

# Consumer's evaluation and understanding of food health claims

## *A case study on Betavivo - Crispy Oat Heart Cereal*

BSc Thesis

05-05-2017

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YSS-82312 & FQD-51306

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## 1. Introduction

Today's Dutch functional food market is worth \$43.27 billion annually and has grown 26.7% since 2009 (Natural products insider, 2014). Consumers have become increasingly aware that food consumption and health (well-being) directly relate to each other. This awareness has led consumers to no longer expect foods to only satisfy hunger and provide nutrients, but also to prevent nutrition related diseases and improve physical and mental well-being (Siró et al., 2008). An example of a functional food is Betavivo's 'Crispy Oat Heart Cereal', produced and distributed by Trimb Healthcare. It is widely sold in the Netherlands in drugstores such as Kruidvat, and de Tuinen, and online through several web shops (Betavivo, 2016). DSM, who is a supplier of Crispy Oat Heart Cereal's key nutritional ingredient 'OatWell' –on which the health claims used by Trimb Healthcare are based –, has commissioned this research, with no restrictions. No funding was made available. DSM is interested in better understanding how its business partners can use the functional ingredients for better positioning of their products and making them more attractive for their target consumers.

Crispy Oat Heart Cereal is carrier of the following three different health benefits: reducing cholesterol levels, intestinal improvement, and glucose control. The European Food Safety Authority (EFSA) has approved three health claims associated with Crispy Heart Oat Cereal's health benefits (EFSA, 2011). Although three health claims are substantiated by scientific evidence and (therefore) have EFSA approval, only the cholesterol lowering and the glucose control health claims are communicated to the consumer through the packaging of Crispy Heart Oat Cereal (Betavivo, 2016).

Functional foods are foods containing nutrients or other substances in increased or reduced proportions, which are communicated to the consumer through a specific claim (Functional Foods, 2010; Verbeke et al., 2009). In the publication, Functional Foods (2010), three categories of functional foods are identified. The following is applicable to Crispy Oat Heart Cereal: "*Foods containing naturally occurring bioactive substances*" (Functional Foods, 2010, p. 657). According to Functional Foods (2010), oat - beta glucan is considered to be a naturally occurring bioactive substance, therefore Crispy Oat Heart Cereal is considered to be a functional food.

Typically, manufacturers of functional foods aim to distinguish their food from conventional food products by displaying food claims on the packaging. The displayed claims are designed

to highlight and communicate the products scientifically proven health benefits to the consumer (Carrillo et al., 2014; Lähteenmäki, 2012; Siró, 2008; Wills et al., 2012).

In 2006 the European Union introduced new legislation with regard to claims for food manufacturers: Regulation (EC) No. 1924/2006 (European Commission, 2006). With this legislation, the EU aimed to protect consumers from misleading and false claims (Carrillo et al., 2014; Nocella, Kennedy, 2012). To do so, part of the legislation focuses on the content and communication format of health claims. Consequently, food manufacturers have to comply with legal constraints when formulating health claims.

Van Kleef et al. (2005) suggested a framework that highlights three aspects that food manufacturers still have influence on, despite legal constraints: (1) which health claims they focus on, (2) through which food product the benefit is being delivered and (3) the specific way in which the health claim is communicated, including how it is framed (enhanced function claim or reduced disease risk claim).

The objective of this study is to assess (1) to what extent Dutch consumers understand Crispy Oat Heart Cereal's health claims, (2) to what extent Dutch consumers evaluate Crispy Oat Heart Cereal's health claims as appealing and (3) what the optimal framing technique per individual health claim is.

## **2. Literature**

### **2.1 Betavivo- Crispy Oat Heart Cereal**

Crispy Oat Heart Cereal is a product produced and distributed by Trimb Healthcare. Trimb Healthcare is responsible for all sales and marketing activities of Crispy Oat Heart Cereal. The main functional ingredient of Crispy Oat Heart Cereal is oat beta-glucan, which is produced and supplied by DSM. All health claims made by Betavivo are founded on oat beta-glucan. In order for consumers to experience these health benefits, a daily intake of 3-4 grams oat beta-glucan is required. When this consumption requirement is met, Crispy Oat Heart Cereal can help consumers improving their heart health and digestion and tackle diabetes (EFSA, 2011). These health benefits are communicated to consumers through health claims. First, the daily intake of 3-4 grams of oat beta-glucan will result in cholesterol lowering effect (EFSA art. 14). Second, the blood glucose level of the consumer will be controlled (EFSA art 13.1). Third, the consumers' intestinal health will improve (EFSA art. 13.1). Research aiming to establish a cause and effect relationship between the consumption of oat beta glucan and a sustained increase in satiety, leading to a reduction in energy intake was conducted (Beck et al, 2009, Huang, 2011;), however the EFSA concluded that on based on the presented data no such relationship could be established (EFSA art. 13.5). DSM is still commissioning research, aiming to gather scientific evidence to sustain a relationship between consuming oat beta glucan and a reduction in energy intake.

Trimb Healthcare has EFSA approval to communicate three health benefits to the consumer with health claims, displayed on the packaging of Crispy Oat Heart Cereal. While three health claims have EFSA approval, only the two health claims that address improving heart health and blood glucose levels are communicated to consumers (Betavivo, 2016)

The cholesterol-lowering health claim is communicated to consumers in the following way: "Oat-beta glucan has been shown to lower blood cholesterol. High cholesterol is a risk factor in the development of coronary heart disease." Betavivo has formulated the blood glucose level health claim as: "Consumption of beta-glucan as part of a meal contributes to the reduction of the blood glucose rise after the meal" (Betavivo, 2016).

In a teaser by OatWell (2014) (a product marketed by DSM containing oat beta-glucan) the target audience of oat beta-glucan was defined within five different segments: (1) Heart Health problems: Older Men, (2) Heart Health buyers: Older women (3), Heart Health

Conscious 35+ Men and Women, (4) people diagnosed with high levels of cholesterol and, (5) consumers who are heart-health conscious (OatWell Teaser, 2014). No specific target audience has been formulated with respect to Crispy Oat Heart Cereal. Therefore, this research assumes that the target audience of Crispy Oat Heart Cereal is equivalent to the target audience for oat beta-glucan.

## **2.2 European Union claim regulation**

In 2006, the European Commission (EC) published Regulation (EC) No. 1924/2006, which mandates that only substantiated and approved statements can be used as nutrition - and health related claims in food marketing (European Commission, 2006). The explicit intention of Regulation (EC) No. 1924/2006 is to protect consumers from misleading claims. Therefore, claims without sufficient scientific evidence are no longer allowed on the European food market (Wills et al., 2012; Verhagen et al., 2010). Another aspect of the legislation that aims to protect consumers from misleading claims is presented in article 5.2 of Regulation (EC) No. 1924/2006, which states that "the use of nutrition and health claims shall only be permitted if the average consumer can be expected to understand the beneficial effects as expressed in the claim" (European Commission, 2006).

The European Commission (2006) defined the average consumer as: *"Someone who is reasonably well-informed and reasonably observant and circumspect, taking into account social, cultural and linguistic factors, as interpreted by the Court of Justice, but makes provision to prevent the exploitation of consumers whose characteristics make them particularly vulnerable to misleading claims."* There is no statistical test available to test the average consumer. Authorities and courts will have to exercise their own judgement and faculty, to determine the typical reaction of the average consumer (European Commission, 2006).

