

# **‘Consumer Understanding of Vegan and Vegetarian Food Labelling in the Netherlands’**

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## Preface

Before you, the research proposal prepared by Marit Zwinselman in order to fulfil the graduation requirements of the International Food Business program at Aeres University of Applied Sciences and Dalhousie University is presented.

The research will be conducted in the Netherlands and the aim of the research is to find out whether the vegan and vegetarian labelling systems used in Dutch supermarkets is understood properly by the consumer. This research question was formulated together with my coach, Ms. Akkermans. I would like to thank Ms. Akkermans for her excellent guidance and feedback during the process.

After transitioning towards a mostly vegan diet myself, the vegan and vegetarian meat substitute market became an essential part of my diet. However, after moving back home during the Covid-19 virus, my parents did most of the grocery shopping. I told them my preference for meat substitutes were the vegan alternatives, not the vegetarian alternatives. As they were not familiar with the meat substitutes yet, they used the labels on the packaging to decide what to buy for me. However, many times they would accidentally buy vegetarian products instead of vegan products because they misunderstood the labels used in the grocery stores. These incidents made me realise that my parents are probably not the only consumers struggling with this issue. This fascinated me to investigate the manner further and use it as my inspiration to write this thesis.

The feedback provided by Professor Heather Ann Grant has been taken into account for this final version and improvements have been made.

I hope you enjoy your reading.

Marit Zwinselman

Heino, June 2021

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## Summary

The growing interest in vegan and vegetarian diets around the world, gave the vegan and vegetarian food alternative sector a significant boost. This happened also in the Netherlands. As especially vegans try to distance themselves from all animal products, it is important that the Dutch consumer understands the difference between vegan and vegetarian products. Vegetarian products often contain lactose or egg in some form. Therefore, these products are not suitable for vegan diets. However, is the difference between these two products clear enough to the consumer?

The aim of this research is to find out whether the vegan and vegetarian logos used on food packaging in the supermarkets are properly understood by the Dutch consumers. Therefore, the main question of ‘To what extent are the vegetarian and vegan labelling methods of food products understood by the Dutch consumers?’ was formulated.

To answer this research question, a questionnaire was the appropriate research method. During the questionnaire, the participants were asked to identify their gender, age, education and preferred diet. From there, they were presented with four logos used in different supermarkets in the Netherlands and they were asked to indicate whether this logo mean the product is suitable for vegetarians only, or suitable for vegans and vegetarians. From the answers to this question, it turned out that the logo used in Albert Heijn was the most confusing to the consumers. This logo design was the only logo using the abbreviation ‘VEGA’ for its vegetarian products. This was often times misunderstood and seen as a vegan logo.

Based on this outcome, the results gathered from the Albert Heijn logo were analysed thoroughly through statistical tests and it turned out that especially participants aged 24 or younger who identify as omnivore struggled to answer this question correctly. Besides these findings, the participants were also presented with the opportunity to share their thoughts about the logos in the Netherlands. The overall conclusion that can be made after analysing all the ideas is that there is a need for a uniform system where only one logo is used in all supermarkets. Also, they mentioned that they prefer the Dutch terms of ‘vegan’ and ‘vegetarian’ over the English terms, and that a combination with the word and a significant colour would make it easier to understand for everyone.

## 1. Introduction

As dietary habits shift towards a more plant-based lifestyle throughout Europe, the range of vegetarian and vegan products is increasing accordingly (Domke, 2018). However, questions about the clarity of food labelling specifically in terms of vegan and vegetarian products remain to be solved (Domke, 2018). Numerous methods of vegan and vegetarian food labelling systems are being used in the Netherlands. The effectiveness of this remains questionable. Are these methods clear to the consumer? This research explores the consumers understanding of the vegan and vegetarian labelling methods used in the Netherlands.

### 1.1 Vegan Market

The number of vegetarians and vegans is steadily increasing in European countries (Domke, 2018). Even though the world's population and rising disposable incomes has led to an increase in global meat consumption, concerns associated with health, social and environmental issues related to high levels of meat consumption has stimulated calls to reduce the quantity of meat that is consumed (Apostolidis & McLeay, 2016). This created an ongoing global debate amongst policy makers, practitioners and academics (Apostolidis & McLeay, 2016). As a result, the European retail sales of meat and dairy alternatives grew by almost 10% per year between 2010 and 2020 (Geijer, 2020). In fact, the Netherlands encountered an increase in meat substitutes revenue from €58.4 million in 2007 to €97.6 million in 2018, while forecasting a continuous increase in the future (Statista, 2020a). Furthermore, a survey in the Netherlands revealed that from 2017 till 2020, the share of vegetarian people increased from 6% of the respondents between 18-70 years old, to 12% (Statista, 2020b). Besides that, the number of flexitarian people increased from 31% in 2017 to 50% in 2020 (Statista, 2020b).

Not only Europe is seeing this trend within the vegan and vegetarian sector, but this is happening in various countries. In the USA for example, the plant-based sales value grew with 11.4% in 2019, whereas the value of the total food retail only increased with 2% compared to the previous year (Wunch, 2020). Also, Canada is experiencing an enormous growth of meat substitute sales. The market is expected to grow from 119.9 million U.S. dollars in 2015 to 226.7 million U.S. dollars in 2022 (Bedford, 2020).

This growing trend in demand directly results in an increasing supply. Food labelling is used to provide the consumer with information to make an informed choice about foods and drinks at the grocery store and at home (Government of Canada, 2020). Food labels are used by producers in order to compare and choose products more easily, to know what ingredients a food product contains and to choose products with a little or a lot of nutrients that are of interest to the consumer (Government of Canada, 2020). Naturally, it can be assumed that this growing trend of meat alternatives comes with new regulations accordingly (Vegconomist, 2018). However, this is not the case when it comes to vegan and vegetarian products. According to a study done in the UK by Ubamarket, a quarter of vegetarians and vegans have unknowingly consumed meat due to unclear food labelling (Vegconomist, 2018). The research concluded that 40% of the consumers do not fully understand what they are eating (Vegconomist, 2018). Therefore, unclear legal provisions lead to confusion on the part of the consumer, who rely on clear and transparent rules to avoid similar misunderstandings (Domke, 2018).

### 1.2 Motives for Following a Vegan or Vegetarian Diet

A vegan diet is one that is exclusively restricted to the consumption of plant-based foods (Richter et al., 2016). Whereas a vegetarian diet, overall avoids meat, but still consumes a selected amount of animal products like eggs and milk (Richter et al., 2016).

Besides religion, there are broadly speaking four reasons which can be used to categorize the motives of people to switch towards a vegan or vegetarian diet (Hopwood, Bleidorn, Schwaba & Chen, 2020). These are: trying to reduce their consumption of animal products, health, animal welfare and environmental concerns (Hopwood, Bleidorn, Schwaba & Chen, 2020). Research has shown that in general, vegans and vegetarians are slimmer, have lower serum cholesterol and blood pressure, and have a lower risk for cardiovascular diseases (Craig, 2009). Vegans and vegetarians are against large scale farming and the poor conditions it brings to the animals (Springer & Grimm, 2018). Consuming meat can be seen as supporting this industry and therefore vegan and vegetarians' distance themselves from meat (or all animal) consumption (Springer & Grimm, 2018). The impact of animal agriculture on the environment raises several concerns like environmental degradation, greenhouse gas emissions and freshwater usage (Chai et al., 2019). In fact, agriculture alone is fully responsible for 10-12% of the global greenhouse gasses (Chai et al., 2019).

However, recently a new motive presented itself for people to switch towards a more plant-based diet: the Covid-19 virus. Especially in Asian countries, sales of plant-based meat alternatives increased exponentially after the outbreak of the virus in 2020 (Shibata, Phoonphongphiphat & Watanabe, 2020). Distrust in the government results in many consumers seeking for a safe meat alternative, as there is reason to believe there is a possible link between the consumption of animal meat and the outbreak of the Covid-19 virus (Shibata, Phoonphongphiphat & Watanabe, 2020). Due to these new developments, the Asian plant-based market is expected to grow by 200% over the next five years and will reach a market value of US\$1.7 billion (Ho, 2021).

### 1.3 Definition Food Labelling

Food labelling is the primary means of communication between the producer and seller of food on one hand, and the purchaser and consumer on the other (Tobi et al., 2019). It provides information on key characteristics of the food items, as well as potentially driving more sustainable food choices or demands (Tobi et al., 2019). According to the general principles of the Codex Alimentarius, labels on pre-packaged foods for special dietary uses are not allowed to be described or presented in a manner that is false, misleading or deceptive (FAO & WHO, 2007).

Food labelling means any inscriptions, detailed data, trademarks, brand names, illustrations or symbols referring to the foodstuff and placed on any type of packaging, document, leaflet, label, ring or collar accompanying such food or relating to it (Wyrwa & Barska, 2017). The clarity of the label is an important part of the increase of the likelihood that the information on labels will have an impact on consumers (Wyrwa & Barska, 2017). Unreadable information on products is one of the main causes of consumer dissatisfaction with food labelling (Wyrwa & Barska, 2017). The concept of 'readability' is defined as the physical appearance of the information by which the information is visually available to the general public and which is determined by various elements, such as the font size, colour, font type, and the background. Labelling of products is crucial for ensuring security and reliable nutrition information for consumers (Wyrwa & Barska, 2017). It is also one of the ways to monitor trade and risk management throughout the entire chain (Wyrwa & Barska, 2017).

For the labelling of prepacked foods, the European Commission created a list of mandatory particulars that are required to be provided to the final consumer according to Regulation (EU) No 1169/2011 (European Commission, n.d.). This includes the name of the food, list of ingredients, any ingredients causing allergies or intolerances, quantity of ingredients, net quantity, date of minimum durability ('best before' or 'use by' date), storage conditions, name or business name and address of the business operator, country of origin, instructions for use, nutrition declaration and in case of alcohol content, the actual alcoholic strength by volume (European Commission, n.d.).

In order to make specific claims about the food product, additional regulations have to be met (Marcotrigiano et al., 2018). The Codex Alimentarius states that these claims should be in accordance with the national practices in the country where the food is sold (FAO & WHO, 2007).

Surprisingly, clear definitions of the words 'vegan' and 'vegetarian' for the purpose of food labelling do not exist, neither on European level nor European member state level (Sochirca, 2018). A proposal was presented to the FAO to record these terms in the General Standard for the Labelling of pre-packaged foods (CODEX STAN 1-1985). However, no action was taken due to the fact that current definitions and understandings of these words differentiate from country to country too much in order for the FAO to develop international guidelines and a common definition (FAO, 2018).

#### 1.4 Vegan and Vegetarian Labelling in the Netherlands, EU and outside the EU

As there is no legislation about vegan and vegetarian food labelling given from the European Union or the Netherlands itself, certification bodies are responsible for the distribution of the labels (Sochirca, 2018). Europe has an internationally recognized symbol for vegetarian and vegan products and services since the early 1970's (V-Label EU, n.d.). These labels are designed to simplify the shopping experience of the consumer as well as ensuring them the product is safe to consume within the boundaries of their diets (V-Label EU, n.d.). The European V-Label differentiates its vegan and its vegetarian label by adding 'VEGAN' or 'VEGETARIAN' below the sign (V-Label EU, n.d.). Nonetheless, the design of both symbols looks similar in colour and shape, as seen in figure 1.



Figure 1 European V-Label for vegan (left) and Vegetarian (right) food products (V-Label EU, n.d.)

Besides the European label, supermarkets in the Netherlands also use their own label on private label products. Table 1 shows the different labels from the four largest retailers in the Netherlands (Albert Heijn, Jumbo, Lidl and Aldi).



Table 1 Overview Vegan/Vegetarian Labels Categorized by Supermarket (Zwinselman, 2021).

Store	Vegan label	Vegetarian label
Albert Heijn (Albert Heijn, n.d.)		
Jumbo (Jumbo, n.d.)		
Lidl (Lidl, n.d.)		
Aldi (Aldi, n.d.)		

All four supermarkets use different symbols to indicate whether or not a product is suitable for vegetarians only, or vegans and vegetarians. As shown in Table 1, the labels used in each supermarket are very similar in appearance for the two diets and could potentially confuse the consumer. Only the Lidl is using the European V-Label on its private label products. These labels will be used later in the study to create a picture of the consumer understanding of these labels.

Also, in other countries, different logos are used for vegan and vegetarian products. Below the logos used in India, the United Kingdom and Canada are discussed since they use different approaches in labelling.

In 2011 the Indian state decided that clear labelling of vegetarian and non-vegetarian products is mandatory (Fischer, 2020). This is done by the national regulation system of the ‘green’ and ‘brown’ dot (Fischer, 2020). The green dot indicates that the product is suitable for vegetarians, while the brown dot indicates that the products is non-vegetarian, as illustrated in figure 2 (Government of India, n.d.). A specific dot for vegan products does not exist at the moment.



Figure 2 Indian Vegetarian and Non-Vegetarian Label (Government of India, n.d.)

The United Kingdom also has its own logos. These two are provided by different organizations. The vegetarian logo is provided by the UK’s Vegetarian Society (The

Vegetarian Society, n.d.), whereas the vegan logo is supported by the Vegan Society (The Vegan Society, n.d.). These logos are very different in appearance, as shown in Figure 3.



