of them when I go shopping					

Please indicate the extent to which you agree or disagree with the next 9 statements.
Question 25

	Strongly disagree	**Rather disagree**	**Neither agree nor disagree**	**Rather agree**	**Strongly Agree**
	(1)	(2)	(3)	(4)	(5)
When I was a child, I ate a lot of fruit					
When I was a child, there was always fruit available at home					
When I was a child, eating fruit was something that suited me					
When I was a child I liked fruit a lot					
When I was a child I enjoyed eating fruit					
When I was a child, my family used to eat fruit together					
When I was a child eating fruit was a pleasure for me					
When I was child I used to eat fruit at specific times					

When I was a child, eating fruit was a daily routine					

- Please indicate the extent to which you agree or disagree with the next 10 statements.
Question 26

	Strongly disagree	**Rather disagree**	**Neither agree nor disagree**	**Rather agree**	**Strongly Agree**
	(1)	(2)	(3)	(4)	(5)
It happens that I eat food that has passed the expiration date					
I always wash my hands before I start cooking					
I worry about the safety of food that is for sale in supermarkets and restaurants					
The risks associated with food safety tend to be overrated in the media					
I am confident that food products are safe					
I worry about the safety of food					
I feel uncomfortable regarding the safety of food					
I worry more about the safety of food than other people do					
I express my worries about safety of food to others					
I try to inform myself as much as possible about the safety of food					

- Please indicate the extent to which you agree or disagree with the next 3 statements.
Question 27

	Strongly disagree	**Rather disagree**	**Neither agree nor disagree**	**Rather agree**	**Strongly Agree**
	(1)	(2)	(3)	(4)	(5)
I prefer salty food over sweet food					
I prefer sweet food over sour food					
I prefer salty food over sour food					

Question 28

When I eat an apple I prefer it to be

	1	2	3	4	5	
Not sweet	o	o	o	o	o	Very sweet
Not sour	o	o	o	o	o	Very sour
Not fruity or grassi	o	o	o	o	o	Very fruity
Unripe	o	o	o	o	o	Very ripe
Very firm	o	o	o	o	o	Very soft
Very mealy	o	o	o	o	o	Very Juicy

Question 29

When I eat a peach I prefer it to be

	1	2	3	4	5	
Not sweet	o	o	o	o	o	Very sweet
Not sour	o	o	o	o	o	Very sour
Not fruity or grassi	o	o	o	o	o	Very fruity
Unripe	o	o	o	o	o	Very ripe
Very firm	o	o	o	o	o	Very soft
Very mealy	o	o	o	o	o	Very Juicy

- Please indicate the extent to which you agree or disagree with the next 4 statements.

Question 30

	Strongly disagree	**Rather disagree**	**Neither agree nor disagree**	**Rather agree**	**Strongly Agree**
	(1)	(2)	(3)	(4)	(5)
It is important to me what my friends think I should eat					
It is important to me what doctors/experts think I should eat					
It is important to me what my relatives think I should eat					
It is important to me what (promotion) campaigns think I should eat					

- Please indicate whether the following 11 statements are true or false

Question 31

	True	**False**
	(1)	(2)
A medium sized apple contains more calories than a medium sized banana		
Eating fruit is only beneficial for the health when also vegetables are eaten daily		
Adding an extra piece of fruit to the diet results in weight loss		
It is generally recommended to eat at least 2 portions of fruit each day		
It is generally recommended to eat not more than five portions of fruit each day		
Scientific evidence in general indicates that a diet with lots of fruit may prevent certain cancers		

Scientific evidence in general says that a diet with lots of fruit prevents coronary diseases		
Scientific evidence in general says that a diet with lots of fruit prevents sunburns		
Scientific evidence in general says that certain fruits prevent digestion problems		
Scientific evidence in general says that a diet with lots of fruit helps you to stay alert		
In general, one fresh fruit contains more fibres than one slice of brown or fibre-enriched bread		

VI. Background information

Finally ….

What is your favourite fruit when you are …..	
at home and you have your main meal	……
at work or at school and you have your main meal	……
on the move and you have your main meal	
at home and you have a snack	
at work or at school and you have a snack	……
on the move and you have a snack	……

Gender: (1) Male (2) Female

Could you please indicate your age? _____

Could you please indicate your country of birth? _____

Could you please indicate the country of birth of your parents?

(1) Father: (2) Mother:

Could you please indicate what your status is?

(1) Married/Living together (2) Single/Divorced/Widow (3) Living with your parents??

Could you please indicate the number of members of your household (including yourself):

(1) 1 (2) 2 (3) 3 (4) 4 (5) 5 (6) 6 or more

Do you have children under 18 years old? (1) Yes (2) No

If yes, how many children do you have under 18 years old _____

Are you one of the persons in the household who regularly buys the food yes/no

Are you one of the persons in the household who regularly prepare the food yes/no

Could you please indicate your educational background?

(1) Low (elementary school) (2) Medium (high school) (3) High (University College)

What is your employment status?

(1) Employed (2) Retired (3) Student (4) Unemployed (5) Housewife (6) In the army

In which of the following categories was your family income (net) last month?

(1) < minimum wage €
(2) minimum wage – 2 * minimum wage €

(3) 2* minimum wage – 3* minimum wage €
(4) 3* minimum wage – 4* minimum wage €
(5) 4* minimum wage – 6* minimum wage €
(6) 6* minimum wage – 8* minimum wage €
(7) 8* minimum wage – 10* minimum wage €
(8) 10* minimum wage – 15* minimum wage €
(9) > 15* minimum wage
(10) I do not know / I do not want to answer