## **2.3 Understanding health claims**

A food manufacturer that aims to communicate the health benefit(s) its product carries should comply with Regulation (EC) No. 1924/2006 in order to receive the EFSA's approval on communicating the concerning health claim(s). This leaves food manufacturers with the challenging task to make non-misleading, well-substantiated, understandable health claims (Van Buul & Brounds, 2006). To help food manufacturers to get a clear perspective on the definition 'average consumer' several studies that aimed to get a clearer view of the 'average

consumer' have been conducted (Leathwood et al., 2007; Wills et al., 2012). In general, it was found that it is unclear how consumer understanding should be assessed (Lähteenmäki et al., 2010). Furthermore, the average consumer is expected to understand health-related messages if the right issues are communicated to the right people on the right product (Nocella & Kennedy, 2012). The formulation of health claims should, therefore, be adapted to the target group and to the specific health claim carrier to ensure an adequate consumer understanding (Van Buul & Brounds, 2016; Nocella & Kennedy 2012).

The literature on consumer understanding of health claims is limited. Little research has been conducted where consumer understanding is studied using an objective criterion based on scientific evidence on the health effect (Grunert et al., 2011). A review by Nocella & Kennedy (2012) found that consumer understanding is influenced by socio-demographic characteristics, familiarity and knowledge on nutrition information, the wording of the health claim and consumer's attitudes towards processing information. These findings are in line with the review by Williams et al. (2005) and the review by Wills et al. (2010). Further, these findings are an addition to previous findings, revealed in a study by Grunert, Scholderer & Rogeaux (2011), which related consumer understanding to previous knowledge (knowledgeable consumers understand better) and socio-demographic characteristics (low-educated consumers understand less).

While studies on the psychological process behind the lack of understanding are limited, a number of studies focusing on inference making have been conducted (Grunert, Scholderer & Rogeaux, 2011). The literature focuses on two types of inferences: 'halo effect' and the 'magic bullet' effect. A 'halo effect' occurs if the consumer generalises positive perceptions to other product attributes; a product is generally perceived as superior. For example, a low cholesterol claim may lead consumers to assume that the product is low in fat, even though this is not motioned in the claim. A 'magic bullet' effect occurs if a consumer associates the product with inappropriate health benefits. For example, from a low in cholesterol claim, it might be inferred that the product automatically helps against cardiovascular disease (Grunert et al., 2011; Nocella & Kennedy 2012; Wills et al., 2012). These two types of inferences result in the assumption that people do not always understand health claims as they are intended. The limited information available on the proportion of consumers who correctly understand claims makes it difficult to set targets for adequate levels of consumer understanding (Wills et al., 2012).



## **2.4 Creating appealing health claims**

Whether a claim appeals to consumers depends on the claim type and the combined carrier product-nutrient concept (Verbeke et al., 2009). The extent to which a health claim is evaluated as appealing to consumers is, therefore, case and context dependent. There are, however, variables that, despite the context of the claim influence the extent to which consumers assess a health claim as appealing (Van Kleef et al., 2005). When creating an appealing health claim the following variables that influence consumers' evaluation should be taken into account: the convincingness of the claim, the attractiveness of the product, the credibility of the product and the intention to buy the product. These variables are in turn influenced by multiple explanatory variables (Verbeke et al., 2009).

## **2.5 Framing health claims**

Whether a health claim is perceived as appealing does not only depend on consumer's background attitudes. The level of claim appeal is also dependent on the framing technique that is used to formulate a products' health claim (Van Kleef et al., 2005).

Within health claims a distinction can be made between 'reduced disease risk' claims, and 'enhanced function' claims. Disease risk factor reduction claims state that a food or one of its components significantly reduces a risk factor for human disease or condition (Roberfroid, 2002; Wills et al., 2012). Enhanced function claims relate to the consumption of a food or food component that contributes beneficially to health or a condition linked to health (Roberfroid, 2002).

Both enhanced function claims and reduced disease risk claims frames should enhance the consumers' attention drawn to the issues mentioned by the claim, but it remains unclear which type of health claim has a greater persuasive impact (Van Kleef et al., 2005). Previous research, on which type of health claim is most appealing to consumers, has resulted in inconsistent findings. Several studies suggest that enhanced function claims are more appealing to consumers, this is supported by the finding that people respond more favourably to positive than negative framing (Krishnamurthy et al., 2001; Levin et al., 1998). Another finding that supports this suggestion is that disease risk-framed health claims can act as negative reinforcement message because they explicitly name a disease risk. Consumers may dislike being reminded of such risks (Verbeke et al., 2009). On the other hand, results from Van Kleef et al. (2005) suggest that reduced disease risk-framed health claims result in a

significantly higher purchase intention rate than enhanced function-framed health claims.

### **3. Objective**

The objective of the present study is to measure the level of consumer understanding with respect to the health claims displayed on the packaging of Crispy Oat Heart Cereal and to investigate consumers' overall evaluation with regard to the appeal of the formulated health claims, while assessing the optimal framing technique (enhanced function or reduced disease risk) of each individual health claim.

#### **4. Materials and methods**

An online questionnaire (appendix A) was composed out of previously conducted and standardized methodologies originating from Rogeaux (2010) and Van Kleef et al. (2005). The questionnaire was designed and conducted with the online survey software 'Qualtrics' to investigate (1) to what extent Dutch consumers understand Crispy Oat Heart Cereal's health claims, (2) to what extent Dutch consumers evaluate Crispy Oat Heart Cereal's health claims as appealing and (3) what the optimal framing technique per individual health claim is. The questionnaire was conducted Dutch respondents via social media. Therefore the standardized methods extracted from Van Kleef et al. (2005) and Rogeaux (2010) were translated from English to Dutch. The target group of this questionnaire was the Dutch average consumer as defined by the European Commission (2006), it was spread among Dutch respondents via social media channels.

To stimulate participation, an external incentive in the form of a product give away was implemented. 'OatWell Original' (a product by DSM) was given away to three randomly selected respondents.

After the questionnaire was conducted, the retrieved data was analysed with SPSS, version 24.

##### **4.1 Measurement of consumer understanding**

The extent of consumer understanding with regard to the health claims was measured with the Consumer Understanding Test (CUT). The CUT is a standardized methodology, developed by Rogeaux (2010), which aims to investigate determinants of understanding of health claims. The CUT is based on two main principles: an open question and a very strict process of codification. These two main principles aimed to test the extent to which the respondent is knowledgeable with respect to the science behind the health claim (Rogeaux, 2010; Grunert, Scholderer & Rogeaux, 2011). Meaning that the level of consumer understanding was measured by assessing their scientific knowledge about the health claim.

Because the CUT is based on open questions, it gives an objective and qualitative assessment of the respondent's level of claim understanding.

Respondents were presented with Crispy Oat Heart Cereal's packaging, which displayed two health claims. After exposure, the respondents were asked the following two questions:

(1) After seeing this pack, if you had to tell a friend what Betavivo - Crispy Oat Heart Cereal does, what would you say?

(2) And if you had to tell a friend how it works, how would you say that?

These are open questions, and respondents had to type their answers into a screen window. The CUT methodology is based on open questions, because the use of open questions does not preclude any type of answer, and allows studying respondent's inference processes. Answers have been content analysed into a coding scheme, categorized as:

- *Safe*: the statement is in line with the scientific dossier as made available to respondents;
- *Risky*: the statement is not in line with scientific dossier as made available to respondents;
- *Vague*: the statement expresses a vague notion (e.g., a health product) or an expression that is irrelevant with regard to the health claim (e.g., the product is easy to eat).

#### **4.2 Measurement of overall claim appeal and the optimal framing technique**

This part of the study aimed to measure the extent to which Dutch consumers evaluate the formulated health claims as appealing and what the optimal framing technique per individual health claim is, based on the framework and methodology presented in the study by Van Kleef et al. (2005).

Crispy Oat Heart Cereal is carrier of three EFSA approved health benefits, focussing on high cholesterol levels, intestinal health and glucose control. Research aiming to establish a cause effect relationship between consumption of oat beta glucan and a reduction in energy intake is still being conducted. To provide DSM with a complete insight in how consumers evaluate Crispy Oat Heart Cereal's (potential) health claims, health claims addressing a weight control health benefit were included in this study.