*Figure 3 Vegetarian and Vegan Label UK (The Vegan & Vegetarian Society, n.d.)*

Canada's biggest vegan and vegetarian certification body is the VegeCert non-profit organization (VegeCert, 2018). The Toronto Vegetarian Association consulted with VegeCert to formulate high standards for their certified products (VegeCert, 2018). VegeCert has two designations, "certified vegetarian" for products that do not contain any meat, poultry, fish, seafood or insects, and "certified vegan" for products that contain no animal or animal by-products whatsoever, including dairy and eggs (VegeCert, 2018). The Toronto Vegetarian Association is an organization that aims to inspire people to choose a healthier, greener, more compassionate lifestyle through plant-based eating (Toronto Vegetarian Association, 2018). Figure 4 shows the difference in the Canadian vegan and vegetarian label. In design and color use, these two logos are very similar like the European V-label. Likewise, they only differ in the word 'VEGAN' and 'VEGETARIAN'.



*Figure 4 Vegan and Vegetarian Label Canada (VegeCert, 2018)*

Even though, there are many other vegan and vegetarian labels that are being used all around the world, essentially, they all look similar to the labels discussed before (Wyrwa & Barska, 2017). Therefore, no further labels will be discussed.

### 1.5 Understanding Dutch Labelling Methods

As there are many different vegan and vegetarian labelling methods used in the Netherlands, it becomes questionable whether the consumer understands the difference between the labels used for vegan and vegetarian products. The similarity of these two logos can be highly confusing (Wyrwa & Barska, 2017). As vegetarian products cannot be consumed by individuals following a vegan diet, transparency and clarity of the labels is of the utmost

importance. Furthermore, taking into account that unclear information on products is one of the main causes of consumer dissatisfaction with food labelling, the aim of this research is to find out whether or not the consumer understands the difference between vegan and vegetarian logos (Wyrwa & Barska, 2017). In order to find an answer and clarify this knowledge gap, the main question of this research is ‘To what extent are the vegetarian and vegan labelling methods of food products understood by the Dutch consumers?’. To formulate an answer for this main question, sub questions have been formulated:

1. How does the consumer decide whether a product is suitable for vegans or vegetarians based on the packaging?
2. To what extent do the consumers know the meaning of vegan and vegetarian labels used by Dutch supermarkets?
3. What is the consumers opinion about the clarity and transparency of the logos used in the Netherlands?
4. To what extent does the consumer think the labelling systems used abroad are clearer than the labelling systems used in the Netherlands?

The goal of this research is to find out if the current vegan and vegetarian labels used in the Dutch supermarkets are properly understood by the Dutch consumer. This study will be useful for both consumers seeking for more plant-based alternatives as well as the retailers, wholesalers & food producers providing these products. The study might indicate that the labels are not properly understood by the consumer and gives the supermarkets the opportunity to rethink their logo designs. Also, the consumer seeking for those plant-based alternatives benefit from this study as it shines a light on the current logos being used and gives them the opportunity to share their dissatisfaction about the current systems.

## 2. Proposed Materials and Methods

In order to answer the sub questions, and eventually formulate an answer whether or not the Dutch vegan and vegetarian labelling system is understood by the consumer, a questionnaire is the proposed research method. A questionnaire provides a quick and efficient way of obtaining large amounts of information from a large sum of people (McLeod, 2018).

Furthermore, it is an effective means of measuring preferences and opinions (McLeod, 2018). As this research is based on the opinion of the Dutch consumer, it is the most logical research method.

A questionnaire can be classified as both quantitative and qualitative research, depending on the questioning (Dudovskiy, 2021). This research will mainly focus on closed-ended questions in the questionnaire. This makes the questionnaire easier and quicker for the respondent to answer (Dudovskiy, 2021). However, as a final question, the respondent will be asked to share their ideas to improve the Dutch vegan and vegetarian food labelling system in an open-ended question form.

### SURVEY

Since the aim of this study is to find out if the Dutch consumer understands the current vegan and vegetarian labelling systems used in the Netherlands, Dutch people will be asked to participate in the questionnaire. The goal is to reach a minimum of 200 responses. The channel that will be employed to reach potential respondents is Facebook. The questionnaire will be available in different 'Facebook groups' to reach omnivore, vegetarian and vegan people. This way, an equal amount of omnivore, vegetarian and vegan will get the opportunity to fill out the questionnaire, which will create more reliable results amongst the understanding of vegan and vegetarian labelling methods. Furthermore, many different age categories will have access to the questionnaire using Facebook, as it is a well-known, free social media platform.

During the questionnaire, the respondent will remain anonymous. The questionnaire will ask participants about their gender, age, education and diet. These variables will give a clear picture for which group of people the labels are clear and for which the labels are not clear enough. For gender, the respondent can choose between male, female and other. Ages are categorized between the different generations. So, from age  $\leq 24$  (Gen Z), 25 – 40 (Millennials), 41 – 56 (Gen X), 57 – 75 (Baby Boomers)  $76 \geq$  (Traditionalists) (Kasasa, 2021). Education will be split up into the different levels of education in the Netherlands. Therefore, the participants can choose between high school, MBO, Bachelor, Master and PhD. Lastly, for the diet question, the participants have the option to choose between 'omnivore or other', 'vegetarian diet' or 'vegan diet'.

After the demographic questions, the participants will answer question 5 of the survey, asking how they decide whether a product is vegan, or vegetarian based on the packaging. They can choose between 'vegan/vegetarian logo', 'allergen information', 'ingredient list' and 'other', where the option to specify is given. This will answer the first sub question: 'How does the consumer decide whether a product is suitable for vegans or vegetarians based on the packaging?'

After question 5 of the survey, the participants will be presented with either a vegan or a vegetarian logo from each supermarket mentioned in table 1. Next, they are asked to indicate whether the product is suitable for vegetarians only, or suitable for vegetarians and vegans. After this question, questions will be asked whether the logo was unclear or clear, and

whether the logo was misleading or truthful, on a scale from one to five. This will form an answer to the second and third sub question: 'To what extent do the consumers know the meaning of vegan and vegetarian labels used by Dutch supermarkets?' and 'What is the consumers opinion about the clarity and transparency of the logos used in the Netherlands?'.

To answer the fourth and final sub question: 'To what extent does the consumer think the labelling systems used abroad are clearer than the labelling systems used in the Netherlands?', the participant will be presented with the logo's used in India, the UK and Canada, including a small explanation of their meaning. The participant is asked whether or not they think these national regulated systems are more or less clear than the private labels used in the Netherlands. From these results, a conclusion can be made if the current labels used in the Netherlands are clear enough or not.

## DATA ANALYSIS

The data will be analyzed and transformed into graphs and charts in order to make it visually clear. Furthermore, statistical tests will be done in order to draw conclusions. One of the statistical tests that is going to be used when analyzing the results of the questionnaire is the Chi<sup>2</sup> test. A Chi<sup>2</sup> test is a way to show a relationship between two categorical variables (Statistics How To, n.d.). It shows how much difference exist between the observed counts from the questionnaire and the counts expected if there is no relationship at all in the populations (Statistics How To, n.d.). Therefore, this test will be used to see if there is a relationship between the age of the participants and if they properly understand the vegan and vegetarian label yes or no. This test will be done with the program SPSS.

To properly analyze the ordinal variables, like the questions where the participant is asked to indicate whether they find the logo misleading or transparent, the Kruskal Wallis test will be used to analyze the data. The Kruskal Wallis Test is used to compare one independent variable with two or more levels, using an ordinal scale (Statistics How To, n.d.). Again, this test will be done with the program SPSS.

Finally, when all answers have been studied, it will become clear if the vegan and vegetarian labels used in the Netherlands are understood properly by the Dutch consumer, or if there is a need for change.

### 3. Results

To create an understanding about whether or not the Dutch consumer understand the vegan and vegetarian labelling methods used in the Netherlands, a survey was conducted among the Dutch consumers. This survey provides the answers to the four sub questions formulated earlier in the research. In the following sections, the results of the survey are shown.

#### 3.1 Demographic Overview Survey

In total, 336 respondents answered the questionnaire. 295 respondents were female (87,8%), 40 respondents were male (11,9%), and one respondent preferred not to answer this question (0,3%).

Amongst these respondents figure 5 shows that 117 people were  $\leq 24$  years old (34,8%), 79 people were between 25 – 40 years old (23,5%), 93 people were between 41 – 56 years old (27,7%), 45 people were between 57 – 75 years old (13,4%) and two persons were 76 years old or older (0,6%). For further analysis, the two respondents aged 76 or older will be added to the 57-75 group, making a 57+ group.

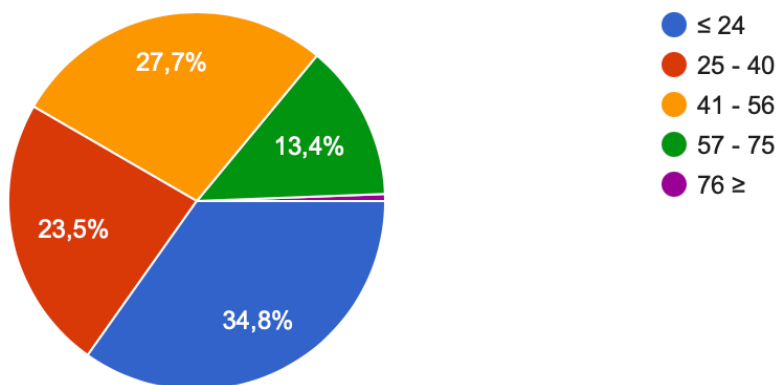


Figure 5 Age Categories Amongst the Respondents of the Questionnaire

The level of education is shown in figure 6. 159 respondents have a bachelor's degree (47,3%), 94 have a MBO degree (28%), 54 respondents have a Masters/PhD degree (16,1%), and 29 respondents have a high school degree (8,6%).

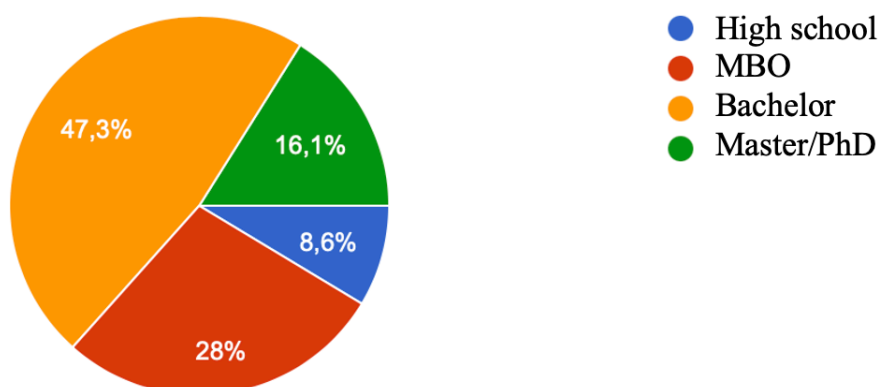


Figure 6 Education Categories Amongst the Respondents of the Questionnaire

The distribution between respondents following an omnivore, vegetarian or vegan diet were relatively evenly distributed as illustrated in figure 7. 101 (30,1%) respondents were

omnivore or other, 115 (34,2%) respondents were vegetarian, and 120 (35,7%) respondents were vegan.

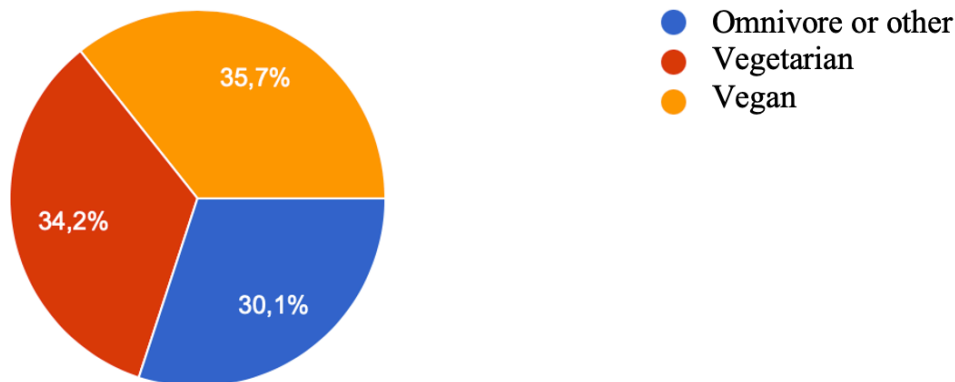


Figure 7 Diet Categories Amongst the Respondents of the Questionnaire

### 3.2 Consumers Choice Based on Product Packaging

Question 5 of the questionnaire provides the answer to the sub question ‘how does the consumer decides whether a product is suitable for vegetarians or vegans based on the products packaging’. The results in figure 8 illustrate that the most frequently approach of the use of packaging to find out whether a product is suitable for vegans or vegetarians is through vegan/vegetarian logos.

