

The influence of information campaigns on the effectiveness of expiration date-based pricing



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Chapter 1

Introduction

Food waste

According to Gustavsson et al. (2011) worldwide roughly one third of food produced for human consumption gets lost or wasted each year. This amount is approximately 1.3 billion ton of food per year. Furthermore, it was estimated that in the US food containing 141 trillion calories was thrown away in 2010, per inhabitant this was 1249 kilocalories per day (Buzby et al., 2014). The Food and Agriculture Organization (2013) defined food waste as "food appropriate for human consumption being discarded, whether or not after it is kept beyond its expiry date or left to spoil". Most often food gets wasted because it has spoiled. However, food waste can also have other reasons like an oversupply in a market, or individuals buying too much food and then throw it away.

Economic, environmental and social costs

In the United States the monetary costs of food waste (calculated in market price) were estimated at 161 billion dollars in 2010 (Buzby et al., 2014). FAO (2013) estimated the production price of global food waste at approximately 750 billion dollars in 2007. To give a comparison, this is equivalent to the GDP of Switzerland in that same year. WRAP (2007) calculated that households in the United Kingdom throw away £4.80 till £7.70 worth in food each week, lifetime this amount is between £15,000 and £24,000. Food waste does not only have monetary, but also environmental and social costs (Zenghelis, 2006). In 2006 it was estimated that the food sector contributes to about 22% of the global warming in the European Union (Tukker & Jansen, 2006). The production of livestock materials accounts for 18% of total greenhouse gas emissions worldwide (Steinfeld et al., 2006). Furthermore, also during the disposal of food at landfills greenhouse gasses like methane and carbon dioxide are produced (Papargyropoulou et al., 2014). This is another important reason why approximately a third of all greenhouse gas emissions in the European Union is caused by the food sector (Garnett, 2011). Next to greenhouse gasses food waste also causes environmental problems like the disruption of biogenic cycles and the depletion of natural resources. The social costs focus on the moral and ethical dimension of food waste. The main topic in this field is inequality: in rich environments a lot of food gets wasted, while in others there is food poverty (Evans, 2012). As mentioned earlier in this research a lot of food gets wasted in the world. However, in 1999 820 million people did not have access to good enough food to have a healthy life (Pinstrup-Andersen et al., 1999). Furthermore, according to that same research 160 million children are underweight. So it can be concluded that the problem of food waste has to be tackled because of monetary, environmental and social reasons.

Supermarkets

This study will look at developed countries since most of the food waste happens there. In these countries most of the food is wasted during the consumption phase (Martinez, Menacho & Pachón-Ariza, 2014). The consumption phase is the phase from when consumers have purchased a product for their own use. Between 10 and 30% of food in this phase gets wasted, particularly in urban areas (Aschemann-Witzel et al., 2017). This is in line with Monier et al. (2010), they state that the amount of food waste caused by supermarkets is relatively small in Europe compared to the contribution of food waste from consumers. However, mainly supermarkets are criticised by consumers on their contribution to food waste (Lombart & Louis, 2014). The main reason behind this is that

supermarkets are the most visible actor in the supply chain for consumers. Furthermore Quested et al. (2013) argue that the share of food waste caused by supermarkets is actually bigger than what is expressed in numbers because of pricing strategies that encourage greater purchase volume for consumers. This has to do with actions that for example give you the second product for half of the price. This results in that consumers buy 2 products, while they actually only need 1 so it is more likely that they will throw away some of the food because they do not need it. Quested et al. (2013) state that this problem can be overcome by using promotions in a way that reduces the risk of food being wasted. This can be done by giving price reductions per item opposed to volume offers (for example 25% discount per item instead of 'buy 4 for the price of 3').

Expiration date-based pricing

A lot of studies in this field have focussed on specific stages in the supply chain of food, for example the agricultural and consumption stage (Gustavsson et al., 2011; Steinfeld et al., 2006; Quested et al., 2013). However, not a lot of research has been done about the interface between the stages (Mena et al., 2011). In order to fill one of those knowledge gaps, this research will focus on the retailer/consumer interface. This interface has been chosen because food waste at this stage of the supply chain has the biggest impact on the environment, since the products already have undergone all the processing and embedded all the energy they needed to become an end-product (Mena et al., 2011). For retailers it is impossible to perfectly forecast the demand for products. Consequently, the supply for some products will be too low and for others too high (Aburto & Weber, 2007). Most retailers order rather too much than too little because if products are out of stock regularly, customer loyalty decreases tremendously (Campo et al., 2000). However, this has as result that there is not enough demand for some products, which means that products will pass their expiration date. Consequently, the biggest contribution to food waste at this stage in the food chain is caused by food that passes the expiration date (Garrone et al., 2014). The main concept to tackle the problem of products expiring is pricing. De Hooge et al. (2017) found that by reducing the prices of suboptimal food products more consumers consider to buy such a product. Suboptimal foods are products that deviate from optimal in the eyes of consumers, amongst others because they are approaching their expiration date. The concept of adjusting a price based on the length of time to its expiration date is called expiration date based-pricing (EDBP) (Theotokis, Pramataris & Tsiros, 2012).

Consequences EDBP

The main advantage of EDBP is that it makes the food chain more sustainable since the retailer has to throw less products away (Tsiros & Heilman, 2005). Furthermore, EDBP offers products with reduced prices for consumers and in most instances it ensures higher profits for retailers (Konuk, 2015; Chun, 2003). However, there are also improvements possible in the field of EDBP. Among some consumers EDBP creates a negative retailer perception, which decreases their loyalty to the store (Theotokis, et al., 2012). The negative retailer perception is mainly caused by distrust from consumers, they do not trust price variations within the same product based on its expiration date (Kimes & Wirtz, 2003). One of the reasons behind this is that consumers see a product's price as a signal for its freshness, without inspecting the product itself (Van Boxstael et al., 2014). Moreover, consumers perceive products that are reduced in price as riskier to consume than products that have the original price (Tsiros & Heilman, 2005). For some food categories the perceived risk is higher than for other ones. To indicate how risky products are to consume when they passed their expiration date two different date labels, 'use by' and 'best before', are assigned to products (Leib et al., 2016). 'Best before' products are still safe to consume if the product has a normal colour, taste and smell, even if the product has passed its expiration date. On the other side, 'use by' products should be thrown away if

they passed their expiration date, because they are a serious danger for your health. However, consumers think these date labels are confusing and do not know the difference between 'use by' and 'best before' (Van Boxtael et al., 2014). This results in consumers buying less EDBP best before products, because they perceive these products as too risky to consume, while in reality this risk is minimal (WRAP, 2010). There are also differences in the success of EDBP based on demographic factors (Aschemann-Witzel, Giménez & Ares, 2018). Konuk (2015) did research about differences in product choice based on individual characteristics. The main result found was that price conscious people are more susceptible for EDBP.

It can be concluded that there are monetary, environmental and social reasons to reduce food waste. Furthermore, there is consensus in literature that EDBP might be a solution for this problem. However, there are still improvements possible in the field of EDBP. So the aim of this research is to make EDBP more effective, by convincing consumers to buy more Products that Approach their Expiration Date (PAED).

Information campaign

If the problems related to EDBP can be tackled, it is likely that consumers will buy more PAED. Monier et al. (2014) found that by creating an information campaign, in which the differences between date labels are explained, the problem of date label confusion can be overcome. Furthermore, in the information campaign it should be emphasized that all discounted products are safe to consume and have a good taste. This information will be included because, according to Theotokis et al. (2012) EDBP has no significant effect on retailer perception if consumers are familiar with the concept. Additionally, according to this same research, retailer perception can be improved by framing EDBP as a cause-related marketing action (CRM) because it induces positive corporate social responsibility (CSR) associations among consumers (Brown & Dacin, 1997).