Each of the four health benefits can either be communicated to the consumer framed as an enhanced function claim, or framed as a reduced disease claim. Therefore, Trimb Healthcare can potentially communicate eight different health claims to its consumers (table 1).

To measure which health claim in combination with which framing technique had the best overall claim appeal, respondents were asked to rate each of the eight health claims on (a) the convincingness, (b) attractiveness and (c) the credibility of the health claim. To do so, a

seven-point Likert scale was used, with end-points labelled 'absolutely not convincing/attractive/credible' to 'absolutely convincing/attractive/credible'.

Van Kleef et al. (2005) suggest that the extent to which consumers perceive a claim as convincing, attractive and credible influences their overall claim appeal. Therefore, this study assumed that these three variables were accountable for the extent to which the health claims were evaluated as appealing. Reflected on this theory, the dependent variable 'overall claim appeal' was created by averaging the scores of the three dimensions (convincingness, attractiveness and credibility).

**Table 1**

This study's health claims framed as enhanced function or reduced risk claim

<b>Health problem</b>	<b>Enhanced function claims</b>	<b>Reduced disease risk claims</b>
High cholesterol levels	Consumption of beta – glucan from oats as part of a meal reduces blood cholesterol.	Oat beta – glucan has been shown to reduce blood cholesterol. High cholesterol is a risk factor in the development of coronary heart disease. ^
Intestinal health	Consumption of beta – glucan from oats as part of a meal increases intestinal health.	Oat beta – glucan has been shown to increase intestinal health. Bad intestinal health is a risk factor for poor digestion of food accompanied with complainants such as a bloated feeling.
Glucose control/diabetes	Consumption of beta – glucan from oats as part of a meal contributes to the reduction of the blood glucose rise after that meal. ^	Oat beta – glucan has been shown to stabilize blood glucose levels. High blood glucose levels are a risk factor in the development of diabetes.
Weight control	Consumption of beta – glucan from oats as part of a meal increases satiety and reduces energy intake.	Oat beta – glucan has been shown to increase satiety levels and reduce energy intake. A high-energy intake is a risk factor for overweight.

^Health benefit and framing combination that is currently used by Trimb Healthcare

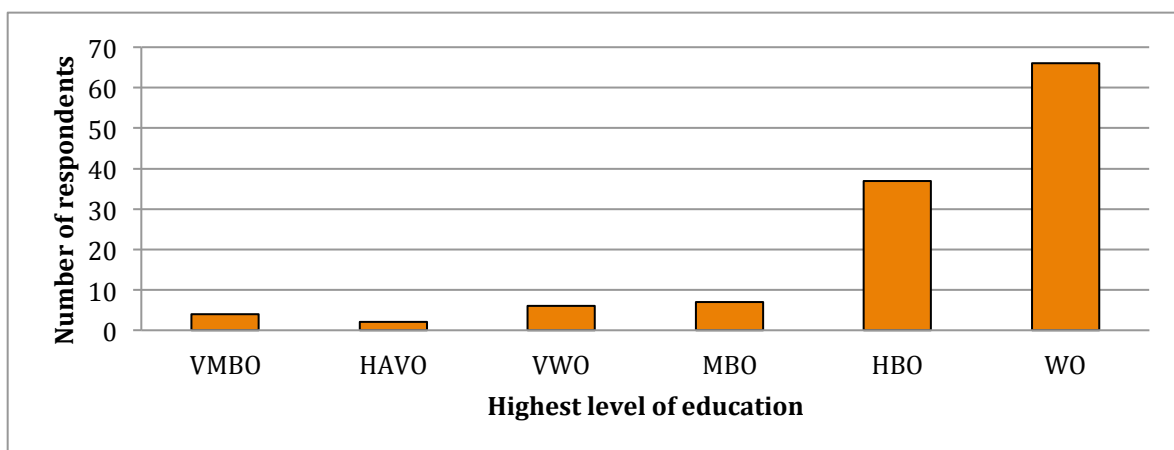
## 5. Results

### 5.1 Respondent demographics

A total of 134 people agreed to participate of whom 12 completed the questionnaire partially and 122 (39 males, 83 females) completed questionnaire fully (table 2). Table 2 provides an overview of the respondent's age category and gender. Figure 1 shows respondent's highest educational level.

**Table 2**  
Gender and age of respondents (N = 122)

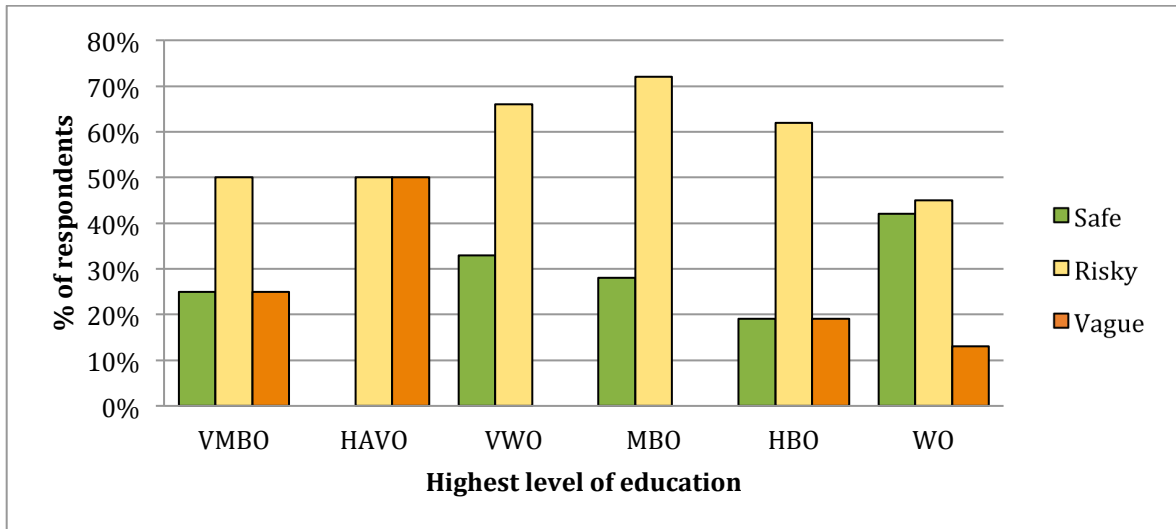
Age category		Gender		
		Male	Female	Total
	18-24	5	35	40
	25-34	2	3	5
	35-44	6	9	15
	45-54	7	13	20
	55-64	12	15	27
	65-74	6	7	13
	>74	1	1	2
<b>Total</b>		39	83	122



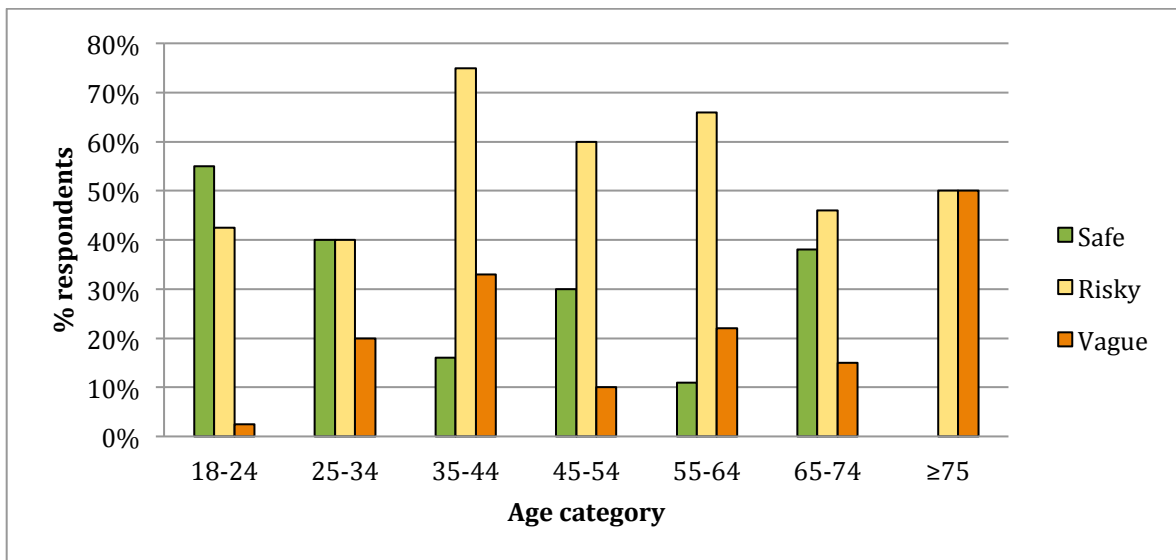
**Figure 1** Distribution of respondent's educational level (N = 122)