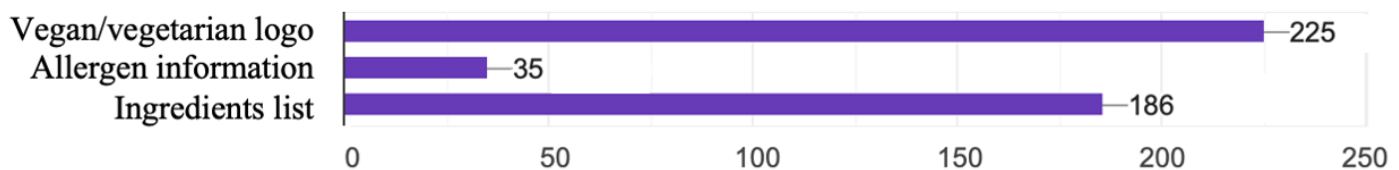


Figure 8 Approach Consumers Use to Decide If a Product is Vegan or Vegetarian Based on Product Packaging

### 3.3 Meaning of Vegan and Vegetarian Labels Used by Dutch Supermarkets

The following questions of the questionnaire are reflecting on the extent the respondents know the meaning of the vegan and vegetarian logos used in the Netherlands. Therefore, they will be used to answer the second sub question ‘to what extent do the consumers know the meaning of vegetarian and vegan labels used by Dutch supermarkets?’. The four logos mentioned in Table 1 were shown to the respondents after which the respondents were being asked to indicate whether the logo meant that the product was suitable for vegetarians only, or vegans and vegetarians.

Table 2 gives an overview of the answers the respondents have given once they were shown the labels of table 1. 263 respondents answered the question about the Albert Heijn label correct and 73 answered the question incorrect. For the label used in the Jumbo, 325 participants answered the question correct and 11 answered it incorrect. The Lidl had 321 participants answering the question correct and 15 answering the question incorrect. Finally, the Aldi had 317 participants answering the question correct and 19 answering the question incorrect.

Table 2 Overview of Correct and Incorrect Answers Labels - Questionnaire

	Albert Heijn	Jumbo	Lidl	Aldi
<b>Correct</b>	263 (78,3%)	325 (96,7%)	321 (95,5%)	317 (94,3%)
<b>Incorrect</b>	73 (21,7%)	11 (3,3%)	15 (4,5%)	19 (5,7%)

To find out if a significant difference exists between gender, age, education and diet and the results of table 2, a Chi Square statistical test is used. Table 3 highlights the significant results in green. Appendix C shows the output of the Chi square tests.

Table 3 Overview of Correct and Incorrect Answered Labels Chi Squared

		Chi Squared	P-Value
Albert Heijn	Gender	3.799	0.051
	Age	14.084	0.003
	Education	10.736	0.013
	Diet	88.339	< 0.001
Jumbo	Gender	12.150	< 0.001
	Age	2.177	0.536
	Education	4.149	0.246
	Diet	20.066	< 0.001
Lidl	Gender	18.010	< 0.001
	Age	0.083	0.994
	Education	4.541	0.209
	Diet	7.108	0.029
Aldi	Gender	7.388	0.007
	Age	3.399	0.334
	Education	4.528	0.210
	Diet	5.669	0.059

The relation between Albert Heijn logo and the age category was significant.  $X^2(3) = 14.084$ ,  $P = 0.003$ . Participants aged 24 or younger were more likely to answer the question incorrect, as seen in figure 9.



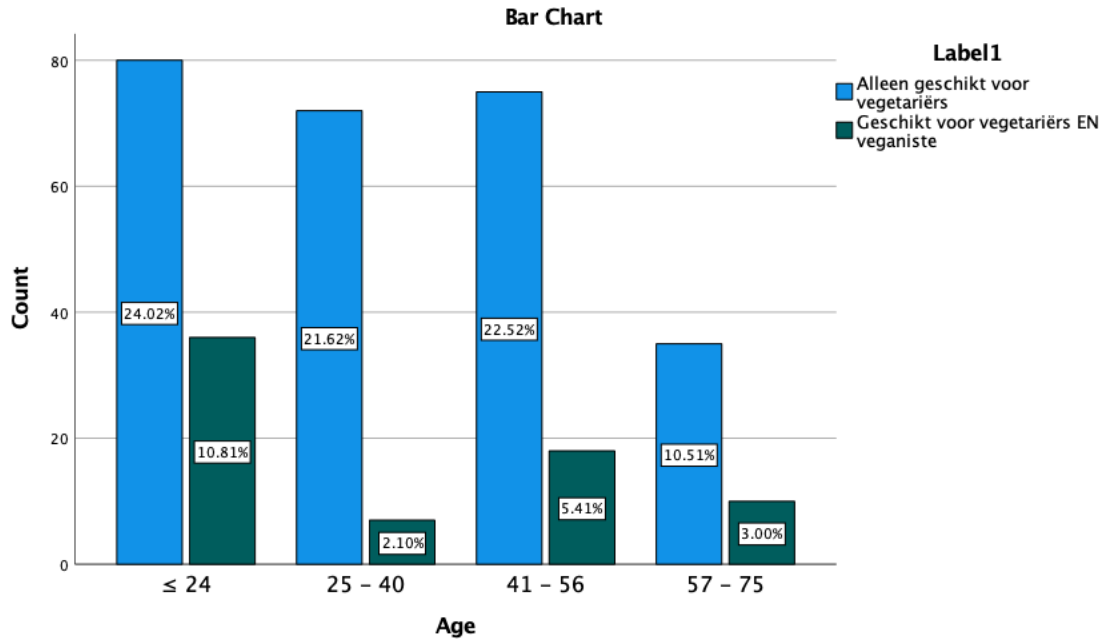


Figure 9 Chi Square Test Albert Heijn Logo x Age Category

The relation between Albert Heijn logo and the education category was significant.  $X^2(3) = 10.736$ ,  $P = 0.013$ . Participants with a MBO degree and a high school degree were more likely to answer the question incorrect as seen in figure 10.

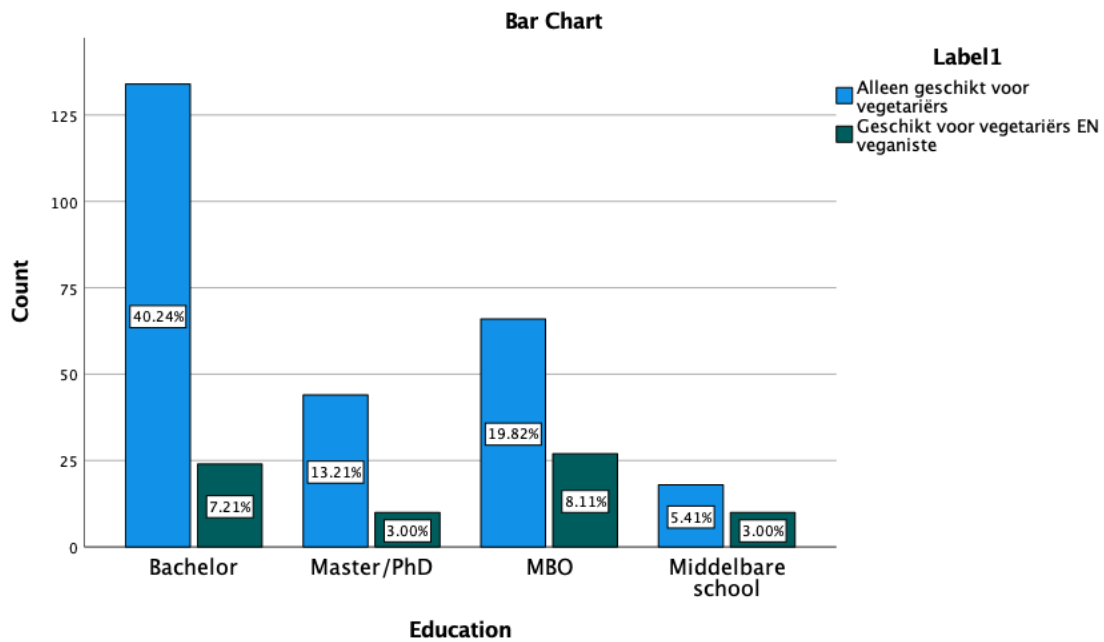


Figure 10 Chi Square Test Albert Heijn logo x Education Category

The relation between Albert Heijn logo and the diet category was significant.  $X^2(2) = 88.339$ ,  $P = 0.001$ . Participants following an omnivore diet were more likely to answer the question incorrect as seen in figure 11.

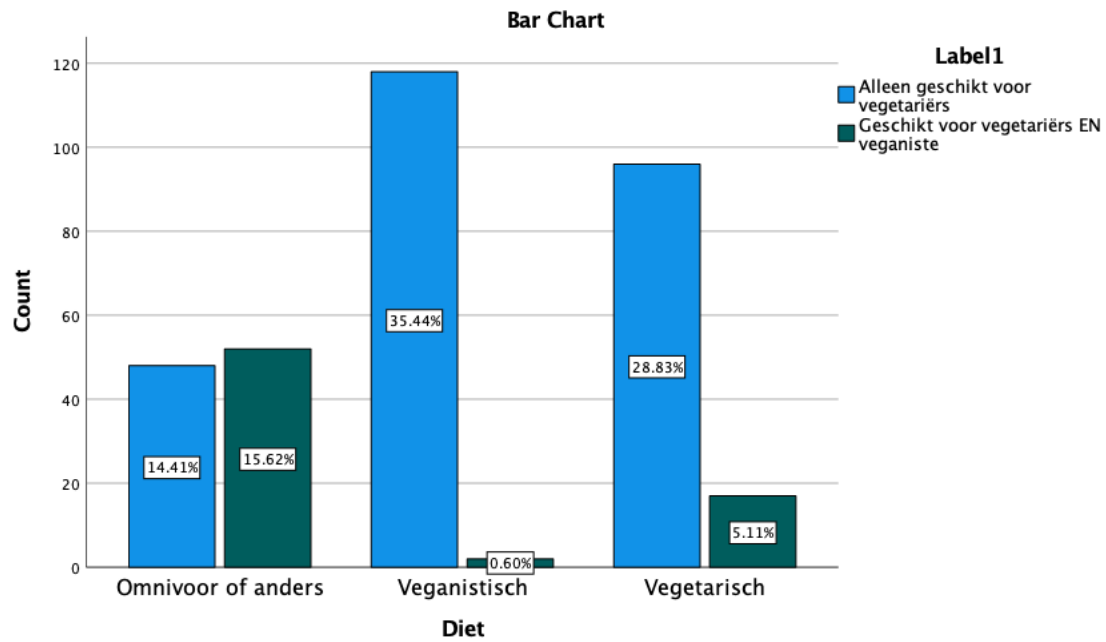


Figure 11 Chi Square Test Albert Heijn Logo x Diet Category

The relation between Jumbo logo and the gender category was significant.  $X^2(1) = 12.150$ ,  $P = 0.001$ . Men were more likely to answer the question incorrect than women as seen in figure 12.

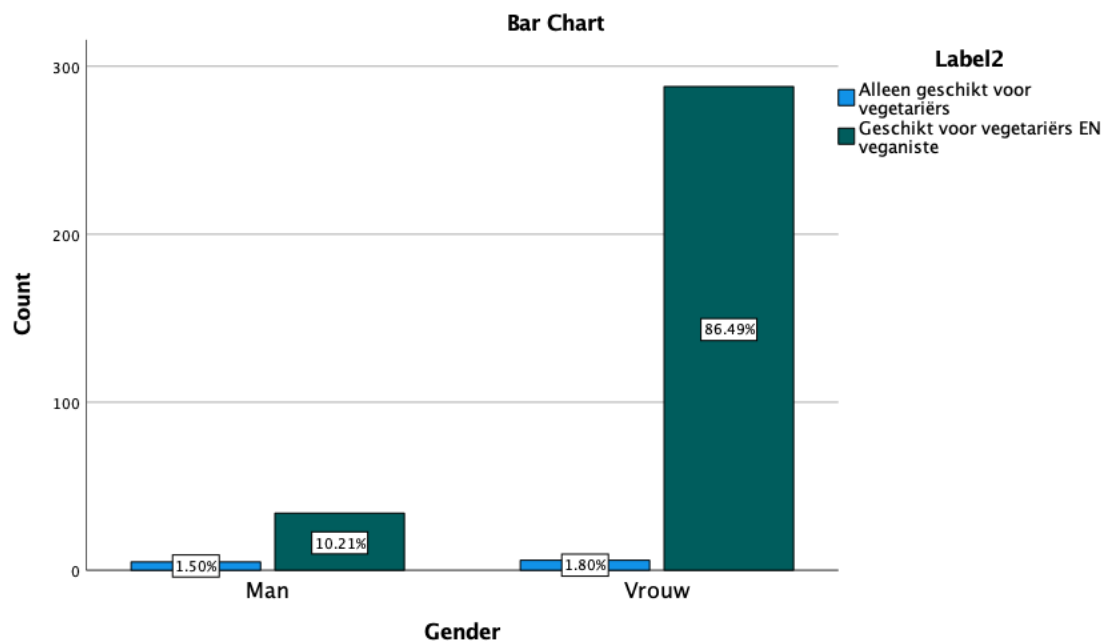


Figure 12 Chi Square Test Jumbo Logo x Gender Category

The relation between the Jumbo logo and the diet category was significant.  $X^2(2) = 20.066$ ,  $P = 0.001$ . Participants following an omnivore diet were more likely to answer the question incorrect as seen in figure 13.