Experiment

In this research an experiment will be done to find out the extent to which information campaigns can convince consumers to buy more EDBP products. In this experiment first of all the effect of date label information on date label confusion will be looked into. Secondly, the effect of date label confusion on the intention to buy 'best before' EDBP products will be looked into. Thirdly, it will be investigated if CRM framing EDBP will induce positive CSR associations among consumers. Finally, it will be investigated what effect CSR associations have on the intention to buy EDBP products.

Chapter 2

Theoretical framework

Below is a conceptual model that shows an overview of this research. This model will be further explained in this chapter.

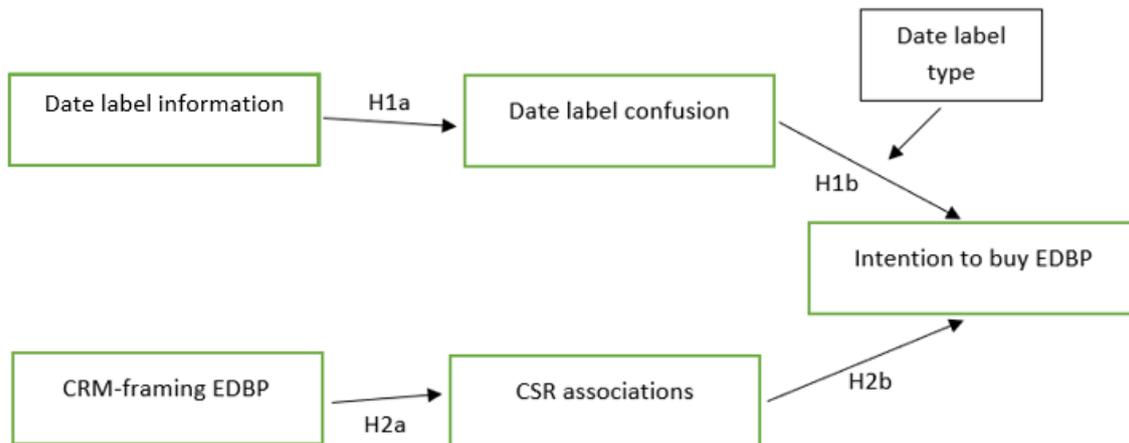


Figure 1: Conceptual model

Dynamic pricing

Dynamic pricing is a tactic in which a company charges different prices for identical products or services sold to different customers (Sinha, 2000). Dynamic pricing is done by companies to maximize profits. Around 1980 the principle got introduced in the airline industry, this is still the industry that is most widely known for the strategy (Mcafee & te Velde, 2006). However, in recent years also other industries make use of this principle because today's technology makes it easier to implement. Nowadays more consumer demand data and tools to analyse these data are available (Elmaghraby & Keskinocak, 2003). Because of these reasons also retailers are implementing a type of dynamic pricing called expiration date-based pricing (EDBP). EDBP is a form of dynamic pricing in which the expiration date is the physical attribute that discriminates the price (Chung, 2019). The most widely accepted definition of EDBP is from Theotokis et al. (2012). They define EDBP as "a pricing tactic in which a retailer charges different prices for the same perishable products, according to their respective expiration dates". However, there are differences between EDPB and traditional price discrimination practices. First of all, consumers can make their own decision whether they will buy the discounted product that is close to its expiration date, or the regular priced product that might be fresher (Aschemann-Witzel et al., 2018). In contrast, in traditional dynamic pricing a company offers different prices for the same product to different consumers (Kimes, 2010). In this case the consumer gets only offered one price per product per company. If you do not like this price as consumer, you cannot pick another one but you have to go to another company. For example, when booking a chair for a flight at an airline company you get offered only one price that is based on amongst other your browsing history (Selçuk & Avşar, 2019). Second, in EDBP the products that are reduced in price are placed among the non-discounted items, so the price-quality trade-off is not hidden for consumers. In the airline example as consumer it is not shown to you what others pay for the same flight. Third, where products in other industries are completely the same (the same chair in

the same flight with the same cancellation conditions), in EDBP they are not completely the same since the product differ on expiration date (Theotokis, et al., 2012).

Advantages EDBP

There are three advantages from EDBP that emerge the most from the literature. The first one is related to sustainability. As consumers buy more products that are close to their expiration date, the retailer does not have to throw away as much products as before and consequently there is less food waste (Tsiros & Heilman, 2005). The second advantage is the benefit for the consumer: they have to pay less for their food because of the reduced prices (Konuk, 2015). Thirdly, retailers see EDBP as an effective revenue management tool because EDBP in general results in lower costs since less products have to be thrown away (Chun, 2003). According to this same research, in most instances the positive effects of throwing less products away outweighs the negative effects that products are sold with a reduced price and thus a lower or no margin.

Improvements EDBP

However, there are also improvements possible in the field of EDBP. It is essential for EDBP to work properly that people understand date labels correctly. However, research in the United Kingdom showed that 45-49% of consumers do not know the difference between 'use by' and 'best before' (WRAP, 2010). Van Boxtael et al. (2014) found that in Belgium this number is more than 30%. The difference is that 'best before' is an indication of product quality rather than for safety, while 'use by' indicates that a product is not safe to consume if it is after the stated date. Because of date label confusion consumers are less likely to buy PAED with a 'best before' label since they think they should consume it in the short term. Furthermore, if consumers bought the products anyway, most of them throw the products away if they passed the 'best before' date, while the products are still safe to consume. WRAP (2010) estimates that the confusion related to date labels in the UK leads to approximately 1 million tonnes of food waste each year. Furthermore they state that over 20% of avoidable food waste is linked to date label confusion. This leads to the following hypothesis:

H1a: By informing consumers about the difference between 'use by' and 'best before' they will experience less date label confusion.

Perceived risk

Consumers perceive PAED as riskier to consume than regular products (Tsiros & Heilman, 2005). To avoid this risk consumers choose a different product, postpone their purchase, ask for advice, search for cues for the freshness of the product, or purchase a product they already know. By giving more date label information consumers will become aware that PAED with a 'best before' date label have a lower risk than PAED with a 'use by' label. Therefore, consumers will be less hesitant to buy EDBP 'best before' products if they are less date label confused. This leads to the following hypothesis:

H1b: When consumers are less date label confused, they will buy more EDBP 'best before' products.

However, it was also found that consumers are more likely to buy a product with a high perceived risk if there is a higher discount on it. This is in line with research from Angulo & Gil (2007), they found a negative relation between willingness to pay and perceived risk among consumers when they were considering to buy which type of beef. Another point is made by Jin & Sternquist (2003), they found that consumers are more likely to buy discounted products from brands that they are

familiar with because they perceive those products as less risky. Aschemann-Witzel et al. (2018) found that there are differences in the perceptions of consumers between different food categories. For example toast bread that was close to its expiration date the perceived freshness was relatively low. On the other hand for canned peas that was close to its expiration date only appearance and healthiness were relatively low so freshness was not an important factor. Furthermore Tsiros & Heilman (2005) found that the willingness to pay among consumers decreases steadily through the shelf life for products with a low perceived risk (Yogurt, salads, etc.). However, the willingness to pay for products with a high perceived risk (chicken, beef, etc.) decreases quicker through the shelf life. Furthermore, in their research it was found that consumers check expiration dates more often when they buy a product that they perceive as riskier. As a result, products that are mostly thrown away in supermarkets are products with a high perceived risk. In this research the effect of different food categories will not be further looked into but the focus will be on date label confusion and the effect of CRM-framing EDBP.