### 5.2 Consumer understanding

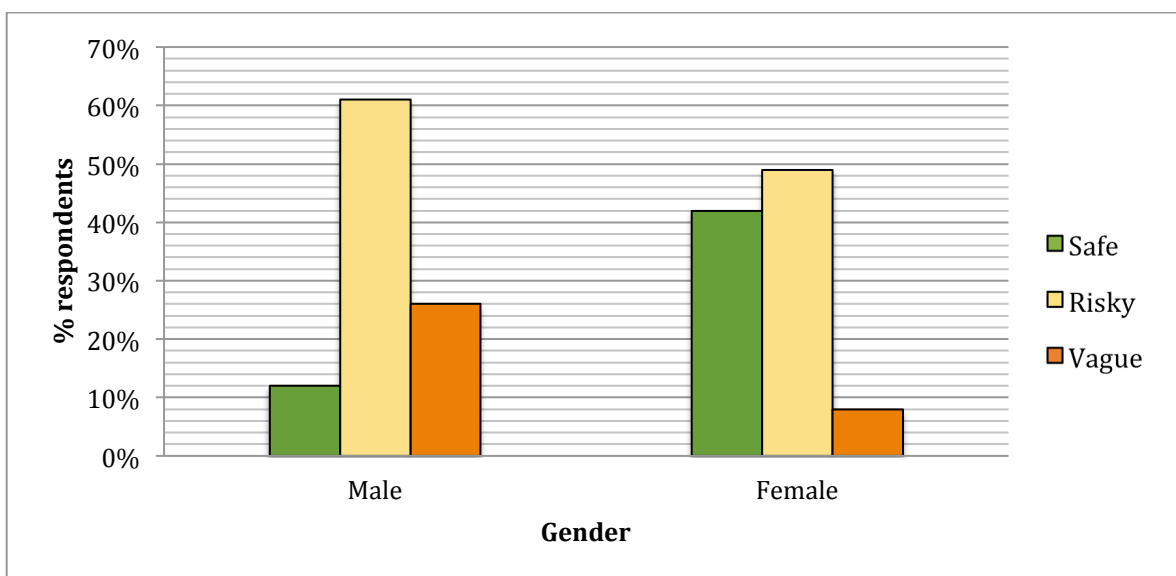
Even though 122 respondents fully completed the questionnaire, 134 respondents provided data sufficient enough to assess their level of claim understanding. Answers were content analysed by the author according to the coding scheme from Rogeaux (2011). Each answer was categorized as: *safe*, *risky* or *vague*. Out of 134 answers 47 (35%) were categorized into *safe*, accordingly 69 (51%) answers were categorized *risky* and 18 (13%) were categorized as *vague*.



**Figure 2 A** Distribution CUT category according to respondent's highest level of education (N = 122)



**Figure 2 B** Distribution of CUT category according to respondent's age (N = 122)



**Figure 2 C** Distribution of CUT category with respect to respondent's gender (N = 122)

Multiple relationships between the level of claim understanding and the respondents' socio-demographic characteristics were identified. First, figure 2A suggests a relationship between the respondents' education and their level of claim understanding. More than half of the respondent's with a university (WO) background understood Crispy Oat Heart health claims. Whereas less than 20% and less than 30% of the respondents' that had an applied university (HBO) and vocational training (MBO) background respectively.

Second, figure 2B shows that the youngest respondents, aged 18–24, understood Crispy Oat Heart Cereal better than respondents in other age categories. None of the elderly ( $\geq 75$ ) answered the CUT questions in line with the scientific data on Crispy Oat Heart Cereal. Lastly, data indicates that respondents' claim understanding was related to gender. Figure 2C shows a gap in level of claim understanding between female and males, were 42% of females and 12% of male respondents were categorized as *safe*. Furthermore, figure 2C shows that more than half (61%) of the answers of male respondents were categorized as *risky*. They did not have an adequate understanding of the health claim according to the scientific information on Crispy Oat Heart Cereal's health claims.

**Table 3** Mean (=M) scores for every CUT category on the evaluative dimensions and results of the ANOVA for *safe*, *risky* and *vague*.

	Attractiveness			Convincingness			Credibility			Overall claim appeal		
	M	F	p	M	F	p	M	F	p	M	F	p
<i>Safe</i>	4.44	1.179	0.293	4.50	1.01	0.462	4.72	0.39	0.991	4.62	1.27	0.177
<i>Risky</i>	4.12	1.028	0.434	4.93	0.85	0.652	4.70	0.71	0.805	4.58	1.37	0.109
<i>Vague</i>	3.66	1.612	0.073	<b>3.20</b>	<b>1.97</b>	<b>0.013</b>	<b>3.83</b>	<b>2.48</b>	<b>0.002</b>	<b>3.56</b>	<b>1.64</b>	<b>0.028</b>

Table 3 shows respondents mean score of the health claims on their credibility, attractiveness, convincingness and overall claim appeal. In general, respondents categorized in the *safe* and *risky* category evaluated the health claims comparable with respect to the evaluative measures: credibility, attractiveness and convincingness. This results in an almost similar score on overall claim appeal for the respondents in the *safe* and *risky* category. *Vague* respondents differed from the *safe* and *risky* respondents in their health claim evaluation. *Vague* respondents scored health claims more than one point lower on their overall claim appeal than *safe* or *risky* respondents. Results of the Analysis of variance (ANOVA) show that evaluative measures convincingness, credibility and overall claim appeal are significant for *vague* (table 3).



While more than half (51%) of the respondents were categorized in the *risky* category, because they did not have a clear understanding of the health claims, results of the ANOVA show that the level of consumer understanding did not influence the way respondents evaluated health claims on the dimensions convincingness, attractiveness and credibility. Consequently, overall claim appeal was not influenced by whether respondents claim understanding was in line with the scientific dossier on Crispy Oat Heart Cereal, and thus understood the health claims.

### 5.3 Claim appeal and optimal framing technique

**Table 4**

Means and standard deviations of respondent's scores per health claim on convincingness, attractiveness, credibility and overall claim appeal (min = 1, max = 7) (N = 122).

Claim	Convincingness M (SD)	Attractiveness M (SD)	Credibility M (SD)	Overall claim appeal M (SD)
Cholesterol				
Enhanced function	<b>4.52 (1.47)</b>	<b>4.79 (1.43)</b>	<b>4.78 (1.30)</b>	<b>4.69 (1.24)</b>
Reduction of disease risk <sup>^</sup>	<b>5.20 (1.35)**</b>	<b>5.11 (1.43)*</b>	<b>5.20 (1.35)**</b>	<b>5.18 (1.26)**</b>
Intestinal health				
Enhanced function	<b>4.38 (1.50)</b>	4.52 (1.45)	4.57 (1.47)	<b>4.49 (1.29)</b>
Reduction of disease risk	<b>4.88 (1.44)**</b>	4.67 (1.57)	4.93 (1.34)	<b>4.83 (1.34)**</b>
Blood glucose				
Enhanced function <sup>^</sup>	<b>4.51 (1.37)</b>	<b>4.60 (1.50)</b>	<b>4.77 (1.26)</b>	<b>4.63 (1.21)</b>
Reduction of disease risk	<b>4.98 (1.38)**</b>	<b>4.88 (1.45)*</b>	<b>5.04 (1.38)**</b>	<b>4.96 (1.31)**</b>
Weight control				
Enhanced function	<b>4.22 (1.42)</b>	4.84 (1.45)	4.43 (1.42)	<b>4.49 (1.27)</b>
Reduction of disease risk	<b>4.69 (1.47)**</b>	4.76 (1.52)	4.69 (1.42)	<b>4.72 (1.32)*</b>

M = mean, SD = standard deviation.