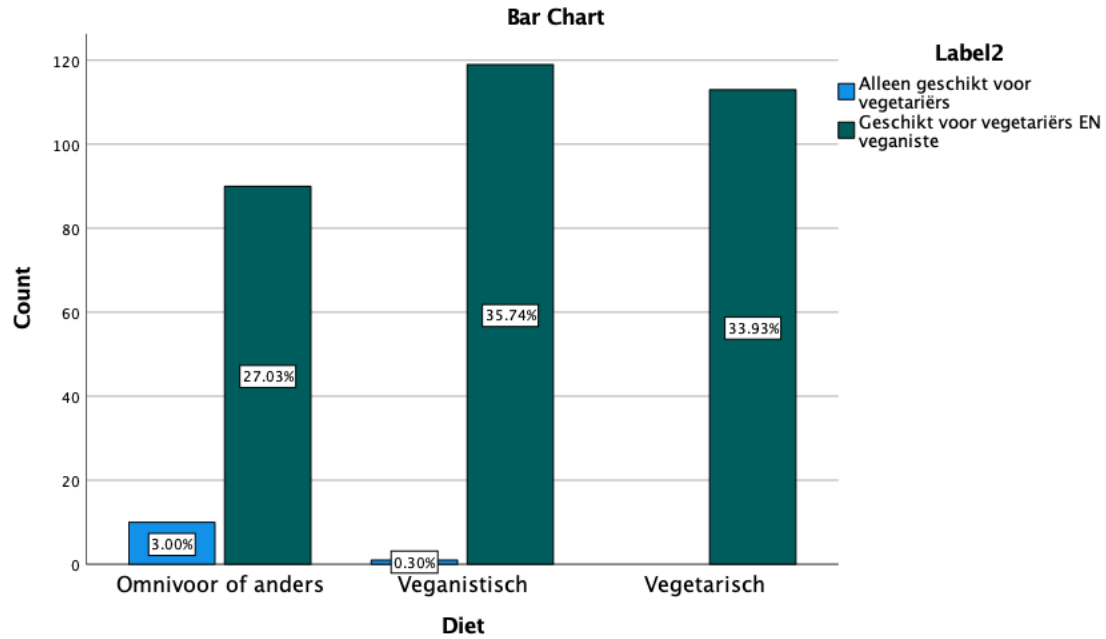


Figure 13 Chi Square Test Jumbo Logo x Diet Category

The relation between the Lidl logo and the gender category was significant.  $X^2(1) = 18.010$ ,  $P = 0.001$ . Men were more likely to answer the question incorrect than women as seen in figure 14.

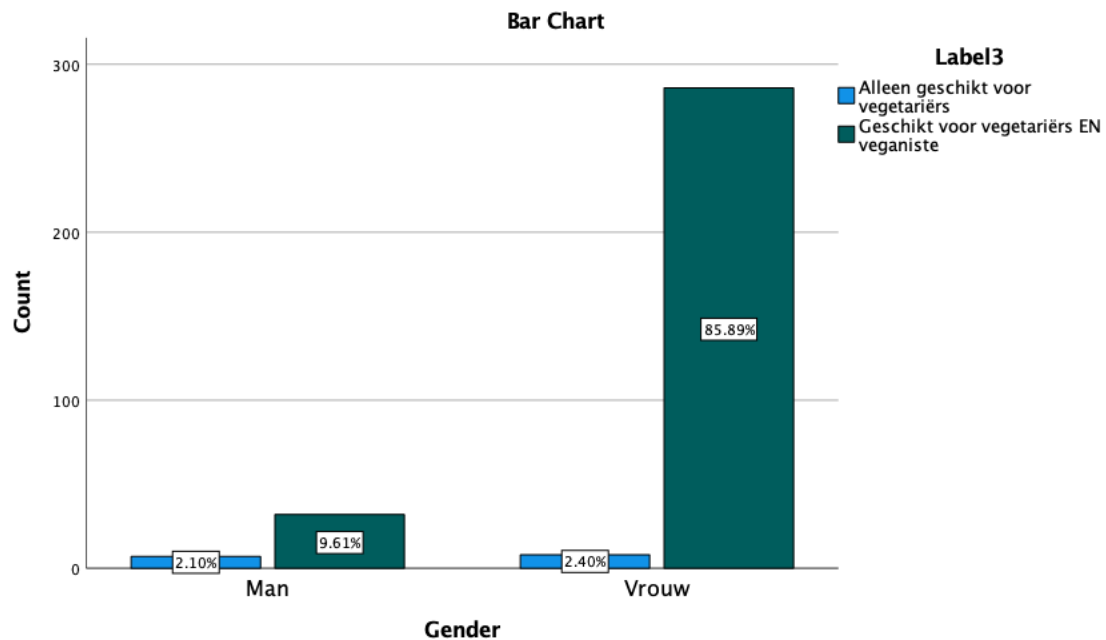


Figure 14 Chi Square Test Lidl Logo x Gender Category

The relation between the Lidl logo and the diet category was significant.  $X^2(2) = 7.108$ ,  $P = 0.029$ . Participants following an omnivore diet were more likely to answer the question incorrect as seen in figure 15.

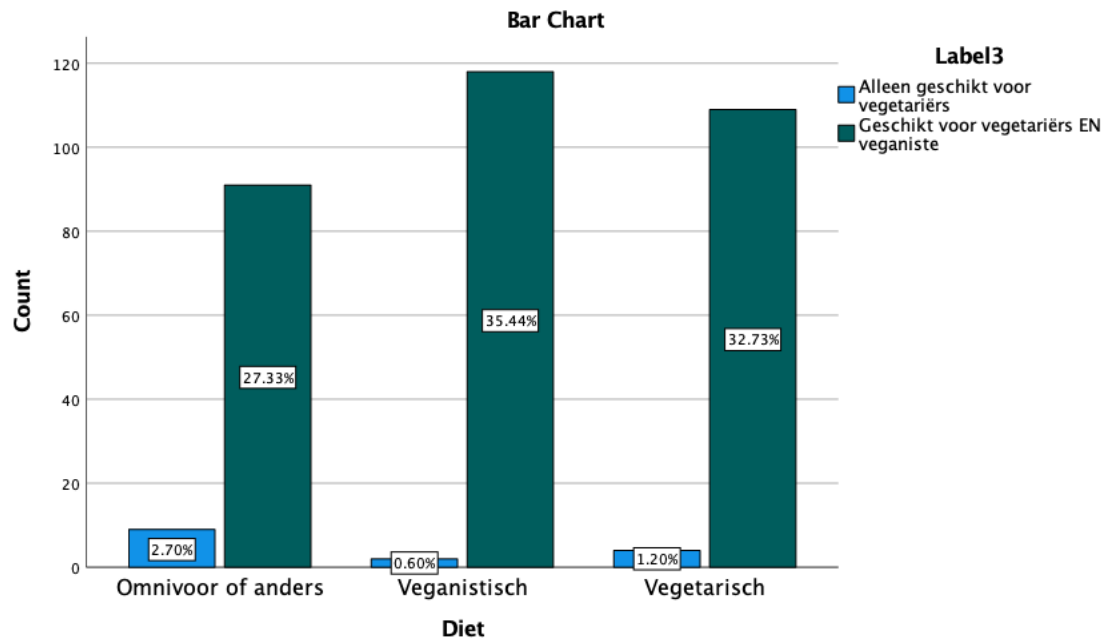


Figure 15 Chi Square Test Lidl Logo x Diet Category

The relation between the Aldi logo and the gender category was significant.  $\chi^2(1) = 7.388$ ,  $P = 0.007$ . Men were more likely to answer the question incorrect than women as seen in figure 16.

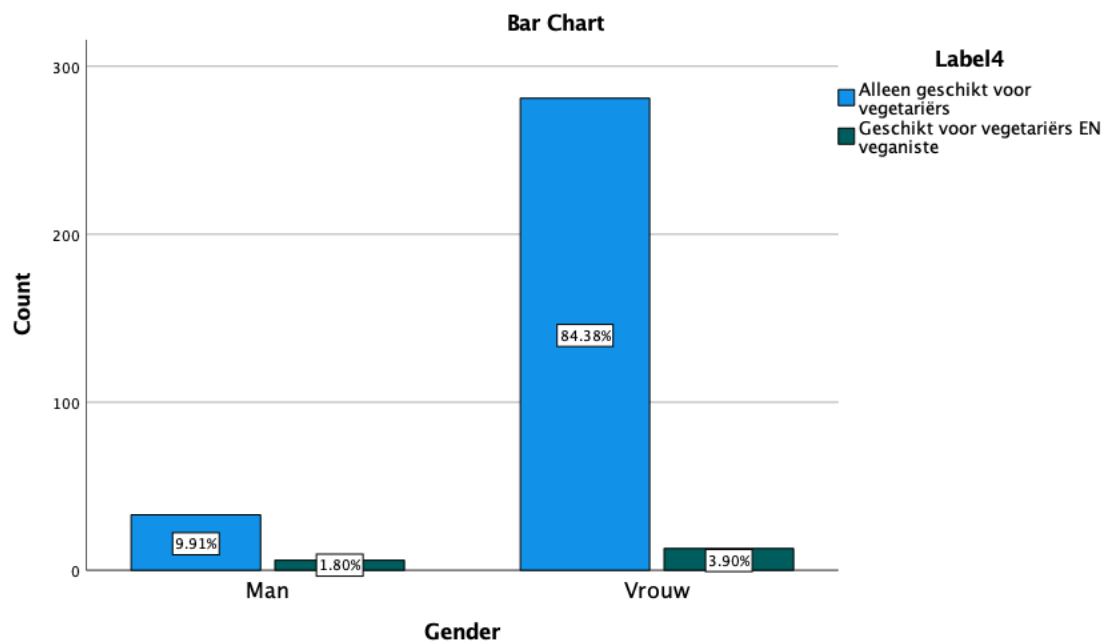


Figure 16 Chi Square Test Aldi Logo x Gender Category

Figure 17 gives the results of the respondents and their opinion about how clear or unclear they found the logos used in the Dutch supermarkets on a scale from one to five. Number one meaning unclear, and number five meaning clear to the respondent.

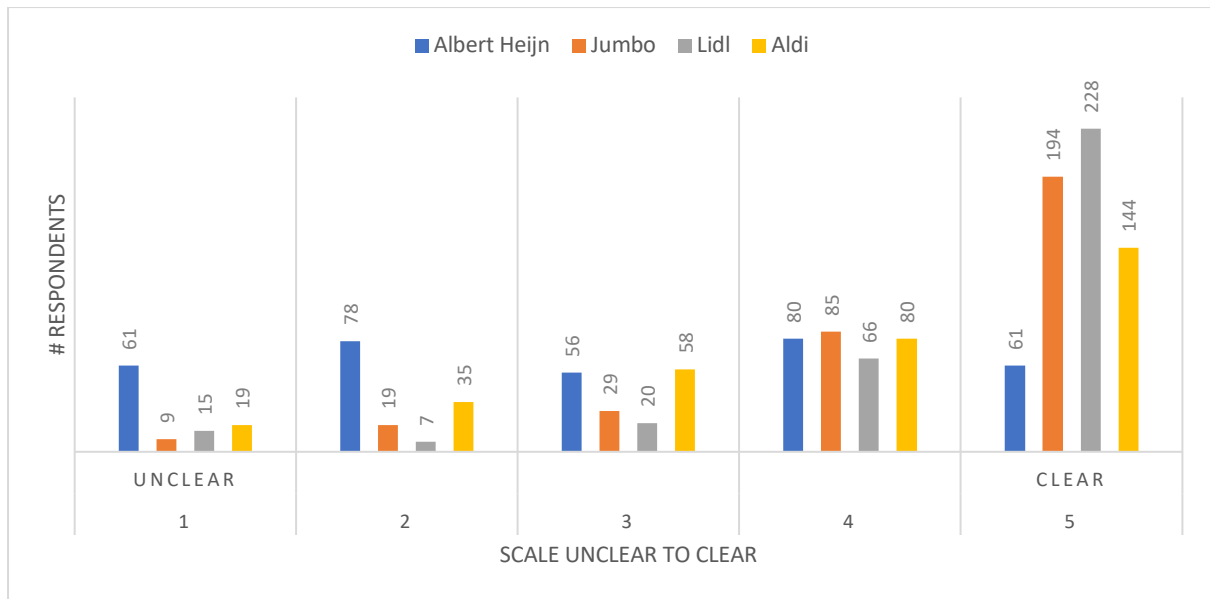


Figure 17 Overview Results Questionnaire Unclear-Clear Labels

Table 4 shows the results of the Kruskal Wallis tests. Appendix D presents the outputs given by SPSS. The independent variables are gender, age, education and diet, whereas the dependent variable in this case is the data of figure 17.

Table 4 Overview Kruskal Wallis Test Results Clarity Questionnaire

		Kruskal Wallis test	P-value
Albert Heijn	Gender	0.600	0.439
	Age	2.521	0.472
	Education	1.828	0.609
	Diet	15.742	0.001
Jumbo	Gender	4.754	0.029
	Age	2.085	0.555
	Education	11.686	0.009
	Diet	9.049	0.011
Lidl	Gender	6.200	0.013
	Age	2.988	0.394
	Education	11.072	0.011
	Diet	16.460	0.001
Aldi	Gender	4.965	0.026
	Age	8.104	0.044
	Education	1.753	0.625
	Diet	5.372	0.068

The highlighted P-values in table 4 have a P-value equal to or less than 5%, thus have a significant difference.

The relation between the Albert Heijn label and the diet category was significant.  $H_2(2) = 15.742$ ,  $P = 0.001$ , with a mean rank score of 137.01 for an omnivore diet, 178.18 for a vegan diet and 184.74 for a vegetarian diet. Respondents following an omnivore diet found the

Albert Heijn logo less clear than the respondents following a vegan and vegetarian diet as seen in figure 18.