Retailer perception

Another disadvantage related to EDBP is that it can create a negative brand perception among consumers (Theotokis et al., 2012). A good brand perception is a key factor for the success of a retailer, since it is directly linked to customer loyalty. Grewal et al. (1998) found that price reductions can affect both producers and retailers. In the case of EDBP the retailer reduces the price of PAED, so the retailer's brand perception is most likely to be affected (Theotokis et al., 2012). Furthermore, consumers see price variations within the same product as unfair (Kimes & Wirtz, 2003). Theotokis et al. (2012) build their findings on the social exchange theory and the psychological contract theory. Homans (1961) defined social exchange as "the exchange of activity, tangible or intangible, and more or less rewarding or costly, between at least two parties". Psychological contract is defined as "beliefs in paid-for-promises or reciprocal obligations" (Robinson & Rousseau, 1994). In the field of EDBP Theotokis et al. (2012) used the product as the social exchange between the retailer and the consumer. Furthermore, in their research the product's quality is the psychological contract between the seller and the buyer. However, consumers associate the reduced price with a lower quality. The perceived lower quality violates the psychological contract which will result in a worse retailer perception among consumers than before. In line with this research is a study from van Boxtael et al. (2014). They found that consumers see the expiration date as a signal for the freshness of the product without inspecting the freshness of the product itself. In some instances the expiration date is the best indicator for the quality of the product, mainly if the product itself is not visible because of the packaging. However, in reality the freshness of most product depends more on the storage conditions of the product, than on its expiration date (Wang & Li, 2012).

Additionally, retailer perception can be improved by framing EDBP as a cause-related marketing action (CRM). In CRM a purchase of a product gets linked with a donation to a cause (Müller, Fries & Gedenk, 2014). Theotokis et al. (2012) found that EDBP framed as CRM will cause a more positive retailer perception among consumers than a promotion framed EDBP. In the field of reducing food waste in supermarkets CRM can be done by linking the purchase of PAED with contributing to sustainability (Theotokis et al., 2012). At first it can be highlighted that buying PAED contributes to sustainability to give consumers a first incentive to buy them. After this it should be addressed that the PAED are reduced in price so that consumers are even more inclined to buy them. The main benefit of CRM framing EDBP is that it induces positive corporate social responsibility (CSR) associations among consumers (Brown & Dacin, 1997). The definition of CSR it that "it encompasses all the practices put in place by companies in order to uphold the principles of sustainable

development” (Youmatter, 2019). Being sustainable and responsible means that companies have a positive impact on society, preserve the nature while also being profitable. David, Kline & Dai (2005) found that there is a positive relation between CSR associations and purchase intention. This leads to the following hypotheses:

H2a: CRM-framing EDBP lead to positive CSR associations among consumers.

H2b: Positive CSR associations among consumers will make them more likely to buy EDBP products.

Individual characteristics

Aschemann-Witzel, Giménez & Ares (2018) also found differences in product choice based on demographics. It was found that men were more likely to buy suboptimal foods. Because men are in general less altruistic (Dietz, Kalof, & Stern, 2002) the main reason that they bought suboptimal products was probably because of the reduced price (Aschemann-Witzel et al., 2018). Furthermore, it was also found that respondents with a lower income were also more likely to buy suboptimal foods, probably also because of the reduced price. Women and respondents with a higher income were more likely to buy suboptimal foods if a food waste message was shown to them. Also research about age was done, but no significant results were found for this factor.

In other research differences in product choice based on individual characteristics were found (Konuk, 2015). In this research it was found that price conscious people are more likely to buy products that are reduced in price based on their expiration date. The definition of price conscious is “the degree to which the consumer focuses exclusively on paying low prices” (Lichtenstein, Ridgway & Netemeyer 1993). The more price conscious a consumer is, the more likely that he or she is to be prone to in-store and out-of-store promotions (Martínez, & Montaner, 2006). This effect can explain why Konuk (2015) found that price conscious people are more likely to buy EDBP products. This might be linked to the result from Aschemann-Witzel et al. (2018) that people with a lower income are more likely to buy EDBP products since price conscious people in general have a lower income. Furthermore, Konuk (2015) researched the relation between sale proneness and willingness to buy a EDBP product. Sale proneness is defined as “an increased propensity to respond to a purchase offer because the sale form in which the price is presented positively affects purchase evaluations” (Lichtenstein, Ridgway & Netemeyer 1993). It is likely that price conscious people are sales prone too, since products that are on sale have a lower price. However, Konuk (2015) did not find significant results that sale proneness has a positive effect on EDBP products too. An explanation for this might be that sale proneness consumers care more about the quality of products than price consciousness consumers. So sale proneness consumers probably perceive products that are reduced in price based on their expiration date as lower quality and consequently not buy them. Although individual characteristics play a role in the effectiveness of EDBP, in this research the focus will be on date label confusion and CRM-framing EDBP.

Chapter 3

Method

Procedures

An online experiment was conducted because online a lot of people could be reached in a short amount of time. The experiment was conducted on Qualtrics between October 23rd and November 7th 2019. The 170 participants from this experiment were found by spreading this study on social media (mainly Facebook and WhatsApp). Participants were informed that the experiment was about decision making in supermarkets and would cost approximately 5 minutes. However, they were not aware of the specific goals from this research. It was also assured that all data would be processed and stored anonymously. After a short introduction page respondents received the question how often they visit a supermarket a week. Respondents who answered this question with 'never' were not able to continue the survey, since they were not part of the target group. After this question respondents got randomly evenly assigned to 4 different conditions (which they were not aware of). People assigned to the CSR-INF condition received a message in which EDBP was CRM framed and they also received information about date labels. People assigned to the CSR-NO condition only received the CRM framed message. In the NO-INF condition people only received information about date labels. In the NO-NO condition people did not have to read anything.



Figure 2: Experimental design

After respondents got assigned to a condition, they received a shopping list with ingredients for a pasta meal. It was emphasized that consumers had to buy pasta, pasta sauce, minced meat, pre-cut vegetables and grated cheese. A pasta meal was chosen, because it is a known meal in the Netherlands and it contains both 'use by' and 'best before' products. After reading the shopping list respondents were shown 5 pages with products they could pick. Some of the products were discounted 30% because they would expire in 1 or 2 days. After picking the products respondents answered some general questions about their shopping behaviour in supermarkets and their knowledge about date labels. The survey ended with questions about age, gender, income and education (full survey can be found in appendix 1).

Experimental manipulations

CRM-framing EDBP

Respondents assigned to the CSR-INF and CSR-NO condition had to read a text in which EDBP was CRM framed. This text was made based on the text used in the 4th study from Theotokis et al. (2012): "By selecting to purchase the [Brand name] Milk with the same [Brand name] quality seal but with less days to expire, you do more than just purchasing your favourite milk, you also contribute from your side to reducing product waste including food waste." The following text was used in this research:

The main cause of food wastage by supermarkets in Western countries is due to products that can no longer be sold because they have exceeded their expiration date. This problem is caused by the fact that products only meet quality requirements for a limited time.

For a supermarket it is impossible to estimate exactly how many copies of a product will be sold in a certain period. On the one hand, the supermarket wants to have enough products in stock at all times, so that you as a customer do not miss out on buying your favorite product.

On the other hand, a supermarket does not want to have too many products in stock because then it is likely that more food will get wasted. This considerably increases the chance that products will exceed their expiration date and then have to be thrown away.

A solution for this food waste problem lies with you as a consumer. If you buy more PAED, fewer products will exceed their expiration date and fewer products will have to be thrown away.

In the virtual supermarket PAED will be reduced in price, the quality and safety of these products is guaranteed.