Results paired samples t - test: \* p ≤ 0.05 \*\* , p ≤ 0.001

<sup>^</sup>Health claims currently used for Crispy Oat Heart Cereal

Table 4 shows the means and standard deviations for every health claim on its convincingness, attractiveness, credibility and overall claim appeal. A paired T-test was conducted to compare the mean scores on convincingness, attractiveness, credibility and overall claim appeal for enhanced function and reduced risk disease claims. The bold figures in table 4 indicate that there is a statistically significant difference between the respondents evaluation of the two framing techniques. The results of the paired T-test are included in appendix A.

When comparing the mean scores of the cholesterol and blood glucose health claims, table 4 shows that they were evaluated as more convincing, attractive, credible and overall more appealing when a reduction of disease risk frame was used than when an enhanced function frame was used (table 4). The results from the paired T - test support this finding (table 4, appendix A)

The intestinal health claim had a higher mean for convincingness, attractiveness, credibility and overall claim appeal, when framed as a reduced risk disease claim, suggesting that the reduced risk disease claim is the optimal framing technique of this health benefit. However results from the paired T - test with respect for the intestinal health benefit indicate that there is no statistical evidence proving that reduced risk claim framing technique was found to be more attractive and credible than enhanced function frame. As for weight control, respondents evaluated the enhanced function variant of the health claim just slightly more attractive (4.84) than the reduction of disease risk health claim (4.76), but as for the intestinal claim, this finding was not statically supported by the paired T -test (Table 4).

The cholesterol health claim currently displayed on the Crispy Oat Heart Cereal packaging received the highest score on overall claim appeal. The blood glucose health claim is the second claim displayed on the packaging, but did not receive an optimal evaluation. Currently, it is framed as an enhanced function health claim, and received an overall claim appeal score of 4.63 this can be increased to a score of 4.96 when it would be framed as a reduced disease risk claim (table 4).

**Table 5**

Hierarchical ranking of health benefits and used framing technique claims based on overall claim appeal (min = 1, max = 7) (N = 122).

Framing technique	Health benefit	M score of overall claim appeal (table 3)
Reduction of disease risk	Cholesterol	5.18 ^
Reduction of disease risk	Blood glucose	4.96
Reduction of disease risk	Intestinal health	4.83
Reduction of disease risk	Weight control	4.72
Enhanced function	Cholesterol	4.69
Enhanced function	Blood glucose	4.63 ^
Enhanced function	Intestinal health	4.49
Enhanced function	Weight control	4.49

M = mean

^ health claim currently used for Crispy Oat Heart Cereal

Table 6 gives a general oversight of the mean value (M) of overall claim appeal for all health claims. The M value was derived from table 5. Reduced disease risk framed claims have a higher overall score on overall claim appeal than enhanced function framed health claims. Remarkably, the order in which the health benefits are ranked is identical for both reduced disease risk framed health claims and enhanced function framed health claims (table 5).

## 6. Conclusion and discussion

The objective of this study was to investigate (1) the extent to which Dutch consumers understand Crispy Oat Heart Cereal's currently used health claims, (2) to what extent Dutch consumers evaluate Crispy Oat Heart Cereals health claims as appealing and (3) what the optimal framing technique per individual health claim should be. 122 respondents fully completed the questionnaire, 134 respondents provided sufficient data to assess their level of claim understanding. Data was gathered with an online questionnaire consisting of standardized methodologies originating from Rogeaux (2010) and Van Kleef et al. (2005). Based on the Consumer Understanding Test (CUT) from Rogeaux (2010) the level of consumer understanding for Crispy Oat Heart Cereal's current health claims, which addresses the cholesterol and blood glucose health benefits, was investigated. It was found that over half of the respondents (51%) did not understand the health claims as presented in their current phrasing.

Furthermore results suggest that, whether a respondent found a claim to be appealing was not influenced by the level of claim understanding. This implies that the level of claim appeal is not dependent on whether consumers actually understand the claim, but rather on health claim itself specifically, the combination of health benefit and framing technique.

Results indicated that the level of claim understanding was influenced by several socio-demographic characteristics. It was found that more than half of the respondents with a university (WO) background understood Crispy Oat Heart health claims. Were this was less than 20% and less than 30% of the respondents that had an applied university (HBO) or vocational training (MBO) background respectively. The higher the respondent's education level, the better they understood the claim. This finding is in accordance with the suggestion by Grunert, Scholderer & Rogeaux (2011), that low-educated consumers understand claims less. With respect to gender, it was found that women had a better understanding of Crispy Oat Heart Cereal's claims than men. Last, it was found that the younger generation (18-24), and specifically women, understood Crispy Oat Heart Cereal's claims best, whereas the elderly ( $\geq 75$ ) had the worst claim understanding.

These findings are in line with studies that found consumer understanding to be dependent on socio-demographic characteristics (Grunert et al. 2011; Nocella & Kennedy, 2012; Williams et al. 2005; Wills et al. 2010). Knowing this, it is important for companies to bear the socio-demographic characteristics of their target group in mind when they are phrasing health

claims that must be understandable of consumers. Thus, to ensure adequate consumer understanding, the phrasing of a health claim should be adapted to socio-demographic characteristics of the product's target group.

It can be concluded that Crispy Oat Heart Cereal's claims used to communicate health benefits to consumers addresses the benefits that are rated as most appealing by respondents. More specific, the current cholesterol health claim has a reduced disease risk frame, and it has gained the highest score on overall claim appeal out of all health claims. However, the overall claim appeal of blood glucose can be increased, by using a reduced disease risk frame instead of an enhanced function frame.

This study found that for every health benefit, reduced disease risk claims received a higher average score on overall claim appeal than enhanced function framed claims. Therefore, it is concluded that the optimal framing technique for Crispy Oat Heart Cereal's claims is a reduce disease risk framing technique. While this finding confirms literature stating that reduced risk disease claims have a greater persuasive impact on consumers than enhanced function framed claims (Van Kleef et al. 2005), it contradicts literature suggesting that that consumers respond more favourably to positive (enhanced function) than negative (reduced risk disease) framing (Krishnamurthy et al. 2001; Levin et al. 1998).

Limitations lie within the fact that this study concentrated on respondents from relatively similar educational backgrounds, as the majority (84%) of the respondents, had an education level of either applied university (HBO) or university (WO). Furthermore, respondent sample was not representative of the Dutch adult population. In general, females were overrepresented; specifically females aged 18 - 24. To confirm the findings, this study should be repeated with a respondent sample representative for the Dutch population. A relationship was identified between respondent's social demographic characteristics and the level of claim understanding. However, no statistical analysis was done to validate this finding. To be fully able to scientifically support the suggestion by Grunert, Scholderer & Rogeaux (2011), that respondents understanding of Crispy Oat Heart Cereal's claims was influenced by social demographic characteristics, it is recommended that future research include statistical analysis.