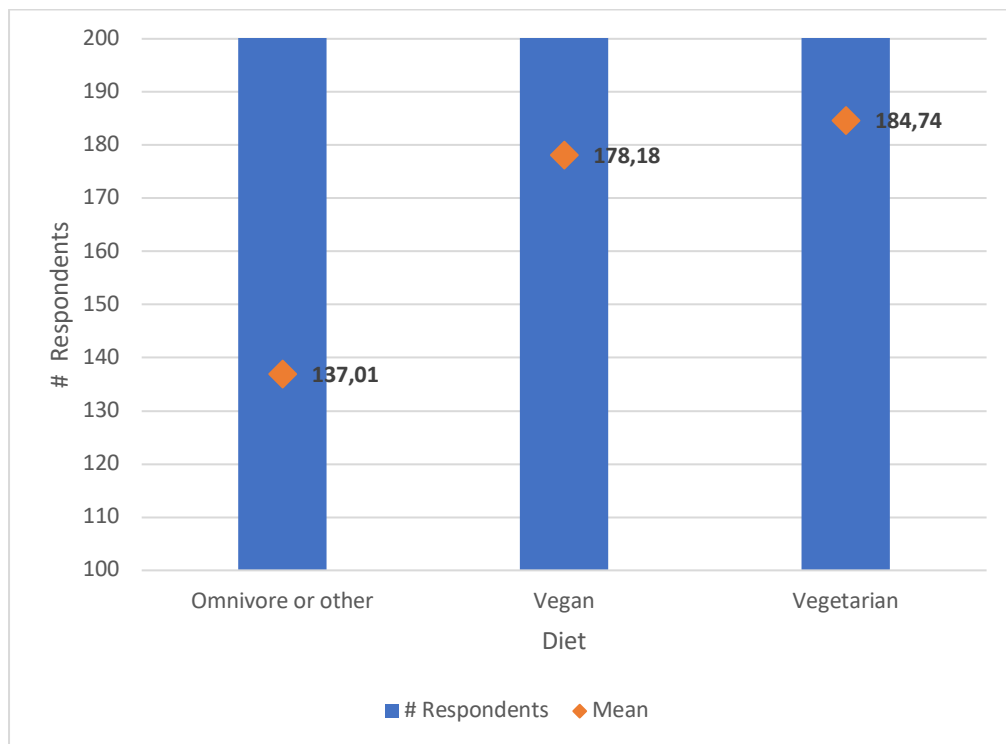


Figure 18 Kruskal Wallis Test Clarity Albert Heijn Logo x Diet Category

The relation between the Jumbo label and the gender category was significant.  $H_2(1) = 4.754$ ,  $P = 0.029$ , with a mean rank score of 140.18 for men and 171.77 for women. The logo is clearer for women than for men as seen in figure 19.

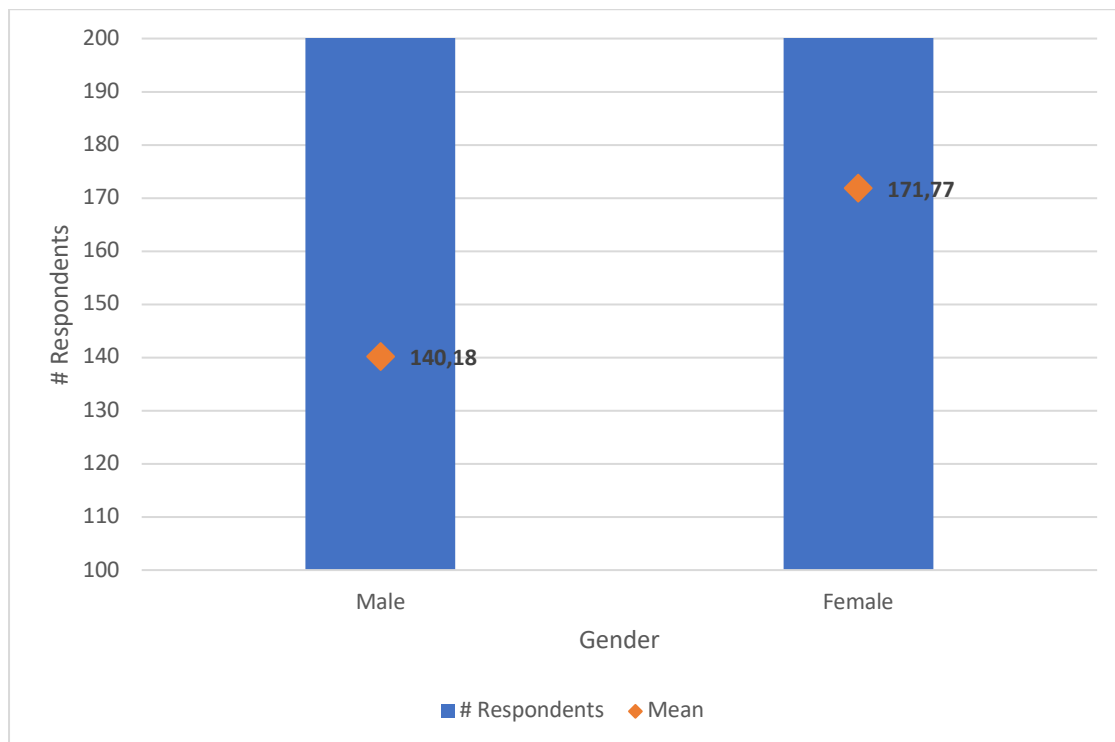


Figure 19 Kruskal Wallis Test Clarity Jumbo Logo x Gender Category

The relation between the Jumbo label and the education category was significant.  $H_2(3) = 11.072$ ,  $P = 0.011$ , with a mean rank score of 171.20 for Bachelor, 177.74 for Master/PhD, 146.26 for MBO and 202.88 for high school. The logo was less clear to respondents having a MBO degree as seen in figure 20.

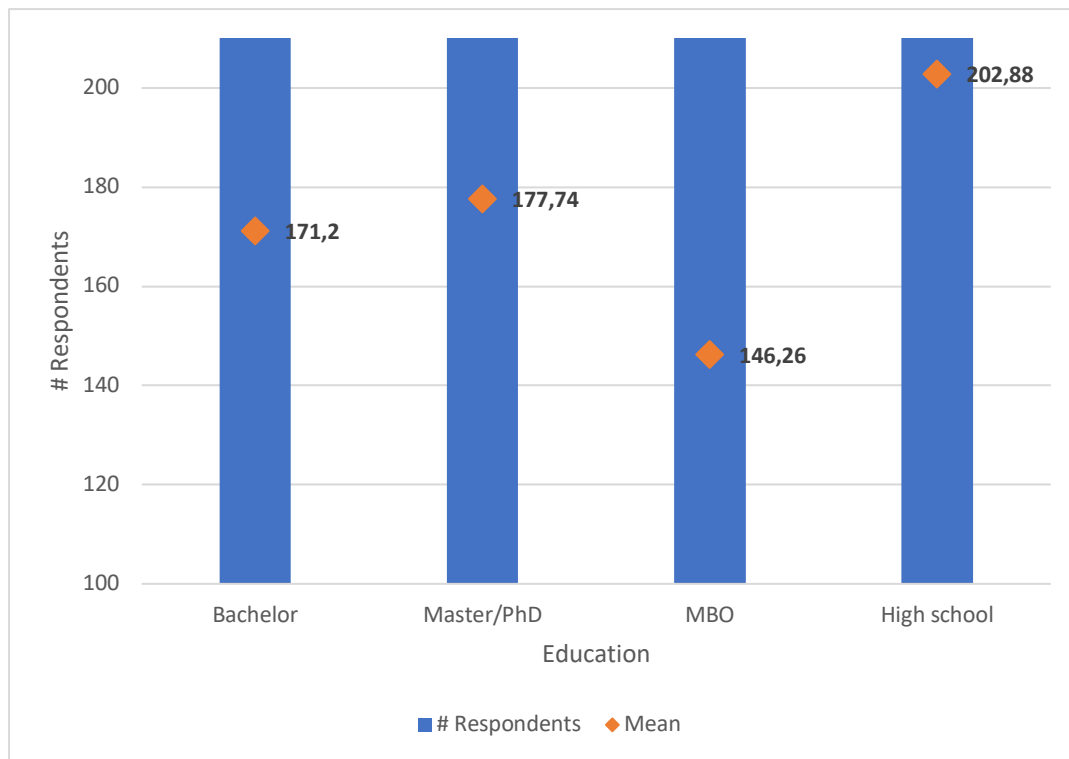


Figure 20 Kruskal Wallis Test Clarity Jumbo Logo x Education Category

The relation between the Jumbo label and the diet category was significant.  $H_2(2) = 16.460$ ,  $P = 0.001$ , with a mean rank score of 149.72 for an omnivore diet, 184.59 for a vegan diet and 166.73 for a vegetarian diet. Respondents following an omnivore diet found the Jumbo logo less clear than the respondents following a vegan and vegetarian diet as seen in figure 21.

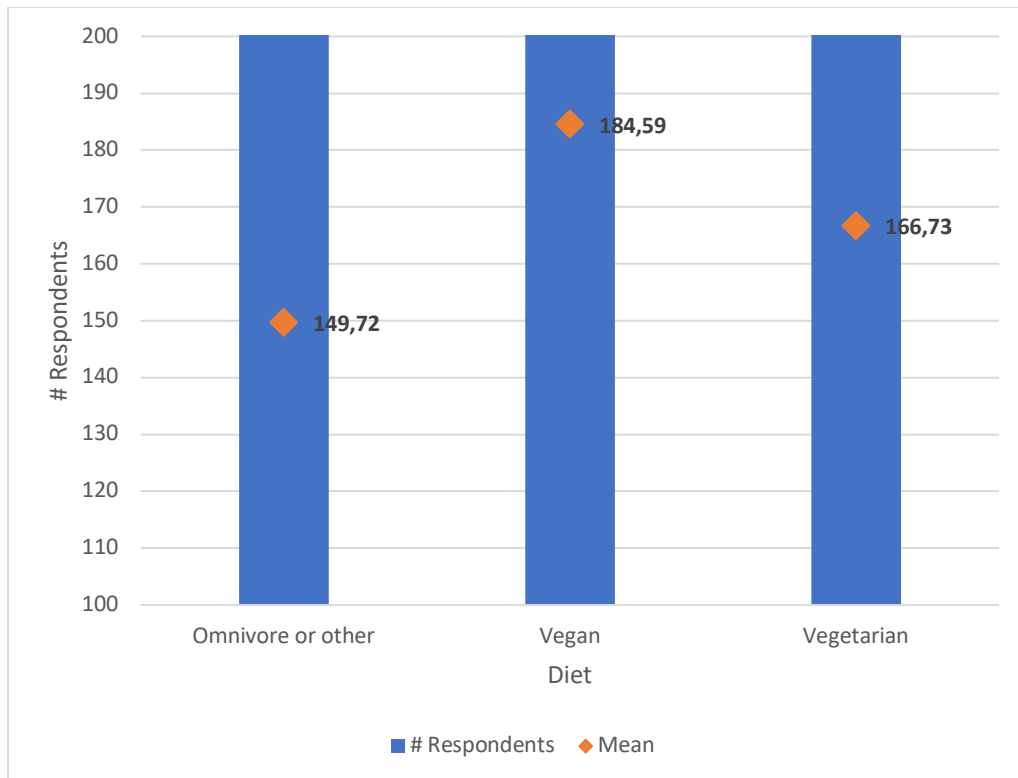


Figure 21 Kruskal Wallis Test Clarity Jumbo Logo x Diet Category

The relation between the Lidl label and the gender category was significant.  $H_2(1) = 6.200$ ,  $P = 0.013$ , with a mean rank score of 138.48 for men and 172.00 for women. The logo is clearer for women than for men as seen in figure 22.

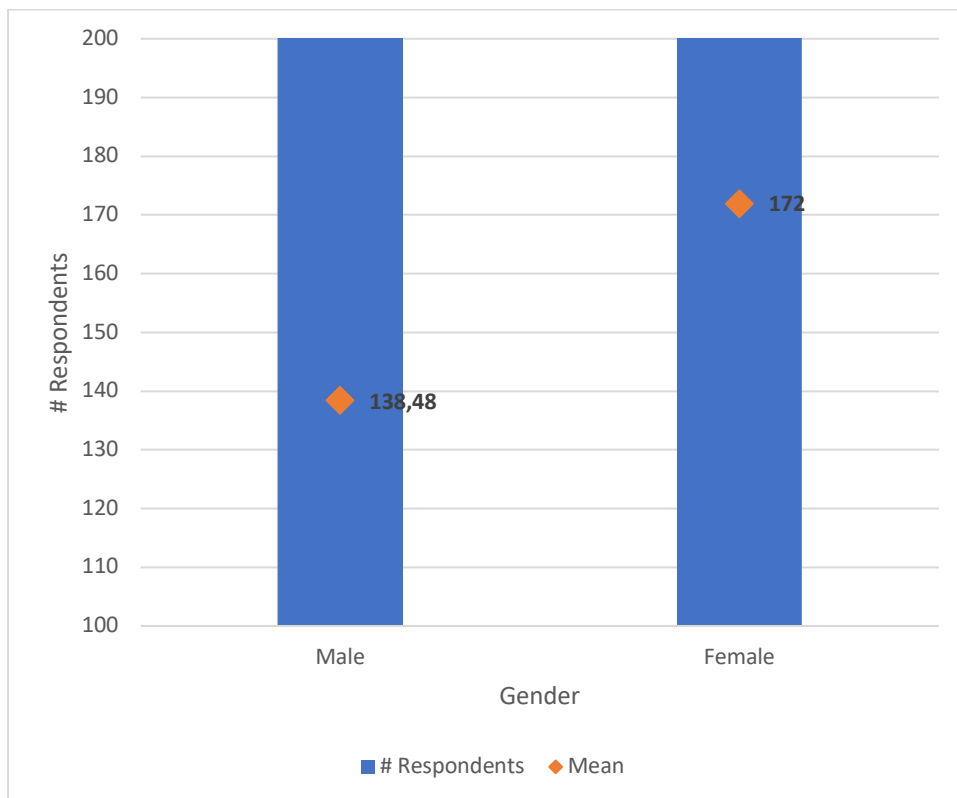


Figure 22 Kruskal Wallis Test Clarity Lidl Logo x Gender Category



The relation between the Lidl label and the education category was significant.  $H_2(3) = 11.072$ ,  $P = 0.011$ , with a mean rank score of 170.94 for Bachelor, 176.42 for Master/PhD, 148.40 for MBO and 199.84 for high school. The logo was less clear for respondents having a MBO degree as seen in figure 23.