Date label information

By providing consumers information about the difference between use by and 'best before' the problem of date label confusion can be overcome. Because this research was conducted in the Netherlands, the Dutch date labels were looked at. The Dutch date label for 'use by' is 'te gebruiken tot' (TGT) and similar to 'best before' is 'ten minste houdbaar tot' (THT). However, THT is phrased more negatively, literally translated it means 'at least preservable till'. Consequently, respondents assigned to the CSR-INF and NO-CSR condition read a text about the Dutch date labels 'TGT' and 'THT'. The difference between the two labels was highlighted. So it was made clear that THT products are still safe to consume if they passed their expiration date while for TGT products this is not the case.

Measures

To measure variable CSR associations the following items were used:

- When I buy a product I think about the impact this has on the environment.
- Supermarkets reduce the price of PAED because they want to reduce food waste.
- Think that reducing the price of PAED is a good principle.
- I buy PAED because I want to reduce food waste.

These items are measured with a scale from 'completely disagree' (1) to 'completely agree' (5).

In this survey similar questions were asked as in the research from van Boxstael et al. (2014) to measure date label confusion. A shortened version of the 'understanding of food labels scale' was used to avoid having a very long survey. Furthermore, van Bostael et al. (2014) directly asked whether respondents knew the difference between THT and TGT. However, respondents might be overconfident when answering this question. For this reason in this research next to the item '*The different date labels are confusing*' five items were used to measure the date label knowledge of respondents instead of directly asking it.

To measure date label confusion the following items were used:

- *If I check an expiration date, I check whether the product has an use by or a best before date*
- *I'd rather buy a product approaching its best before than its use by date.*
- *The different date labels are confusing.*
- *If a product has exceeded the best before date, I throw it away, because I don't think it is safe enough to consume.*
- *If a product has exceeded the use by date, I throw it away, because I don't think it is safe enough to consume.*
- *I have less trouble eating a product that exceeded its best before date than a product that exceeded its use by date.*

These items are measured with a scale from 'completely disagree' (1) to 'completely agree' (5). Item 5 was recoded, because the scale was reverse in comparison to the other items (in the other items a higher score indicates lower confusion). Furthermore, in the analysis item 6 was deducted from question 7 because the difference between these two items indicates more about the date label knowledge of respondents than the questions separately.

Purchased EDBP products

This variable is measured by the sum of the EDBP products that respondents purchased in the online web-shop. The EDBP products in the web-shop were:

- *AH rundergehakt (30%) [AH minced beef (30%)]*
- *AH biologisch rundergehakt (30%) [AH organic minced beef (30%)]*
- *Garden Gourmet vegetarisch fijngehakt (30%) [Garden gourmet vegetarian minced meat (30%)]*
- *AH roerbakgroente Italiaans fijngesneden (30%) [AH Stir-fry chopped Italian vegetables (30%)]*
- *AH macaroni spaghetti groente (30%) [macaroni spaghetti vegetables (30%)]*

- *De Zaanse hoeve kaas geraspt mild 45+ (30%) [De Zaanse hoeve grated cheese mild (30%)]*
- *AH geraspte kaas voor pasta (30%) [AH grated cheese for pasta (30%)]*
- *AH Parmigiano reggiano poeder (30%) [AH Parmigiano reggiano powder (30%)]*

Purchased EDBP 'best before' products

This variable is measured by the sum of the EDBP 'best before' products respondents purchased in the web-shop. The EDBP 'best before' products in the web-shop were:

- *Garden Gourmet vegetarisch fijngehakt (30%) [Garden gourmet vegetarian minced meat (30%)]*
- *De Zaanse hoeve kaas geraspt mild 45+ (30%) [De Zaanse hoeve grated cheese mild (30%)]*
- *AH geraspte kaas voor pasta (30%) [AH grated cheese for pasta (30%)]*
- *AH Parmigiano reggiano poeder (30%) [AH Parmigiano reggiano powder (30%)]*

Chapter 4

Results

Sample description

28 respondents had missing values because they did not complete the survey. Consequently, they were deleted from the dataset. The data from four other respondents were deleted because they indicated that they never do grocery shopping. The 138 respondents who completed the survey did not cause missing values because it was made impossible for respondents to skip questions. Amongst these 138 respondents no outliers were found. The 138 respondents were not equally distributed over the conditions anymore, since some conditions had more respondents who had to be deleted from the dataset, because of missing values, than other conditions. 31 respondents completed the survey under the CSR-INF 1, 40 respondents under the CSR-NO, 33 under the NO-INF condition and 34 under the NO-NO condition. 36.2% of respondents was male and 63.8% was female. Although respondents got randomly assigned to the conditions, in the CSR-INF condition the percentage of females was way higher than in the other conditions (see table 1). Most respondents had an age between 18 and 25, the age of the other respondents differed from 25 until 75 except for 1 respondent, he indicated to be older than 75.

Table 1: Distribution gender over conditions

Gender		Condition				Total
		CSR-INF	CSR-NO	NO-INF	NO-NO	
Male	Count	5	18	14	13	50
	Percentage	16.1	45.0	42.4	38.2	36.2
Female	Count	26	22	19	21	88
	Percentage	83.9	55.0	57.6	61.8	63.8

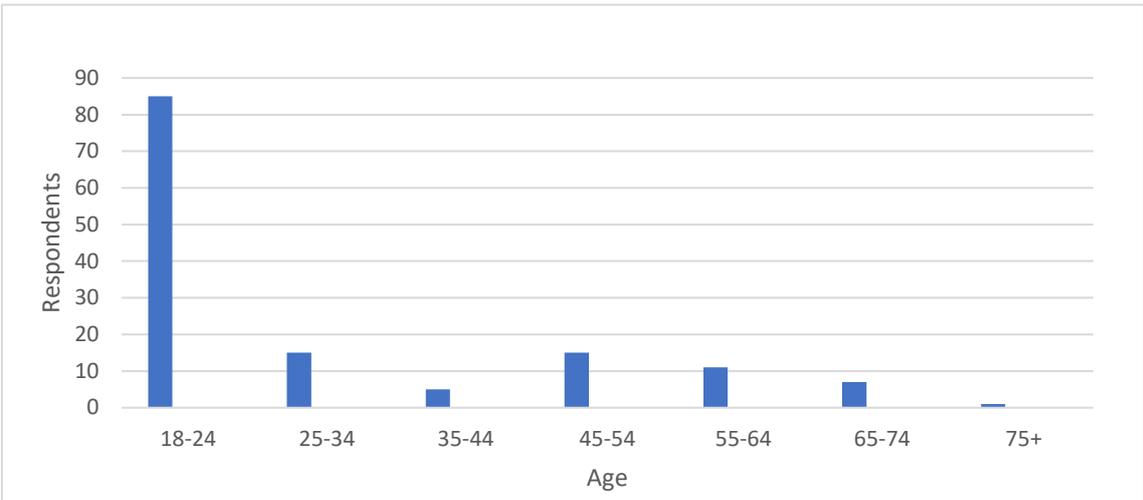


Figure 2: Age distribution

Measurement of confusion scale

A principal component analysis (PCA) was conducted to check if the items measure the same dimension. A Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) of .665 was found, which means that factor analysis might be useful for this variable (.665>.5)(IBM Knowledge Centre, n.d.) The Bartlett's test of sphericity was significant ($P<.001$) which also indicates that conducting a factor analysis might be useful. Two components had an eigenvalue higher than 1 (2.158 and 1.102). However, there was no real elbow point visible in the scree plot (see Figure 3). The two components obtained explain 65.2% of total variance. After running a PCA with oblimin rotation, a low value of the correlation between the components ($r=-.001$) was found. Consequently, a PCA with varimax rotation was run. The communalities were high (all higher than .6), which means that the proportion of variance for each variable that can be explained by the components is high. In the rotated component matrix it was found that all items except for the item 'the different date labels are confusing' ('DL Confusing') have a high loading on the first component. The reason behind this is probably that in 'DL Confusing' respondents indicate how confusing they think the date labels are, so this item is subjective. The other items measure the date label knowledge to indicate date label confusion.