This study's objective was to investigate which health claim was evaluated as most appealing by respondents. Potential explanatory variables as identified by Verbeke et al. (2009) that

could explain respondent's evaluation of Crispy Oat Heart Cereal's health claims were not part of this study. Future research, further investigating Crispy Oat Heart Cereals claim appeal among Dutch consumers, could focus on identifying explanatory variables that influence consumer's evaluation of Crispy Oat Heart Cereal's health claims.

To conclude, this study indicates that the EFSA approved health claims, currently used to communicate Crispy Oat Heart Cereal's health benefits lack consumer understanding. The level of understanding was influenced by the socio-demographic characteristics. To ensure adequate consumer understanding, the phrasing of a specific product's health claim should be adapted to the products target group, in specific, to the socio-demographic characteristics of the identified target group. The health benefits currently used by Crispy Oat Heart Cereal (cholesterol and blood glucose) were perceived as most appealing. However, the overall claim appeal of the blood glucose claim could be improved by changing the framing technique from an enhanced function framing to a reduced disease risk framing technique. In the current functional food market consumers expect foods to prevent nutrition related diseases and improve physical and mental well-being (Siró et al. 2008). If Trimb Healthcare strives for an optimal position for Crispy Oat Heart Cereal in the current functional food market, it is advisable to reconsider the framing technique that is currently used to communicate Crispy Heart Oat Cereal's blood glucose health benefits to consumers.

## References

- Beck, E. J., Tosh, S. M., Batterham, M. J., & Huang, X. F. (2009). Oat  $\beta$ -glucan ( OatWell®) increases postprandial cholecystokinin levels, decreases insulin response and extends subjective satiety in overweight subjects.. *Molecular Nutrition & Food research*, 53(10), 1343-1351. doi:10.1002/mnfr.200800343
- Betavivo. (2016). [Betavivo Voor verlaging van het cholesterol]. Geraadpleegd van <http://betavivo.nl/>
- Buul, V. J. van, & Brouns, J. P. H. (2015). Nutrition and Health Claims as Marketing Tools. *Critical Reviews in Food Science and Nutrition*, 55:11, 1552-1560. doi:10.1080/10408398.2012.754738
- Carrillo, E., Fiszman, S., Lähteenmäki, L., & Varela, P. (2014). Consumers' perception of symbols and health claims as health-related label messages. A cross-cultural study. *Food Research International*, 62, 653-661. doi:10.1016/j.foodres.2014.04.028
- DSM [A brighter life for all]. Geraadpleegd van: [http://www.dsm.com/products/nip/en\\_US/program/program-missionstatement.html](http://www.dsm.com/products/nip/en_US/program/program-missionstatement.html)
- EC (2006a). Regulation (EC) No 1924/2006 of the European Parliament and of the council of 20 December 2006 on nutrition and health claims made on foods. Off. J. Eur. Union L:9–25.
- Hieke, S., Kuljanic, N., Wills, J. M., Pravst, I., Kaur, A., Raats, M. M., ... Grunert, K. G. (2015). The role of health-related claims and health-related symbols in consumer behaviour: Design and conceptual framework of the CLYMBOL project and initial results. *Nutrition Bulletin*, 40, 66-72. doi:10.1111/nbu.12128
- Huang, X. F. (2011). Diet high in oat  $\beta$ -glucan (( OatWell®) activates the gut- hypothalamic (PYY3–36-NPY) axis and increases satiety in diet- induced obesity in mice. *Molecular Nutrition & Food research*, 55(7), 1118-1121. doi:10.1002/mnfr.201100095
- Lähteenmäki, L. (2013). Claiming health in food products. *Food Quality and Preference*, 27, 196-201. doi:10.1016/j.foodqual.2012.03.006
- Lähteenmäki, L., Lampila, P., Grunert, K., Boztug, Y., Ueland, Ø., Åström, A., et al. (2010). Impact of health-related claims on the perception of other product attributes. *Food Policy*, 35, 230–239.
- Leathwood, P. D., Richardson, D. P., Strater, P., Todd, P. M. and van Trijp, H. C. M. (2007). Consumer understanding of nutrition and health claims: Sources of evidence. *Brit. J. Nutr.* 98:474–484.
- Mariotti, F., Kalonji, E., Huneau, J. F. and Margaritis, I. (2010). Potential pit- falls of health claims from a public health nutrition perspective. *Nutr. Rev.* 68:624–638.
- Nocella, G., & Kennedy, O. (2012). Food health claims – What consumers understand. *Food Policy*, 37, 571-580. doi:10.1016/j.foodpol.2012.06.001

Regulation (EC) No 1924/2006 of the European Parliament and of the Council of 20 December 2006 on nutrition and health claims made on foods. Official Journal of the European Union L 404, 9–25.

Roberfroid, M. B. (2002). Global view on functional foods: European perspectives. *British Journal of Nutrition*, *ee*, 133-138. doi:10.1079/BJN2002677

Rogeaux, M. (2010). Consumer understanding and reaction to health claims. Insights and methodology. In S. R. Jaeger & H. MacFie (Eds.), *Consumer-driven innovation in food and personal care products* (pp. 277–302). Cambridge: Woodhead.

Siró, I., Kápolna, E., Kápolna, B., & Lugasi, A. (2008). Functional food. Product development, marketing and consumer acceptance—A review. *Appetite*, *51*, 456-467. doi:10.1016/j.appet.2008.05.060

Van Kleef, E., van Trijp, H., and Luning, P. (2005). Functional foods: Health claim-food product compatibility and the impact of health claim framing on consumer evaluation. *Appetite* 44:299–308.

Van Kleef, E., Van Trijp, H., Paeps, F., and Fernandez-Celem\_in, L. (2008). Consumer preferences for front-of-pack calories labelling. *Public Health Nutr.* 11:203–213.

Verhagen, H., Vos, E., Francl, S., Heinonen, M., and Van Loveren, H. (2010). Status of nutrition and health claims in Europe. *Arch. Biochem. Biophys.* 501:6–15.

Williams, P. (2005). Consumer understanding and use of health claims for foods. *Nutr. Rev.* 63:256–264.

Wills, J., Storcksdieck, G. B. S., Kolka, M. and Grunert, K. (2012). European consumers and health claims: Attitudes, understanding and purchasing behaviour. *Proc. Nutr. Soc.* 71:229–236.

<http://www.naturalproductsinsider.com/Blogs/trending-foods/2014/11/Global-Functional-Foods-Sector-Continues-to-Grow.aspx>

## Appendix A - Results paired T - test

**Table 6** Results paired T-test for the mean scores on convincingness, attractiveness, credibility and overall claim appeal for every health benefit \* framing technique combination

Claim	Convincingness Sig. (2-tailed)	Attractiveness Sig. (2-tailed)	Credibility Sig. (2-tailed)	Overall claim appeal Sig. (2-tailed)
Cholesterol				
Enhanced function	<b>0.000</b>	<b>0.003</b>	<b>0.000</b>	<b>0.000</b>
Reduction of disease risk*				
Intestinal health				
Enhanced function	<b>0.000</b>	0.121	0.659	<b>0.000</b>
Reduction of disease risk				
Blood glucose				
Enhanced function*	<b>0.000</b>	<b>0.023</b>	<b>0.001</b>	<b>0.000</b>
Reduction of disease risk				
Weight control				
Enhanced function	<b>0.001</b>	0.615	0.063	<b>0.048</b>
Reduction of disease risk				

## Appendix B - Questionnaire

1 Beste deelnemer,

Mijn naam is Caroline de Kleuver. Momenteel ben ik in de laatste fase van mijn studie Bedrijf - en consumentenwetenschappen aan de Wageningen universiteit. Hiervoor ben ik bezig met mijn bachelor scriptie in de vorm van een consumenten onderzoek. Met dit onderzoek wil ik inzicht krijgen in hoe de producteigenschappen van 'Betavivo - knapperige haverhartjes' beoordeeld worden door de Nederlandse consument. Ik ben geïnteresseerd in uw eigen mening. De data zal anoniem verwerkt worden. Om deel te nemen aan dit onderzoek hoeft u dit product niet te kennen, benodigde informatie wordt gaandeweg verstrekt. Met dit onderzoek wil ik inzicht krijgen in hoe producteigenschappen van Betavivo knapperige haverhartjes door consumenten beoordeeld worden. Ik ben geïnteresseerd in uw eigen mening. De vragenlijst bestaat uit 2 open vragen en 22 gesloten vragen. Het invullen van de vragenlijst zal ongeveer 10 minuten in beslag nemen. Onder alle deelnemers zal drie keer OatWell Original (t.w.v. 28€) verloot worden. Als u kans wilt maken op 1 van deze 3 producten dan kunt u aan het einde van de vragenlijst uw email adres achterlaten. Indien u vragen of opmerkingen heeft dan kunt u mij bereiken via: caroline.dekleuver@wur.nl Hartelijk dank voor uw deelname.