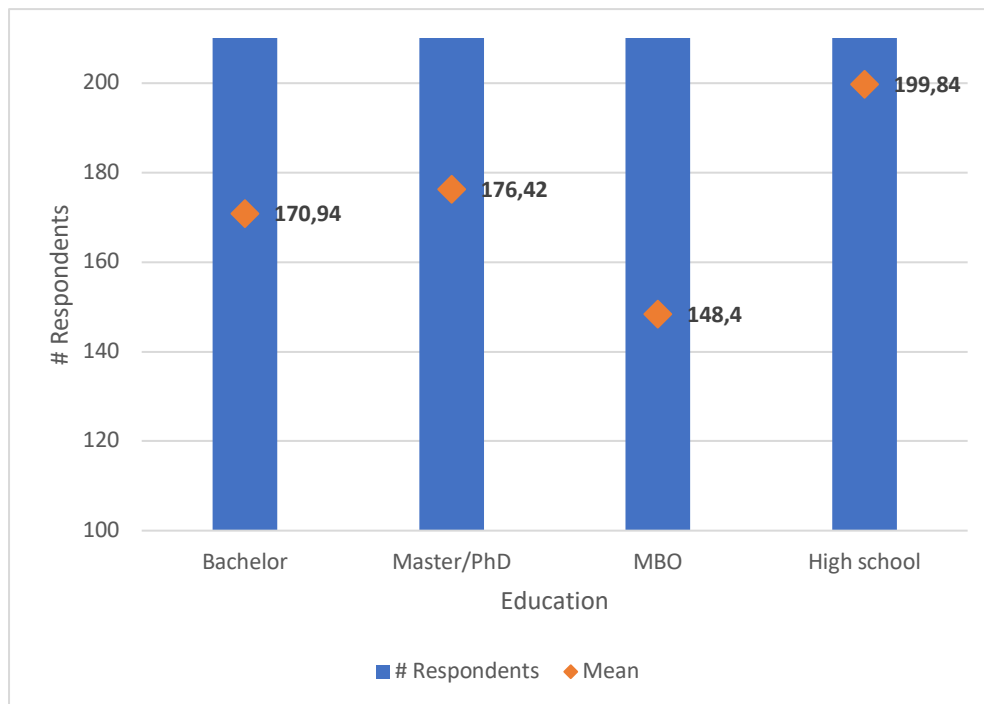


Figure 23 Kruskal Wallis Test Clarity Lidl Logo x Education Category

The relation between the Lidl label and the diet category was significant.  $H_2(2) = 16.460$ ,  $P = 0.001$ , with a mean rank score of 145.07 for an omnivore diet, 188.77 for a vegan diet and 166.46 for a vegetarian diet. Respondents following an omnivore diet found the Lidl logo less clear than the respondents following a vegan and vegetarian diet as seen in figure 24.

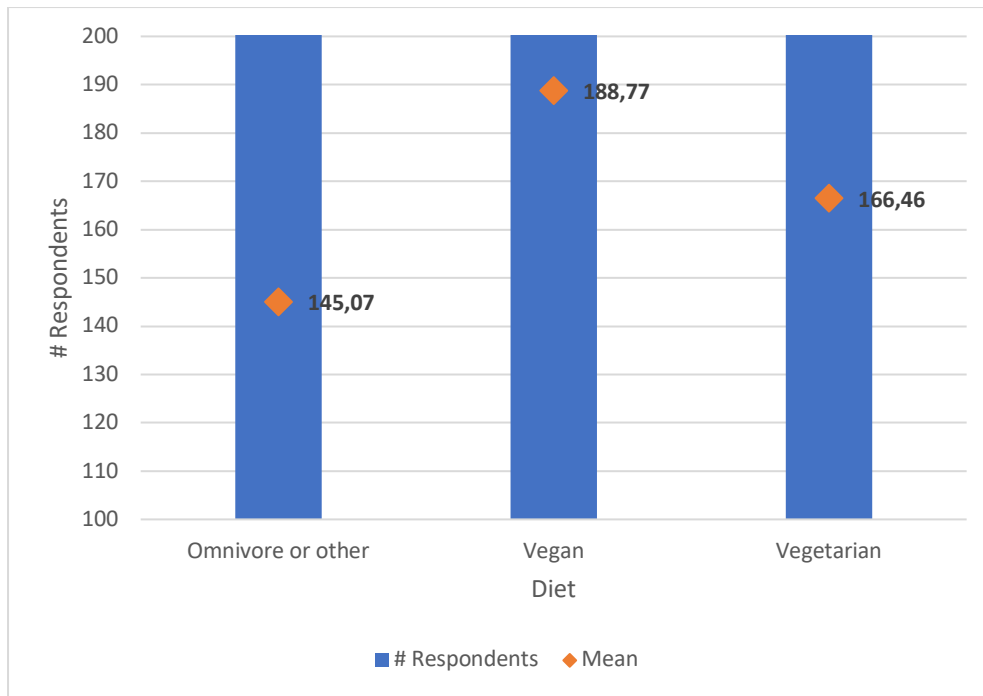


Figure 24 Kruskal Wallis Test Clarity Lidl Logo x Diet Category

The relation between the Aldi label and the gender category was significant.  $H_2(1) = 4.965$ ,  $P = 0.026$ , with a mean rank score of 137.59 for man and 172.12 for women. The logo is clearer for women than for men as seen in figure 25.

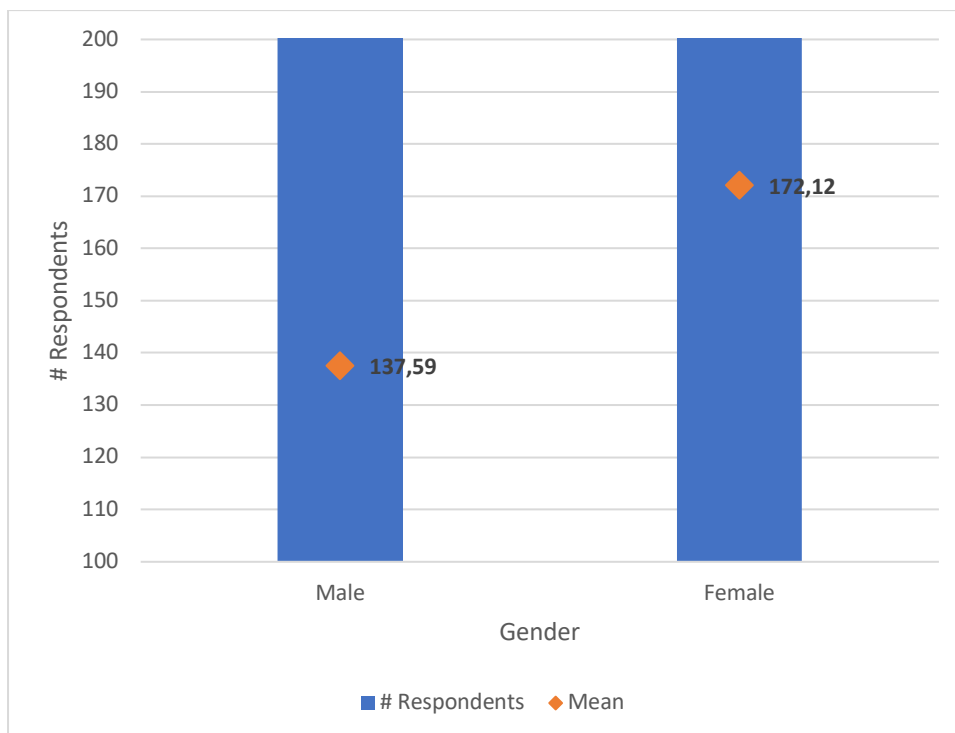


Figure 25 Kruskal Wallis Test Clarity Aldi Logo x Gender Category

The relation between the Aldi label and the age category was significant.  $H_2(3) = 8.104$ ,  $P = 0.044$ , with a mean rank score of 187.15 for ages 24 and younger, 156.87 for ages 25-40, 154.91 for ages 41-56 and 165.35 for ages 57+. Respondents between the ages of 25-40 and

41-56, found the Aldi logo less clear than the respondents aged 57+ and respondents aged 24 and younger as seen in figure 26.

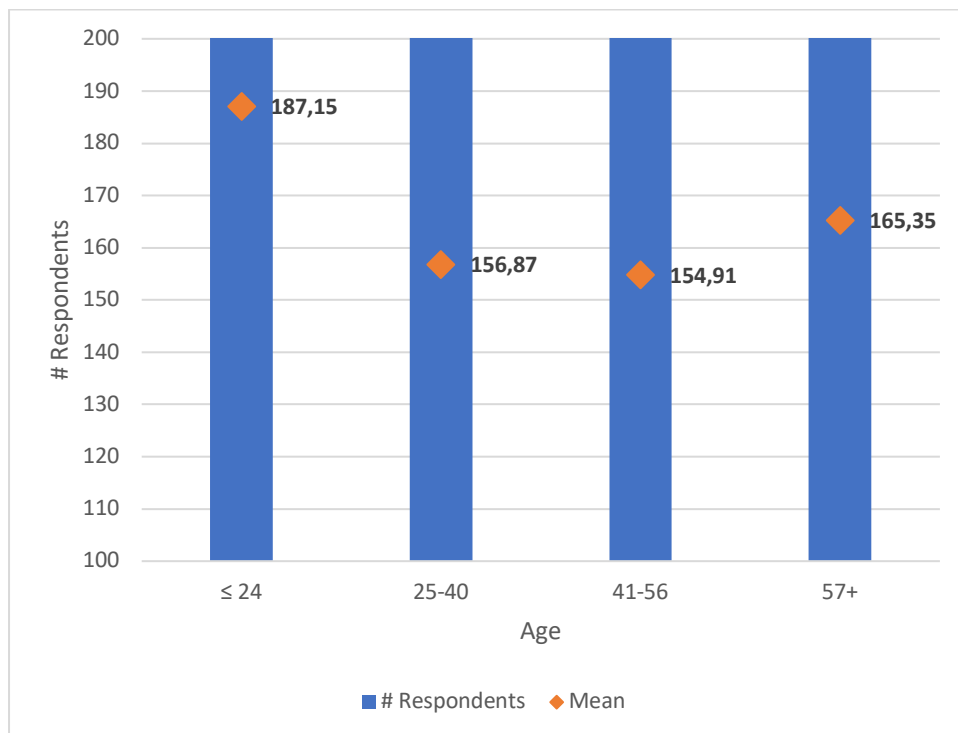


Figure 26 Kruskal Wallis Test Clarity Aldi Logo x Age Category

Figure 27 gives the results of the respondents and their opinion about how misleading or truthful they found the logos used in the Dutch supermarkets on a scale from one to five. Number 1 meaning misleading, and number five meaning truthful to the respondents.

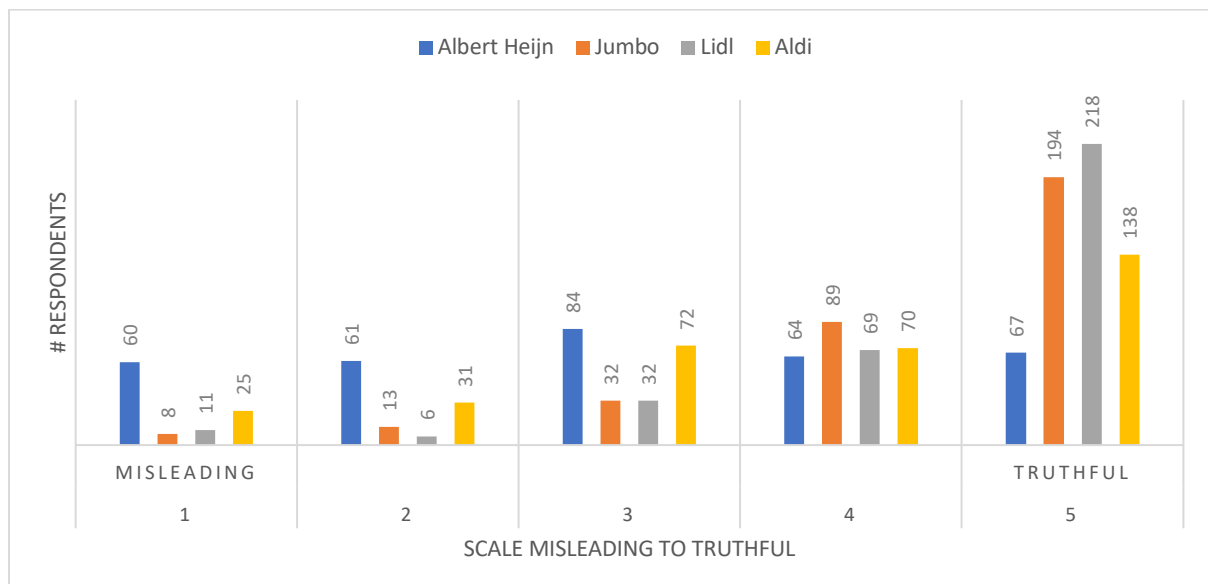


Figure 27 Overview Results Questionnaire Misleading-Truthful Labels

Table 5 shows the results of the Kruskal Wallis tests. Appendix D presents the outputs given by SPSS. The independent variables are gender, age, education and diet, whereas the dependent variable in this case is the data of figure 27.