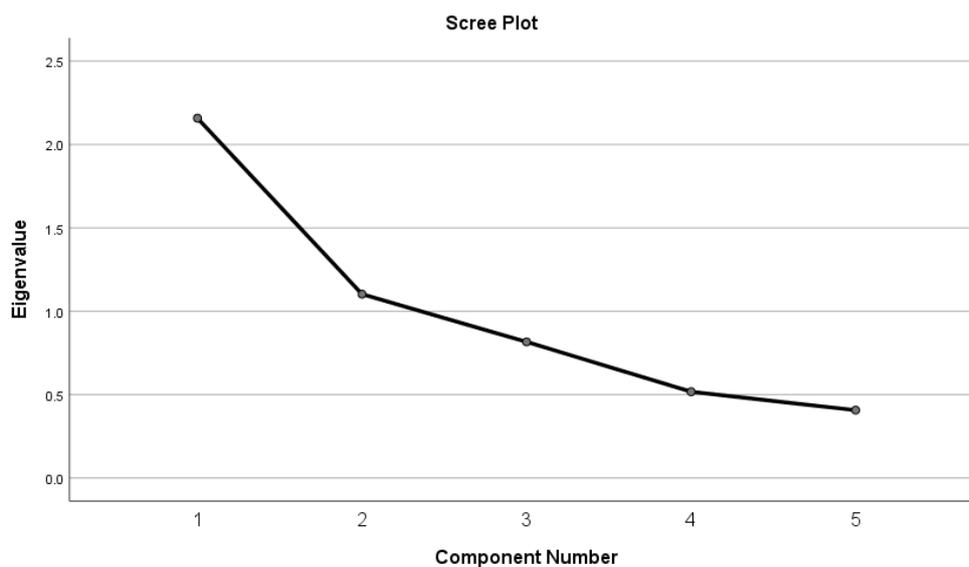


Figure 3: Scree plot components date label confusion

A reliability analysis was done to check if the items correlate with each other enough to reliably measure the construct 'date label confusion'. After performing the analysis in SPSS a Cronbach's Alpha of .718 was found, which means that the construct is reliable (.718>.7). However, it was also found that the Cronbach's Alpha would increase to .79 if item 'DL Confusing' would be deleted. Because of the increase in the Cronbach's Alpha when deleting item 'DL Confusing' from the scale and the lower factor loading of 'DL Confusing' in component 1, 'DL Confusing' was not merged together with the other items into the variable 'Confusion'. Because the items measure the date label knowledge among respondents the item scales were reversed, so that a low score on the items equals a high score on 'Confusion'. The possible range of answers was from 0.25 till 5.25, had a mean of 2.15 and a standard deviation of 0.815 (see Figure 4).

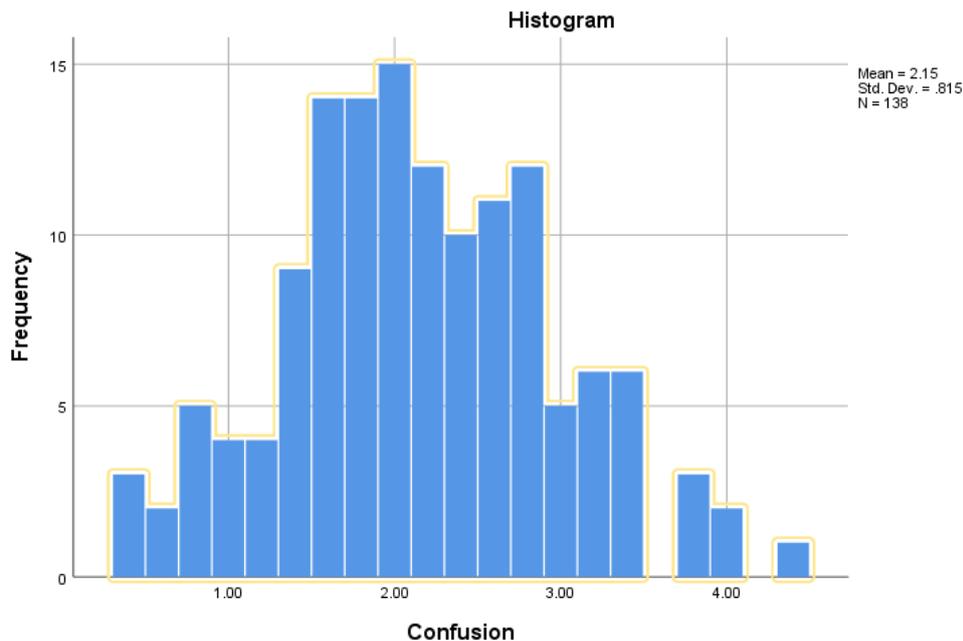


Figure 4: Distribution 'Confusion'

Measurements CSR associations

After performing a PCA a KMO of .515 (>.5) was found and the Bartlett's test of sphericity was significant ($P < .001$). Two components had an eigenvalue higher than 1 (1.549 and 1.053). However, also for these components no real elbow-point was visible in the scree-plot. The two components explain 65% of total variance. A low correlation ($r = .179$) between those components was found after performing PCA with oblimin rotation. Consequently, also for this variable a PCA with varimax rotation was run. Items 'when I buy a product I think about the impact this has on the environment' ('Impact') and 'I buy EDBP to reduce food waste' ('Reduce') had a high value on the first component (see table 2). Items 'supermarkets reduce the price of PAED to reduce food waste' ('Supermarkets') and 'I think EDBP is a good principle' ('EDBP') had a high value on the second component. A significant ($P < .001$) Pearson correlation of .353 between 'Impact' and 'Reduce' was found after performing a bivariate correlation analysis. This means that there is a positive correlation between the items, with a medium strength ($r = .3 < .353 < .5$). For items 'Supermarkets' and 'EDBP' a significant ($P = .004 < .05$) r of .24 was found, which indicates a positive correlation between the items, with a small strength ($r = .1 < .24 < .3$). This weak correlation can be explained by the difference between 'Supermarkets' and 'EDBP'. 'Supermarkets' is only related to food waste, while 'EDBP' might also be caused by economical motives. Because of the weak correlation between item 'Supermarkets' and 'EDBP' only the items 'Impact' and 'Reduce' will be used to measure the dimension CSR associations. The new variable created is called 'CSR association' and is the mean of 'Impact' and 'Reduce'.

Table 2: Component loadings CSR associations

Item	Component	
	Reduce food waste	EDBP practices
Impact	.838	-.008
Supermarkets	.100	.792
EDBP	.046	.770
Reduce	.799	.168

Table 3: Main results

	Confusion			CSR associations		
	<i>F</i> (1, 136):	<i>P</i> ^a :	η^2 :	<i>F</i> (1, 136):	<i>P</i> ^a :	η^2 :
Date label information	4.254	.038	.031	.732	.386	.005
CRM-framing EDBP	.849	.344	.006	.340	.564	.003
Interaction effect	.183	.667	.001	1.165	.326	.009

	EDBP best before products				EDBP products			
	<i>B</i> :	<i>t</i> :	<i>P</i> :	<i>r</i> ^b :	<i>B</i> :	<i>t</i> :	<i>P</i> :	<i>r</i> ^b :
Confusion	.060	.497	.620	-.069	.152	.845	.400	.056
CSR Associations	.150	1.335	.184	.108	.193	1.154	.251	.087

a: The P-values for 'Confusion' and 'CSR associations' are obtained by bootstrapping with 1000 samples.

b: All r values are not significant, all corresponding $P > .206$

The influence of date label information on confusion

An univariate analysis of variance was conducted to look if respondents who received date label information were less confused than respondents who did not receive this information. The analysis was run with 'Confusion' as dependent variable and the conditions as fixed factor. Furthermore, the main effects were compared for the different conditions. Finally, bootstrapping was performed with 1000 samples and the conditions as stratifying variable. Bootstrapping was done because it gives more accurate confidence intervals than the standard intervals obtained using sample variance and assumptions of normality (DiCiccio & Efron B, 1996). It was found that respondents who received date label information were significantly (see table 3) less date label confused than respondents who did not receive this information. The average confusion from respondents who received date label

information was $\mu: 2.00$, while this number was $\mu: 2.28$ for respondents who did not receive the information. Consequently, H1a: *'By informing consumers about the difference between 'use by' and 'best before' they will experience less date label confusion'* was accepted.