2 Hier ziet u de verpakking van Betavivo knapperige haverhartjes. In rest van deze vragenlijst zal ik dit product 'Haverhartjes' noemen. De haverhartjes hebben een knapperige textuur en een aangename, milde havermout smaak en kunnen als ontbijtgranen of als tussendoortje gegeten worden. Haverhartjes zijn verkrijgbaar bij gezondheidswinkels en drogisterijen. Op de verpakking van Haverhartjes staan twee claims. Cholesterol: het is aangetoond dat bétaglucaan uit haver het bloedcholesterol verlaagt. Een hoog cholesterol gehalte is een risicofactor voor de ontwikkeling van hart- en vaatziekten. Bloedsuiker: de consumptie van bétaglucaan uit haver als onderdeel van een maaltijd draagt bij aan de verlaging van de bloedglucosestijging na de maaltijd. Een verpakking Haverhartjes bevat 15 portiezakjes. Een portiezakje Betavivo knapperige haverhartjes (23g) bevat 3 gram bétaglucaan uit haver. Dit



is de dagelijkse hoeveelheid die nodig is om het cholesterol en de bloedsuikerspiegel te verlagen.



3a Als u, nu u deze verpakking gezien heeft, aan een vriend wilt vertellen wat Haverhartjes voor de gezondheid doet, wat zou u dan zeggen?

3b En als u aan een vriend wilt vertellen hoe Haverhartjes werken, hoe zou u dat dan uitleggen?

4 Hieronder staan twee stellingen. Geef aan in hoeverre u eens bent met deze stellingen

	volledig mee oneens	oneens	enigszins oneens	neutraal	enigszins eens	eens	volledig mee eens
Wat ik eet heeft grote invloed op mijn persoonlijke gezondheid	•	•	•	•	•	•	•
Ik heb het gevoel dat ik controle heb over mijn persoonlijke gezondheid	•	•	•	•	•	•	•

5 De onderstaande vraag gaat over 'functionele levensmiddelen'. Hieronder volgt een definitie van functionele levensmiddelen. Lees deze goed door voordat u de vraag beantwoordt. "Functionele levensmiddelen zijn normale levensmiddelen die nutriënten of anderen ingrediënten in verhoogde of verminderde proporties bevatten waardoor het product gezondheidsvoordelen met zich mee brengt. Deze gezondheidsvoordelen worden gecommuniceerd naar de consument door middel van gezondheidsclaims weergegeven op de verpakking van het product." Als u uw kennis over functionele levensmiddelen zou vergelijken met de kennis die leeftijdgenoten met een gelijke achtergrond hebben over functionele levensmiddelen, hoe zou u het niveau van uw kennis inschatten?

	veel lager	lager	enigszins lager	ongeveer hetzelfde	enigszins hoger	hoger	veel hoger
Het niveau van mijn kennis is:	•	•	•	•	•	•	•

6 De onderstaande drie vragen gaan in op uw mening over functionele levensmiddelen. Dezelfde definitie van functionele levensmiddelen staat nog een keer weergegeven. U kunt deze definitie gebruiken wanneer u de onderstaande vragen beantwoordt. "Functionele levensmiddelen zijn normale levensmiddelen die nutriënten of anderen ingrediënten in verhoogde of verminderde proporties bevatten waardoor het product gezondheidsvoordelen met zich mee brengt. Deze gezondheidsvoordelen worden gecommuniceerd naar de consument door middel van gezondheidsclaims weergegeven op de verpakking van het product."

7 Geef aan in hoeverre u functionele levensmiddelen als positief evalueert.

	absoluut negatief	negatief	enigszins negatief	neutraal	enigszins positief	positief	absoluut positief
Ik vind functionele levensmiddelen:	•	•	•	•	•	•	•

8 Geef aan in hoeverre u functionele levensmiddelen aantrekkelijk vindt.

	absoluut niet aantrekkelijk	niet aantrekkelijk	enigszins niet aantrekkelijk	neutraal	enigszins aantrekkelijk	aantrekkelijk	absoluut aantrekkelijk
Ik vind functionele levensmiddelen:	•	•	•	•	•	•	•

9 Geef aan in hoeverre u functionele levensmiddelen interessant vindt.

	absoluut niet interessant	niet interessant	enigszins niet interessant	neutraal	enigszins interessant	interessant	absoluut interessant
Ik vind functionele levensmiddelen :	•	•	•	•	•	•	•

10 De onderstaande drie vragen gaan in op uw mening over functionele levensmiddelen. Dezelfde definitie van functionele levensmiddelen staat nog een keer weergegeven. U kunt deze definitie gebruiken wanneer u de onderstaande vragen beantwoordt. "Functionele levensmiddelen zijn normale levensmiddelen die nutriënten of anderen ingrediënten in verhoogde of verminderde proporties bevatten waardoor het product gezondheidsvoordelen met zich mee brengt. Deze gezondheidsvoordelen worden gecommuniceerd naar de consument door middel van gezondheidsclaims weergegeven op de verpakking van het product."

11 Geef aan in hoeverre u functionele levensmiddelen als belangrijk vindt.

	absoluut niet belangrijk	niet belangrijk	enigszins niet belangrijk	neutraal	enigszins belangrijk	belangrijk	absoluut belangrijk
Ik vind functionele levensmiddelen:	•	•	•	•	•	•	•

12 Geef aan in hoeverre u het eens bent met de onderstaande stelling.

	volledig mee oneens	oneens	enigszins mee oneens	neutraal	enigszins mee eens	eens	volledig mee eens
Functionele levensmiddelen zijn te duur en niet meer dan een marketing truc.	•	•	•	•	•	•	•

13 Geef aan in hoeverre u het eens bent met de onderstaande stelling.

	volledig mee eens	oneens	enigszins mee oneens	neutraal	enigszins mee eens	eens	volledig mee eens
Functionele levensmiddelen helpen bij een gezonde levensstijl.	•	•	•	•	•	•	•

14 Hieronder staan vier verschillende claims. Geef voor elke claim aan in hoeverre u deze aantrekkelijk vindt.

	Absoluut niet aantrekkelijk	Niet aantrekkelijk	Enigszins niet aantrekkelijk	Neutraal	Enigszins aantrekkelijk	Aantrekkelijk	Absoluut aantrekkelijk
De consumptie van bétaglucaan uit haver als onderdeel van een maaltijd draagt bij aan de verlaging van het cholesterol gehalte.	•	•	•	•	•	•	•
De consumptie van bétaglucaan uit haver als onderdeel van een maaltijd draagt bij aan een gezonde stoelgang.	•	•	•	•	•	•	•

<p>De consumptie van bétaglucaan uit haver als onderdeel van een maaltijd draagt bij aan de verlaging en stabilisering van de bloedglucosestijging na de maaltijd.</p>	•	•	•	•	•	•	•
<p>De consumptie van bétaglucaan uit haver als onderdeel van een maaltijd verminderd het hongergevoel.</p>	•	•	•	•	•	•	•