Table 5 Overview Kruskal Wallis Test Results Misleadingness Questionnaire

		Kruskal Wallis test	P-value
Albert Heijn	Gender	0.928	0.335
	Age	4.242	0.237
	Education	1.822	0.610
	Diet	8.085	0.018
Jumbo	Gender	5.977	0.014
	Age	1.637	0.651
	Education	10.818	0.013
	Diet	19.890	0.001
Lidl	Gender	4.813	0.028
	Age	4.344	0.227
	Education	10.076	0.018
	Diet	26.047	0.001
Aldi	Gender	3.219	0.073
	Age	5.155	0.161
	Education	0.474	0.924
	Diet	5.286	0.071

Similarly, the P-values equal to or less than 5% have been marked green. For these values, a significant difference is found. The following differences are found:

The relation between the Albert Heijn label and the diet category was significant.  $H(2) = 8.085$ ,  $P = 0.018$ , with a mean rank score of 146.61 for an omnivore diet, 172.11 for a vegan diet and 182.63 for a vegetarian diet. Respondents following an omnivore diet found the Albert Heijn logo more misleading than the respondents following a vegan and vegetarian diet as seen in figure 28.

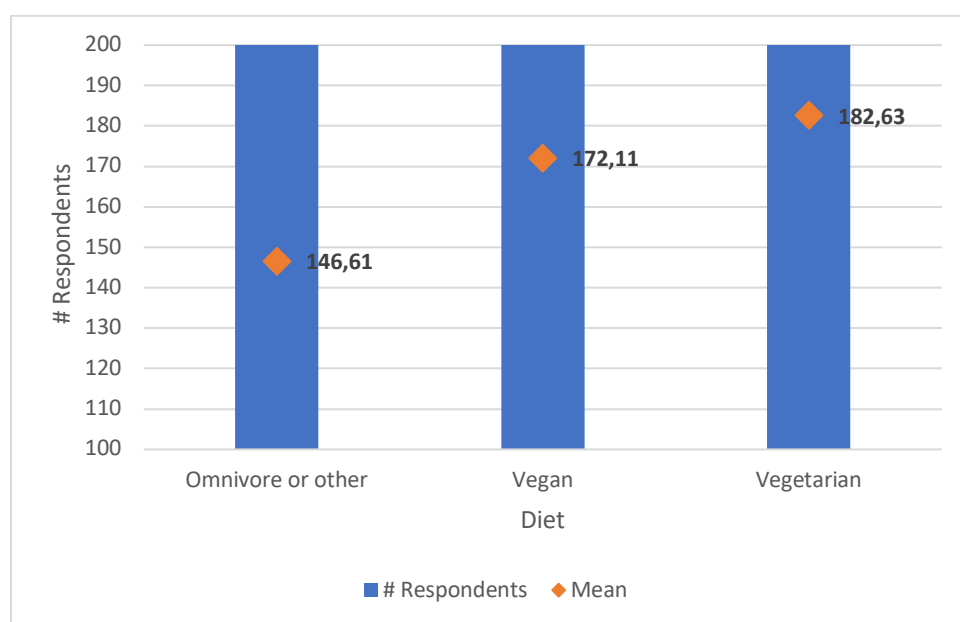


Figure 28 Kruskal Wallis Test Misleadingness Albert Heijn Logo x Diet Category

The relation between the Jumbo label and the gender category was significant.  $H(1) = 5.977$ ,  $P = 0.014$ , with a mean rank score of 136.85 for men and 172.22 for women. The logo is clearer for women than for men as seen in figure 29.

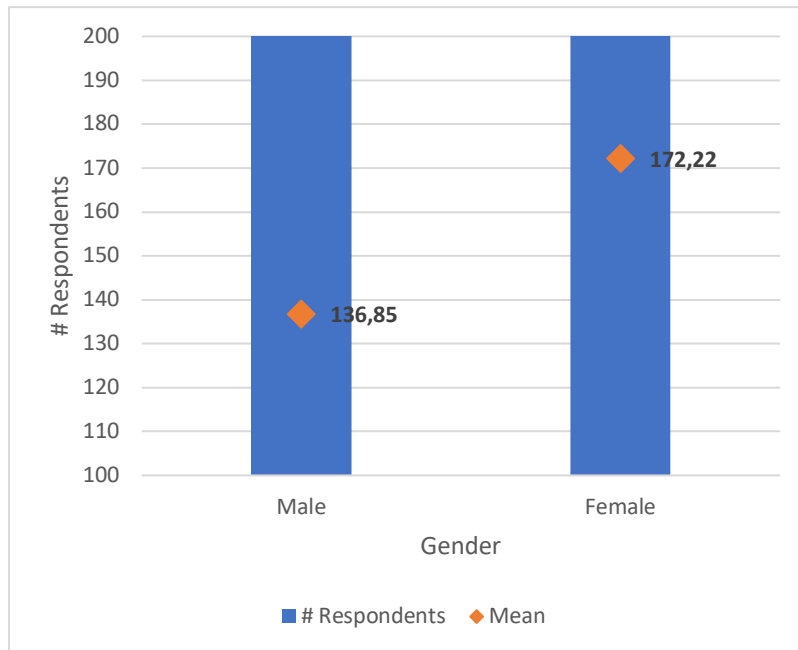


Figure 29 Kruskal Wallis Test Misleadingness Jumbo Logo x Gender Category

The relation between the Jumbo label and the education category was significant.  $H(3) = 10.818$ ,  $P = 0.013$ , with a mean rank score of 169.66 for Bachelor, 171.75 for Master/PhD, 150.35 for MBO and 209.22 for high school. The logo was less clear for respondents having a MBO degree as seen in figure 30.

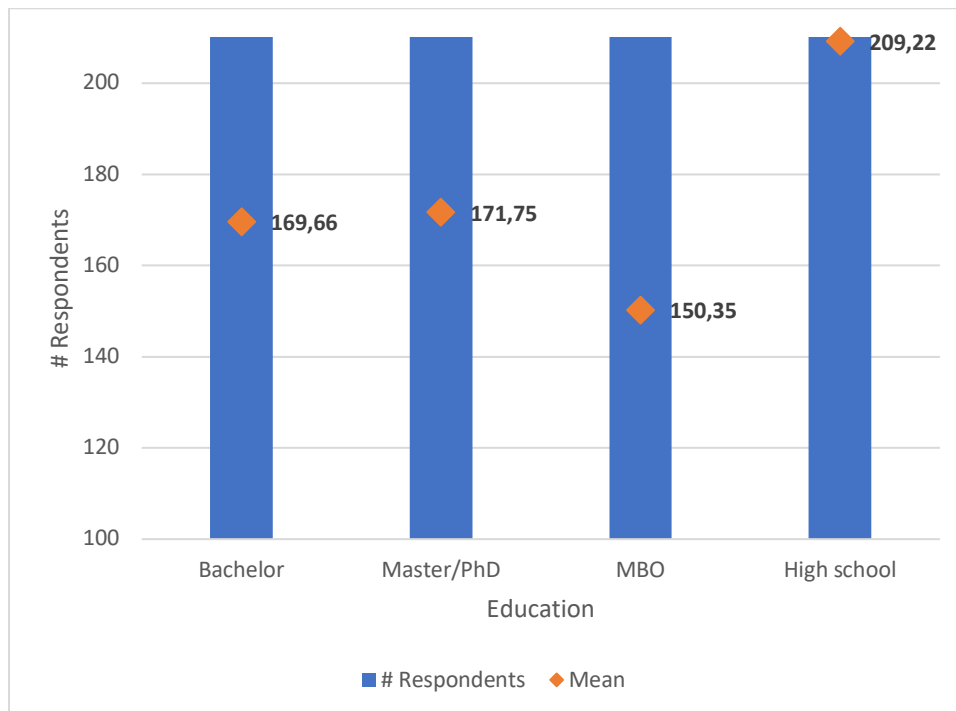


Figure 30 Kruskal Wallis Test Misleadingness Jumbo Logo x Education Category

The relation between the Jumbo label and the diet category was significant.  $H(2) = 19.980$ ,  $P = 0.001$ , with a mean rank score of 140.94 for an omnivore diet, 192.55 for a vegan diet and 166.14 for a vegetarian diet. Respondents following an omnivore diet found the Jumbo logo more misleading than the respondents following a vegan and vegetarian diet as seen in figure 31.

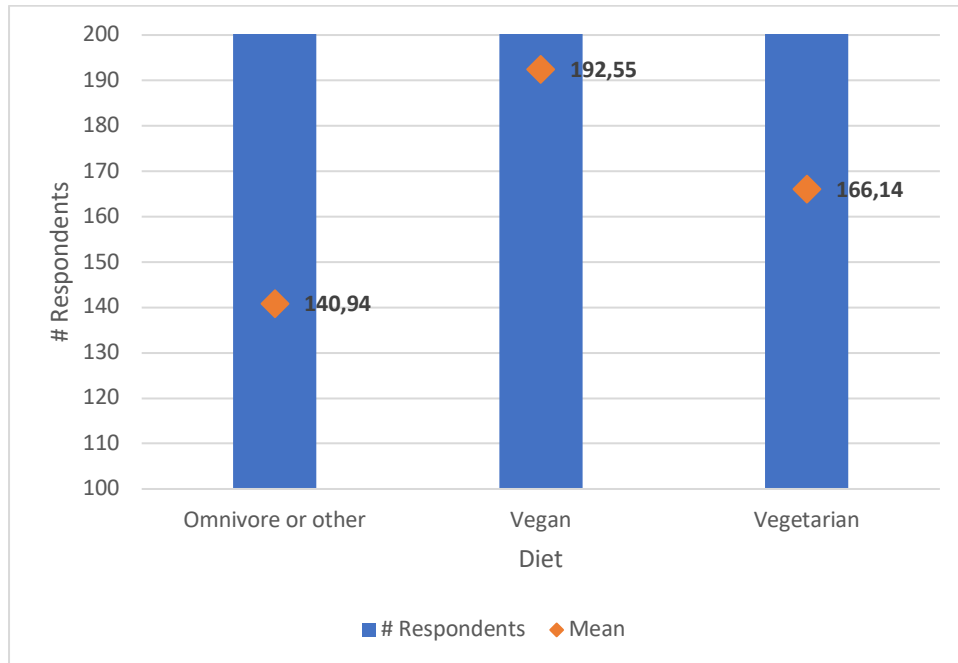


Figure 31 Kruskal Wallis Test Misleadingness Jumbo Logo x Diet Category

The relation between the Lidl label and the gender category was significant.  $H(1) = 4.813$ ,  $P = 0.028$ , with a mean rank score of 141.28 for men and 171.62 for women. The logo is clearer for women than for men as seen in figure 32.

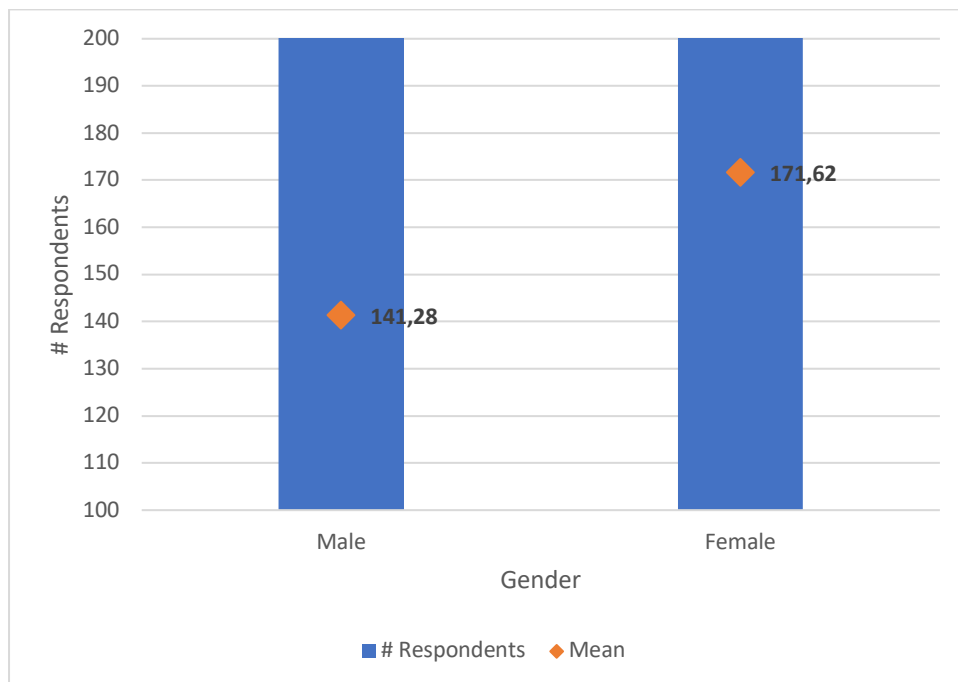


Figure 32 Kruskal Wallis Test Misleadingness Lidl Logo x Gender Category

The relation between the Lidl label and the education category was significant.  $H(3) = 10.076$ ,  $P = 0.018$ , with a mean rank score of 170.74 for Bachelor, 180.45 for Master/PhD, 147.99 for MBO and 194.72 for high school. The logo was less clear for respondents having a MBO degree as seen in figure 33.