The influence of date label confusion on the intention to buy EDBP 'best before' products

A multiple regression analysis was conducted to investigate if respondents who are less date label confused have more intention to buy EDBP best before products. The analysis was run with 'Confusion' and 'CSR associations' as independent variables and the amount of purchased EDBP best before products as dependent variable. No significant B and *r* values were found (see table 3), which means that there is no association between the variables 'Confusion' and the amount of purchased EDBP best before products. Consequently, no evidence was found to accept H1b: *When consumers are less date label confused, they will buy more EDBP 'best before' products.*

The influence of CRM-framing EDBP on CSR associations

An univariate analysis of variance was conducted to investigate if respondents who read the text in which EDBP was CRM-framed had more positive associations than respondents who did not read this text. The analysis was run with 'CSR associations' as dependent variable and the conditions as fixed factor. Furthermore, the main effects were compared for the conditions. Bootstrapping was performed with 1000 samples and the conditions as stratifying variable. No significant main effect (see table 3) was found. Consequently, no evidence was found to accept H2a: *'CRM-framing EDBP lead to positive CSR associations among consumers.'*

The influence of CSR associations on the intention to buy EDBP products

A multiple regression analysis was conducted to investigate if respondents who have more positive CSR associations have more intention to buy EDBP products. The analysis was run with 'CSR associations' and 'Confusion' as independent variables and the amount of purchased EDBP products as dependent variable. No significant B and *r* values were found (see table 3), which indicates that there is no association between the variables 'CSR associations' and the amount of purchased EDBP products. Consequently, no evidence was found to accept H2b: *Positive CSR associations among consumers will make them more likely to buy EDBP products.*

Chapter 4

Discussion

After conducting the experiment it was found that respondents who received date label information were significantly less date label confused than respondents who did not receive this information. Consequently, hypothesis 1a 'By informing consumers about the difference between 'use by' and 'best before' they will experience less date label confusion' was accepted. This is in line with research from van Boxstael et al. (2014), in which was also found that information campaigns will lead to less date label confusion among consumers. However, in their research they recommend the government to provide the date label information, while in this research the supermarket provides the information.

No significant correlation between the degree of confusion of respondents and the amount of purchased EDBP 'best before' products was found. Consequently, no evidence was found to accept hypothesis 1b: 'When consumers are less date label confused, they will buy more EDBP 'best before' products'. This result is different from research from Tsiros & Heilman (2014), in which it was found that consumers buy more EDBP 'best before' products if they have more date label knowledge. This difference can possibly be explained by the different method that was used in this research compared to the research from Tsiros & Heilman. In contrast to this research, Tsiros & Heilman did their experiment in a real supermarket and respondents from their research were planning to consume the products they bought. Because respondents from this research knew that they would not actually consume the products they would choose, they might have not cared about the risk that consuming the products entailed. Consequently, they might have not paid a lot of attention to the date labels, the best indicators for the risk of consumption of EDBP products, that were on the products. This might have weakened the effect of date label confusion on purchased EDBP 'best before' products.

Furthermore, it was investigated if positive CSR associations among consumers could be created by letting them read a text in which EDBP was CRM-framed. However, no significant relation between the text and CSR associations was found. So no evidence was found to accept hypothesis 2a: 'CRM-framing EDBP leads to positive CSR associations among consumers'. In contrast, in research from Theotokis et al. (2012) it was found that CRM-framing EDBP will lead to positive CSR associations among consumers. This contrast might be explained by the different method used in the research from Theotokis et al. compared to this research. Theotokis et al. used shelf talkers and green stickers with sustainability signs in a real supermarket, while in this research a CRM-framed text was used. The shelf talkers and stickers might be more effective than the CRM-framed text in arousing positive CSR associations. So for future it might be useful to also use shelf talkers and stickers to arouse CSR associations. For an online experiment it might be more useful to use a video instead of text, because seeing imagery probably has a bigger impact than only text.

Also no support was found for hypothesis 2b: 'Positive CSR associations among consumers will make them more likely to buy EDBP products', since there was no significant correlation found between CSR associations and the amount of purchased EDBP products. On the contrary, in research from David et al. (2009) a positive relationship between CSR associations and purchase intention was found. This difference might be caused by the different product categories in the researches. In this research relatively cheap products were sold, while in the research from David et al. more expensive products like computers were sold. For more expensive products consumers invest more time and

effort in the consideration to buy a product, so they also might take CSR associations considerations more into account. Furthermore, in this research respondents did not actually buy products, they did not have to pay and they did not receive the products. Buying a virtual product does not have environmental and economic consequences, while in real supermarkets this is the case. So it might be the case that consumers buy more EDBP in real supermarkets, because they would be more aware of the economic and environmental benefits this brings than in a virtual web-shop. So the effect of CRM framing EDBP on the amount of purchased EDBP products might be stronger if the experiment was conducted in a real supermarket.

Finally, the external validity of this research could be improved by getting a more representative sample out of the population for the experiment. Participants for the experiment of this research are not representative for the Dutch population, because 84 out of 138 participants had an age between 18 and 24. This has as a result that respondents had a lower income than the Dutch population, because most of 18-24 year olds do not have a full time job. 55.8% of respondents indicated to have a household income lower than €20,001, which is more than the Dutch population in which this number is 29.6% (CBS, 2019). This might result in respondents buying more EDBP than the Dutch population because these products are reduced in price. In this research 24.6% of the total amount of products purchased was an EDBP product. Furthermore, 63.8% percent of respondents was female, what is not representative for the Dutch population in which 50.6% is female (CBS, 2018). On the other side, females still do more grocery shopping than males, so the higher percentage is actually more realistic for the average consumer (van Tellinggen et al., 2017). However, in the CSR-INF condition the gender distribution differed a lot from the real population, since 83.9% of respondents in that condition was female. This might have affected the outcomes of this research since females are more environmentally conscious and consequently are more likely to buy EDBP (Mintel, 2018). Also the education of respondent was not representative for the Dutch population, since 117 out of 138 respondents (84.5%) indicated to be higher educated. In reality 49.4% of respondents in the Netherlands is higher educated (Onderwijs in cijfers, 2019). This might also have an impact on the amount of purchased EDBP products, since higher educated people in general are more environmentally conscious than the average consumer.

Conclusions

To investigate the influence of information campaigns on the effectiveness of EDBP an experiment was conducted. It was found that providing date label information to consumers makes them less date label confused. However, consumers who were less confused did not have the intention to buy more 'best before' EDBP products. So it is useful for retailers to provide information about the different date labels, but still a solution should be found to convince consumers to buy 'best before' EDBP products. Furthermore, respondents who read the CRM-framed text did not have more positive CSR associations than respondents who did not read the text. Finally, respondents who had more positive CSR associations did not have a higher intention to buy EDBP products. So after all it can be concluded that information campaigns do not improve the effectiveness of EDBP.