14 Hieronder staan vier verschillende claims. Geef voor elke claim aan in hoeverre u deze geloofwaardig vindt.

	Absoluut niet geloofwaardig	Niet geloofwaardig	Enigszins niet geloofwaardig	Neutraal	Enigszins geloofwaardig	Geloofwaardig	Absoluut geloofwaardig
De consumptie van bétaglucaan uit haver als onderdeel van een maaltijd draagt bij aan de verlaging van het cholesterol gehalte.	•	•	•	•	•	•	•
De consumptie van bétaglucaan uit haver als onderdeel van een maaltijd draagt bij aan een gezonde stoelgang.	•	•	•	•	•	•	•
De consumptie van bétaglucaan uit haver als onderdeel van een maaltijd draagt bij aan de verlaging en stabilisering van de bloedglucosestijging na de maaltijd.	•	•	•	•	•	•	•
De consumptie van bétaglucaan uit haver als onderdeel van een maaltijd vermindert het hongergevoel.	•	•	•	•	•	•	•

15 Hieronder staan vier verschillende claims. Geef voor elke claim aan in hoeverre u deze overtuigend vindt.

	Absoluut niet overtuigend	Niet overtuigend	Enigszins niet overtuigend	Neutraal	Enigszins overtuigend	Overtuigend	Absoluut overtuigend
De consumptie van bétaglucaan uit haver als onderdeel van een maaltijd draagt bij aan de verlaging van het cholesterol gehalte.	•	•	•	•	•	•	•
De consumptie van bétaglucaan uit haver als onderdeel van een maaltijd draagt bij aan een gezonde stoelgang.	•	•	•	•	•	•	•
De consumptie van bétaglucaan uit haver als onderdeel van een maaltijd draagt bij aan de verlaging en stabilisering van de bloedglucosestijging na de maaltijd.	•	•	•	•	•	•	•
De consumptie van bétaglucaan uit haver als onderdeel van een maaltijd verminderd het hongergevoel.	•	•	•	•	•	•	•

16 Hieronder staan vier verschillende claims. Geef voor elke claim aan in hoeverre u deze aantrekkelijk vindt.

	Absoluut niet aantrekkelijk	Niet aantrekkelijk	Enigszins niet aantrekkelijk	Neutraal	Enigszins aantrekkelijk	Aantrekkelijk	Absoluut aantrekkelijk
<p>Het is aangetoond dat bètaglucaan uit haver het bloedcholesterol verlaagt. Een hoog cholesterol gehalte is een risico factor voor de ontwikkeling van hart- en vaatziekten.</p>	•	•	•	•	•	•	•
<p>Het is aangetoond dat bètaglucaan uit haver de stoelgang bevordert. Een slechte stoelgang is een risico factor van een slechte vertering van voedsel en bijgaande klachten (bijvoorbeeld een opgeblazen gevoel).</p>	•	•	•	•	•	•	•
<p>Het is aangetoond dat bètaglucaan uit haver de bloedglucosestijging stabiliseert. Een hoog bloedglucose niveau is een risico factor voor de ontwikkeling van diabetes.</p>	•	•	•	•	•	•	•
<p>Het is aangetoond dat bètaglucaan uit haver de energie inname vermindert. Een hoge energie inname is een</p>	•	•	•	•	•	•	•



risico factor voor de ontwikkeling van overgewicht.							
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17 Hieronder staan vier verschillende claims. Geef voor elke claim aan in hoeverre u deze geloofwaardig vindt.

	Absoluut niet geloofwaardig	Niet geloofwaardig	Enigszins niet geloofwaardig	Neutraal	Enigszins geloofwaardig	Geloofwaardig	Absoluut geloofwaardig
<p>Het is aangetoond dat bètaglucaan uit haver het bloedcholesterol verlaagt. Een hoog cholesterol gehalte is een risico factor voor de ontwikkeling van hart- en vaatziekten.</p>	•	•	•	•	•	•	•
<p>Het is aangetoond dat bètaglucaan uit haver de stoelgang bevordert. Een slechte stoelgang is een risico factor van een slechte vertering van voedsel en bijgaande klachten (bijvoorbeeld een opgeblazen gevoel).</p>	•	•	•	•	•	•	•
<p>Het is aangetoond dat bètaglucaan uit haver de bloedglucosestijging stabiliseert. Een hoog bloedglucose niveau is een risico factor voor de ontwikkeling van diabetes.</p>	•	•	•	•	•	•	•
<p>Het is aangetoond dat bètaglucaan uit</p>	•	•	•	•	•	•	•

haver de energie inname vermindert. Een hoge energie inname is een risico factor voor de ontwikkeling van overgewicht.							
--	--	--	--	--	--	--	--

18 Hieronder staan vier verschillende claims. Geef voor elke claim aan in hoeverre u deze overtuigend vindt.

	Absoluut niet overtuigend	Niet overtuigend	Enigszins niet overtuigend	Neutraal	Enigszins overtuigend	Overtuigend	Absoluut overtuigend
<p>Het is aangetoond dat bétaglucaan uit haver het bloedcholesterol verlaagt. Een hoog cholesterol gehalte is een risico factor voor de ontwikkeling van hart- en vaatziekten.</p>	•	•	•	•	•	•	•
<p>Het is aangetoond dat bétaglucaan uit haver de stoelgang bevordert. Een slechte stoelgang is een risico factor van een slechte vertering van voedsel en bijgaande klachten (bijvoorbeeld een opgeblazen gevoel).</p>	•	•	•	•	•	•	•
<p>Het is aangetoond dat bétaglucaan uit haver de bloedglucosestijging stabiliseert. Een hoog bloedglucose niveau is een risico factor voor de ontwikkeling van diabetes.</p>	•	•	•	•	•	•	•
<p>Het is aangetoond dat bétaglucaan uit haver de energie inname vermindert. Een hoge energie inname is een</p>	•	•	•	•	•	•	•

risico factor voor de ontwikkeling van overgewicht.							
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19 Door dagelijks een portie Haverhartjes te eten ervaart de consument vier gezondheidsvoordelen. De ervaren gezondheidsvoordelen staan hieronder. Geef aan welke van deze voordelen voor u persoonlijk relevant zijn. Meerdere antwoorden zijn mogelijk.

1. 1. Een verlaging van het cholesterol
2. 2. Een stabiel bloedglucose niveau
3. 3. Een gezonde stoelgang
4. 4. Een vermindering in energie-inname
5. Geen van alle

20 Is er iemand in uw directe omgeving die baat zou hebben bij een van de gezondheidsvoordelen? Meerdere antwoorden zijn mogelijk

6. Ja; een verlaging van het cholesterol
7. Ja; een stabiel bloedglucose niveau
8. Ja; een gezonde stoelgang
9. Ja; een vermindering in energie-inname
10. Nee

21 Hoeveel euro zou u bereid zijn om voor Haverhartjes te betalen?

22 Geef aan of u een man of een vrouw bent

- Man
- Vrouw

23 Wat is uw leeftijd?

24 Wat is uw hoogst genoten opleiding? Dit is het hoogste niveau van opleiding die u gedaan heeft, u hoeft deze niet te hebben afgerond.

- VMBO
- HAVO
- VWO
- MBO
- HBO
- WO

25 Dit is het einde van de vragenlijst. Hartelijk dank voor het invullen van deze vragenlijst! Drie verpakkingen van het cholesterol verlagende product 'OatWell Original' zullen worden verloot. Als u kans wilt maken op 1 van de 3 OatWell (t.w.v 28€) producten, dan kunt u hieronder uw email adres achterlaten.

26 Als u een samenvatting van de resultaten van dit onderzoek wilt ontvangen, dan kunt u hier uw email adres achterlaten.