In this research no differences between respondents were made based on their characteristics. Future research can focus on how segmentation and targeting could be used in order to improve the effectiveness of EDBP. Differences between gender, the extent to which a consumer is environmentally conscious, income and age could be made. Consequently, it should be investigated how these different groups of consumers should be targeted in order to make EDBP as effective as possible. This should be done, because in this research no effects were found on the amount of purchased EDBP products. Besides differences between consumers also differences between the

effectiveness of EDBP between different product categories can be made in future research. Furthermore, future research should be conducted in a real supermarket instead of an online web-shop since this research has shown that consumers tend to behave differently online than they would have in a real supermarket.

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Appendix 1

Survey

Beste deelnemer,

In het kader van mijn studie aan de Wageningen Universiteit doe ik onderzoek naar de manier waarop consumenten aankoopbeslissingen nemen in supermarkten. Ik verzoek u vriendelijk hiervoor een vragenlijst in te vullen, wat ongeveer 5 minuten zal duren. De vragen zullen gaan over uw eigen meningen en gedrag, er zijn dus geen goede of foute antwoorden. Uw antwoorden zullen anoniem verwerkt en opgeslagen worden, hetgeen betekent dat de informatie niet tot u als persoon te herleiden is. Voordat u verder gaat zou ik u willen vragen om mij toestemming te geven om uw antwoorden te gebruiken ten behoeve van wetenschappelijk onderzoek. U kunt u zelf op elk gewenst moment van de vragenlijst terugtrekken, al is het voor dit onderzoek van belang dat u de vragenlijst volledig invult.

Onder de respondenten zal een VVV cadeaubon t.w.v. 25 euro verloot worden, als u kans wilt maken om deze te winnen kunt u aan het einde van de vragenlijst uw e-mailadres achterlaten.

Alvast hartelijk bedankt voor het invullen van de vragenlijst! Om uw toestemming te geven en te beginnen met de vragenlijst kunt u op de onderstaande pijl drukken.

Hoeveel dagen per week doet u boodschappen?

- Nooit
- 1 dag per week
- 2 dagen per week
- 3 dagen per week
- 4 dagen per week
- 5 dagen per week
- 6dagen per week
- Dagelijks

U krijgt op de volgende pagina een stuk tekst te zien. Gelieve deze volledig te lezen voordat u naar de volgende pagina gaat.

Voedselverspilling

De grootste oorzaak van voedselverspilling door supermarkten in westerse landen komt door producten die niet meer verkocht mogen worden, omdat ze hun houdbaarheidsdatum overschreden hebben. Het over datum gaan van deze producten wordt veroorzaakt doordat producten slechts gelimiteerde tijd aan kwaliteitseisen voldoen. Voor een supermarkt is het onmogelijk om precies in te schatten hoeveel exemplaren van een product in een bepaalde periode verkocht zullen worden. Aan de ene kant wil de supermarkt te allen tijde voldoende producten op voorraad hebben, zodat u als klant niet misgrijpt bij het kopen van uw favoriete product. Aan de andere kant wil een supermarkt met het oog op voedselverspilling niet een te grote voorraad hebben. Hiermee wordt de kans namelijk aanzienlijk vergroot dat producten over datum gaan en vervolgens weggegooid moeten worden.

Een oplossing voor dit voedselverspillingsprobleem ligt bij u als consument. Als u meer producten koopt die hun houdbaarheidsdatum naderen, gaan er minder producten over datum en hoeven er minder producten weggegooid te worden. In de virtuele supermarkt van dit onderzoek zijn producten die bijna over datum gaan in prijs verlaagd. Bovendien wordt de kwaliteit en veiligheid van deze producten gegarandeerd.

Houdbaarheidsdata Verder maken we in Nederland gebruik van twee soorten houdbaarheidsdata: te gebruiken tot (TGT) en ten minste houdbaar tot (THT). TGT geldt als de uiterste datum waarop het levensmiddel nog mag worden geconsumeerd en er geen risico voor de gezondheid bestaat. TGT wordt gebruikt op producten die zeer bederfelijk zijn zoals vers vlees en verse vis. Het consumeren van producten na de TGT kan een serieus gevaar zijn voor de gezondheid. THT geeft echter de datum aan tot wanneer de producent of verkoper van het levensmiddel de kwaliteit van het product garandeert. Als het product na de THT normaal van kleur, geur en smaak is, bestaat er bij het consumeren ervan vrijwel geen gevaar voor de gezondheid.

Stelt u zich in de volgende situatie voor: het is vrijdagmiddag 1 januari en u staat op het punt om boodschappen voor het avondeten te doen. U ontvangt namelijk 3 gasten en u bent van plan een pasta bolognese te maken. In verband met tijdgebrek besluit u gesneden groenten en geraspte kaas te kopen.

Voor deze pasta heeft u in ieder geval de volgende producten nodig:

- Pasta
- Pastasaus
- (Vegetarisch) gehakt
- Voorgesneden groenten
- Geraspte kaas

Op de volgende pagina's kunt u uw productkeuze maken door op het plaatje van het desbetreffende product te klikken. Als u dit gedaan heeft zal uw keuze groen worden, door op het pijltje te drukken kunt u vervolgens naar de volgende pagina gaan.

Hieronder kunt u het type pasta kiezen dat u voor uw avondmaal wilt gebruiken.



AH Fusilli
500 g

0.95



AH Penne
500 g

0.95



AH Biologisch Volkoren penne
rigate
500 g

0.99



Grand'Italia Fusilli
tradizionali
500 g

1.59



Grand'Italia Spaghetti
tradizionali

500 g

1.29



AH BASIC Macaroni

500 g

0.49



AH BASIC Spaghetti
500 g

0.57



AH Vrij van gluten
spaghetti

500 g

1.12



Grand'Italia Penne
glutenvrij

400 g

2.99

Hieronder kunt u kiezen welke pastasaus u voor uw pasta wilt gebruiken.



2.09
690 g

Grand'Italia Sugocasa
tradizionale pastasaus



1.99
690 g

Bertolli Pastasaus
tradizionale



2.19
690 g

Grand'Italia Sugocasa
erbe pastasaus



0.99
520 g

AH BASIC Pastasaus



2.35
460 g

Bertolli Bolognese
pastasaus



2.39
400 g

AH Biologisch Pastasaus
bio tradizionale



0.79
500 ml

Heinz Tomato gezeefd



0.75
500 g

AH Passata di pomodoro



0.49
500 g

AH BASIC Passata di
pomodoro

Hieronder kunt u kiezen welk gehakt u door uw pasta wilt doen.

 <p>2.69 500 g</p> <p>AH Half om half gehakt</p> <p>TGT: 6 januari 2020</p>	 <p>3.69 500 g</p> <p>AH Rundergehakt</p> <p>TGT: 5 januari 2020</p>	 <p>3.69 500 g</p> <p>AH Rundergehakt</p> <p>Nu: €2.58</p> <p>30% korting i.v.m. naderende houdbaarheidsdatum</p> <p>THT: 2 januari 2020</p>
 <p>3.29 300 g</p> <p>AH Biologisch Rundergehakt</p> <p>Nu: €2,10</p> <p>30% korting i.v.m. naderende houdbaarheidsdatum</p> <p>TGT: 2 januari 2020</p>	 <p>3.29 300 g</p> <p>AH Biologisch Rundergehakt</p> <p>TGT: 5 januari 2020</p>	 <p>3.99 300 g</p> <p>AH Biologisch Mager rundergehakt</p> <p>TGT: 6 januari 2020</p>
 <p>2.85 200 g</p> <p>Vegetarische Slager Rul gehackt</p> <p>THT: 14 februari 2020</p>	 <p>2.79 175 g</p> <p>Garden Gourmet Vegetarisch fijngehakt</p> <p>THT: 2 februari 2020</p>	 <p>2.79 175 g</p> <p>Garden Gourmet Nu: €1.95</p> <p>Vegetarisch fijngehakt</p> <p>30% korting i.v.m. naderende houdbaarheidsdatum</p> <p>THT: 2 januari 2020</p>

Hieronder kunt u kiezen welke groentemix(en) u voor uw pasta wilt gebruiken.

 <p>2.39 400 g</p> <p>Nu: €1.67</p> <p>AH Roerbakgroente Italiaans fijngesneden</p> <p>30% korting i.v.m. naderende houdbaarheidsdatum</p> <p>TGT: 2 januari 2020</p>	 <p>2.39 400 g</p> <p>AH Roerbakgroente Italiaans fijngesneden</p> <p>TGT: 3 januari 2020</p>	 <p>1.50 450 g</p> <p>AH Macaroni spaghetti groente</p> <p>TGT: 3 januari 2020</p>
 <p>1.50 450 g</p> <p>Nu: €1.05</p> <p>AH Macaroni spaghetti groente</p> <p>30% korting i.v.m. naderende houdbaarheidsdatum</p> <p>TGT: 1 januari 2020</p>	 <p>1.00 150 g</p> <p>AH Gesneden uien</p> <p>TGT: 5 januari 2020</p>	

Hieronder kunt u kiezen welke kaas u door uw pasta wilt doen.

 <p>1.99 200 g</p> <p>Nu: €1.11</p> <p>De Zaanse Hoeve Kaas geraspt mild 45+</p> <p>30% korting i.v.m. naderende houdbaarheidsdatum</p> <p>THT: 2 januari 2020</p>	 <p>1.59 200 g</p> <p>De Zaanse Hoeve Kaas geraspt mild 45+</p> <p>THT: 18 januari 2020</p>	 <p>1.99 200 g</p> <p>De Zaanse Hoeve Pittig 45+ geraspt</p> <p>THT: 31 januari 2020</p>
 <p>1.99 150 g</p> <p>Nu: €1.40</p> <p>AH Geraspte kaas voor pasta</p> <p>30% korting i.v.m. naderende houdbaarheidsdatum</p> <p>THT: 2 januari 2020</p>	 <p>1.99 150 g</p> <p>AH Geraspte kaas voor pasta</p> <p>THT: 16 februari 2020</p>	 <p>2.99 90 g</p> <p>Nu: €1.53</p> <p>AH Parmigiano reggiano poeder</p> <p>30% korting i.v.m. naderende houdbaarheidsdatum</p> <p>THT: 2 januari 2020</p>
 <p>2.19 90 g</p> <p>AH Parmigiano reggiano poeder</p> <p>THT: 27 februari 2020</p>	 <p>1.64 40 g</p> <p>AH Biologisch Parmigiano Reggiano</p> <p>THT: 18 januari 2020</p>	 <p>1.69 80 g</p> <p>Grozette Stroolkaas classic</p> <p>THT: 16 februari 2020</p>

Gelieve hieronder in te vullen hoeveel exemplaren van de door u gekozen producten u wilt kopen (houdt in gedachten dat u voor 4 personen gaat koken).

Bedankt voor het kiezen van de producten!

Op de volgende pagina's staan enkele stellingen over uw gedrag in het algemeen in supermarkten (dus niet alleen in de virtuele supermarkt waar u net heeft gewinkeld) . Gelieve aan te geven in hoeverre u het eens bent met deze stellingen.

Klik op de pijl om door te gaan.

Zou u willen aangeven in hoeverre u het eens bent met de volgende stellingen:

	Volledig mee oneens	Mee oneens	Neutraal	Mee eens	Volledige mee eens
1. Bij het kopen van producten check ik de houdbaarheidsdatum.	<input type="radio"/>				
2. Bij het kopen van producten uit de koeling check ik de houdbaarheidsdatum.	<input type="radio"/>				
3. Als ik een houdbaarheidsdatum check, kijk ik of het product een 'ten minste houdbaar tot' (THT) of een 'te gebruiken tot' (TGT) datum heeft.	<input type="radio"/>				
4. Ik koop liever een product dat dichtbij de THT zit dan een product dat dichtbij de TGT zit.	<input type="radio"/>				
5. De verschillende houdbaarheidsdata (THT en TGT) zijn verwarrend.	<input type="radio"/>				
6. Als een product de THT overschreden heeft gooi ik het weg, omdat ik het niet veilig genoeg vind om te consumeren.	<input type="radio"/>				
7. Als een product de TGT overschreden heeft gooi ik het weg, omdat ik het niet veilig genoeg vind om te consumeren.	<input type="radio"/>				
8. Ik heb minder moeite met het eten van THT producten die over datum zijn dan met het eten van TGT producten die over datum zijn.	<input type="radio"/>				

Zou u willen aangeven in hoeverre u het eens bent met de volgende stellingen:

	Volledig mee oneens	Mee oneens	Neutraal	Mee eens	Volledige mee eens
9. Bij het kopen van een product denk ik aan de impact die dit heeft op het milieu	<input type="radio"/>				
10. Supermarkten prijzen producten af, omdat zij voedselverspilling tegen willen gaan.	<input type="radio"/>				
11. Ik vind het afprijzen van producten die hun houdbaarheidsdatum naderen een goed principe.	<input type="radio"/>				
12. Hoe verder een product naar zijn houdbaarheidsdatum toe gaat, hoe lager de kwaliteit van het product wordt.	<input type="radio"/>				
13. Ik koop producten die hun houdbaarheidsdatum naderen omdat dit voedselverspilling tegen gaat.	<input type="radio"/>				
14. Ik koop producten die hun houdbaarheidsdatum naderen, omdat deze producten afgeprijsd zijn.	<input type="radio"/>				

In welke leeftijdscategorie valt u?

- 18-24 jaar oud
 - 25-34 jaar oud
 - 35-44 jaar oud
 - 45-54 jaar oud
 - 55-64 jaar oud
 - 65-74 jaar oud
 - 75 jaar of ouder
-

Wat is uw geslacht?

- Man
 - Vrouw
 - Overig
-

Wat is uw hoogst afgeronde opleiding?

- Basisonderwijs
 - Vmbo-b/k, mbo1
 - Vmbo-g/t, havo-, vwo-onderbouw
 - Mbo2, mbo3 en Mbo4
 - Havo, vwo
 - Hbo-, wo-bachelor
 - Hbo-, wo-master, doctor
-

Wat was het netto gezamenlijk inkomen van uw huishouden in 2018? (Zonder aftrek) *Bevat het: netto-inkomsten uit arbeid, zaken, pensioenen, dividenden, rente, uitkeringen, en elke andere vorm van inkomen, ook het inkomen van de mensen in uw huishouden van 18 jaar of ouder.*

- €0 - €20,000
 - €20,001 - €40,000
 - €40,001 - €60,000
 - €60,001 - €80,000
 - €80,001 - €100,000
 - €100,001 - €120,000
 - €120,001 - €140,000
 - Meer dan €140,000
-

Vult u hier uw e-mailadres in als u kans wilt maken op de VVV-cadeaubon t.w.v. 25 euro.
Uw e-mailadres wordt gelijk losgekoppeld van de resultaten en zal na de loting gelijk verwijderd worden.

Als u vaker wilt deelnemen aan onderzoeken van de universiteit kunt u hieronder uw e-mailadres achterlaten.
Uw e-mailadres wordt gelijk losgekoppeld van de resultaten van dit onderzoek.

Eventuele op- of aanmerkingen kunt u hieronder achterlaten.