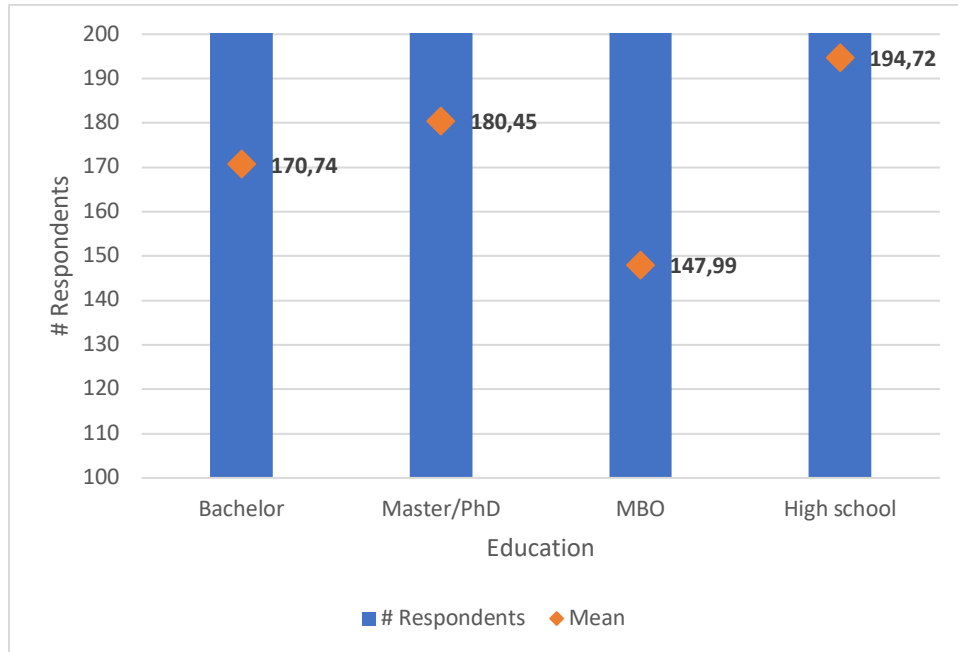


Figure 33 Kruskal Wallis Test Misleadingness Lidl Logo x Education Category

The relation between the Lidl label and the diet category was significant.  $H(2) = 26.047$ ,  $P = 0.001$ , with a mean rank score of 139.19 for an omnivore diet, 195.45 for a vegan diet and 164.62 for a vegetarian diet. Respondents following an omnivore diet found the Lidl logo more misleading than the respondents following a vegan and vegetarian diet as seen in figure 34.

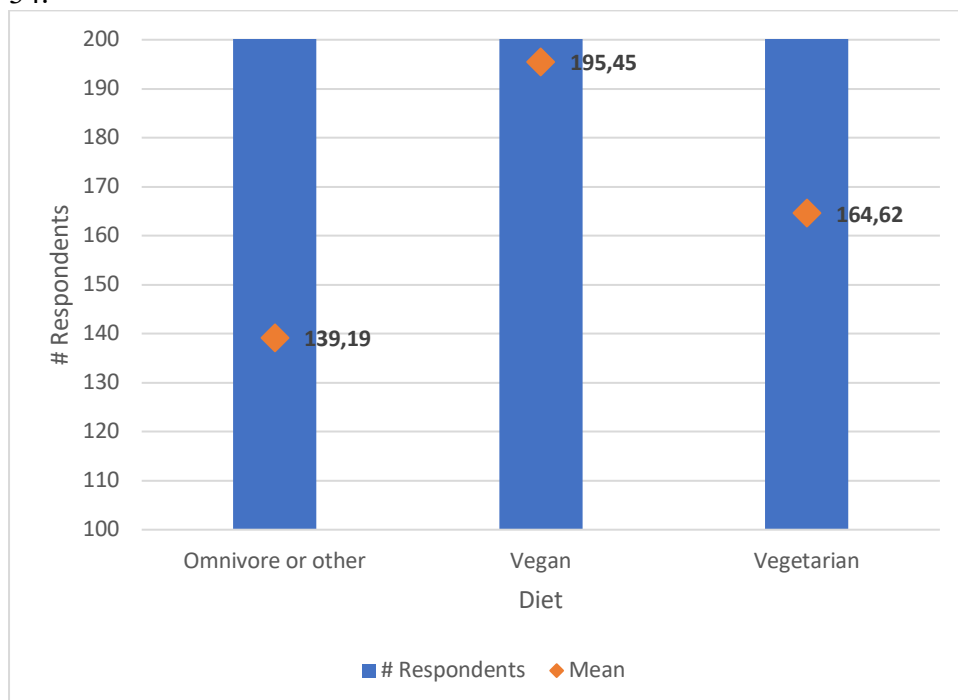


Figure 34 Kruskal Wallis Test Misleadingness Lidl Logo x Diet Category

### 3.4 Consumer Opinion About Labels Used Abroad

Figure 35 shows the results of the opinion of the Dutch consumer about the logos used abroad. For India, these results are 64 participants that found the Indian label clearer than the Dutch labels, 185 participants who did not find the labels clearer and 87 participants that chose maybe.

England shows 193 participants that found the English labels clearer than the Dutch labels, 55 who did not find the labels clearer and 88 participants that chose maybe.

Canada had 122 participants choosing yes, 145 participants choosing no and 69 participants choosing maybe.

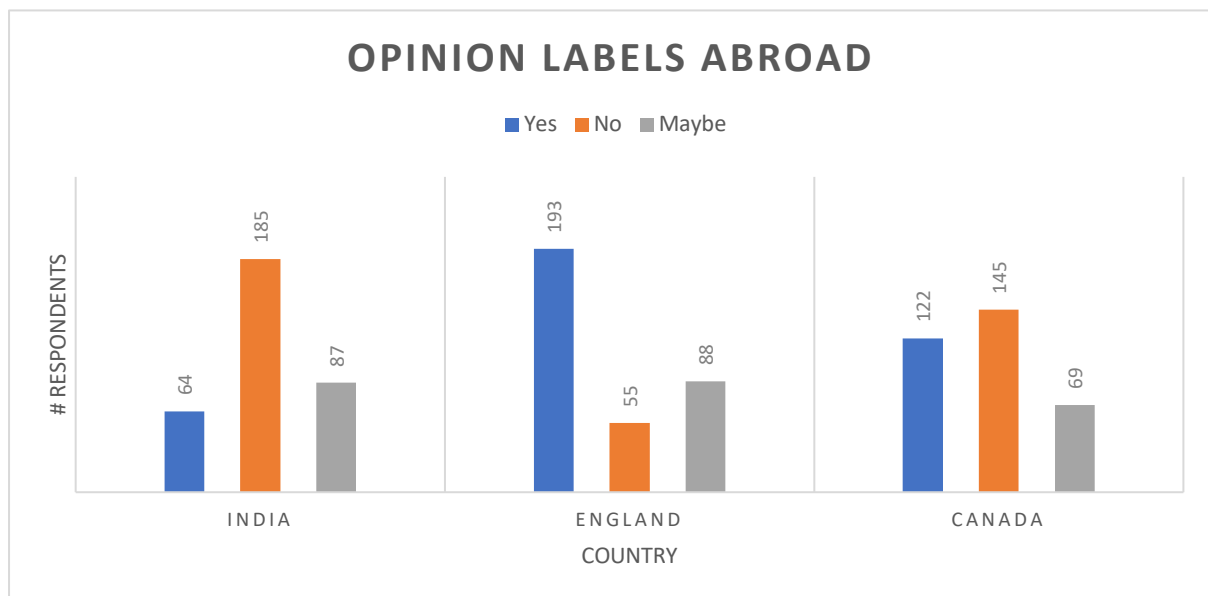


Figure 35 Opinions Participants About Labels Used Abroad

The results for the labels used abroad, are also analyses using the Chi square test. Appendix C shows the results gathered from SPSS. Table 6 presents the most important values.

Table 6 Overview Chi Square Results Labels Abroad

		Chi square	P-value
India	Gender	6.183	0.045
	Age	4.347	0.630
	Education	7.017	0.319
	Diet	13.879	0.008
England	Gender	7.441	0.024
	Age	12.670	0.049
	Education	12.554	0.051
	Diet	1.248	0.870
Canada	Gender	0.749	0.687
	Age	13.443	0.037
	Education	3.253	0.777



Diet	19.341	0.001
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The numbers highlighted in green, indicate a P value equal to or less than 5%. For these values, a statistical difference is found. The following differences are found:

The relation between the Indian label and the gender category was significant.  $H(2) = 6.183$ ,  $P = 0.045$ . Men found the Indian label clearer than women as seen in figure 36.

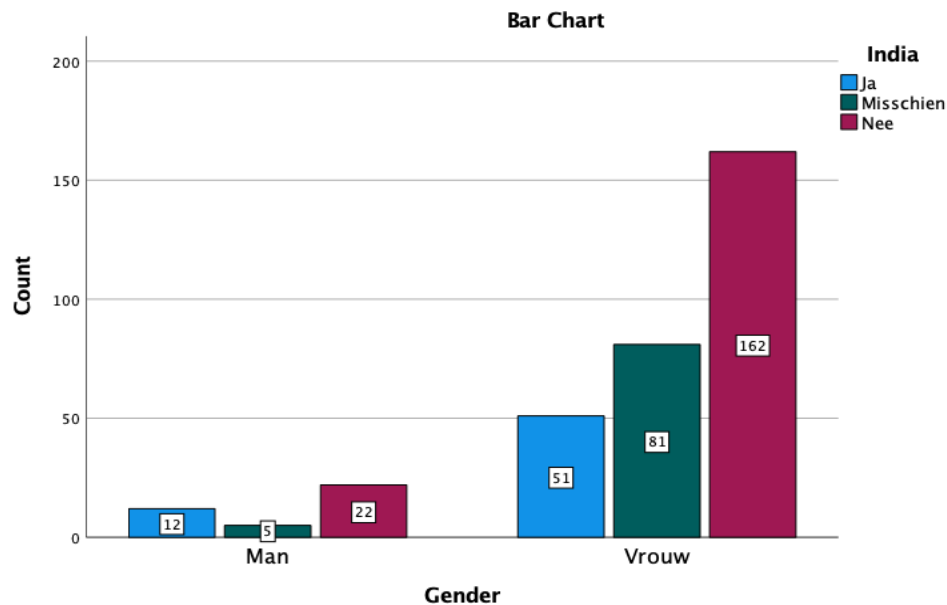


Figure 36 Chi Square Test Indian Label x Gender Category

The relation between the Indian label and the diet category was significant.  $H(4) = 13.879$ ,  $P = 0.008$ . Participants following an omnivore and a vegetarian diet found the Indian label clearer than participants following a vegan diet as seen in figure 37.

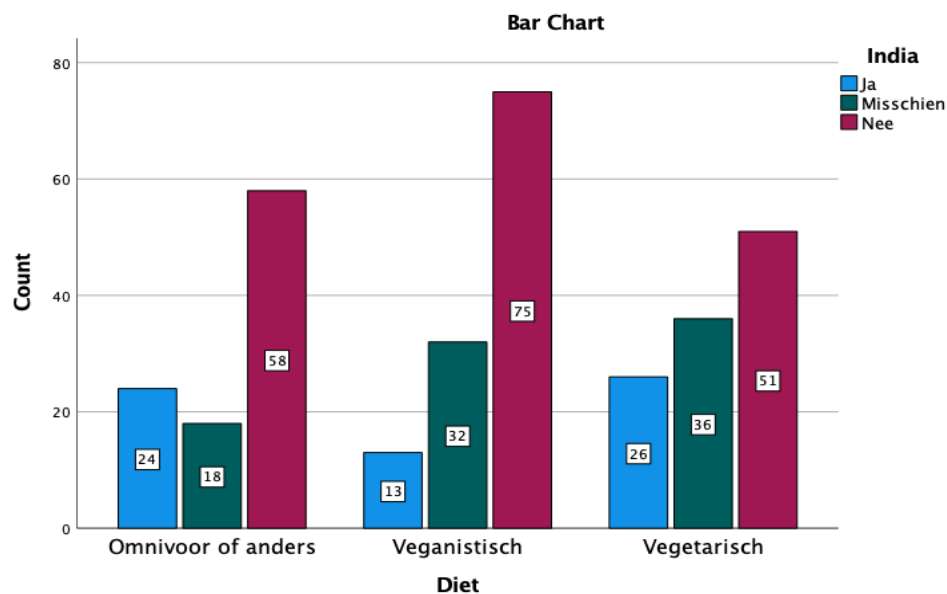


Figure 37 Chi Square Test Indian Label x Diet Category

The relation between the English labels and the gender category was significant.  $H(2) = 7.441$ ,  $P = 0.024$ . Women found the English label clearer than men as seen in figure 38.

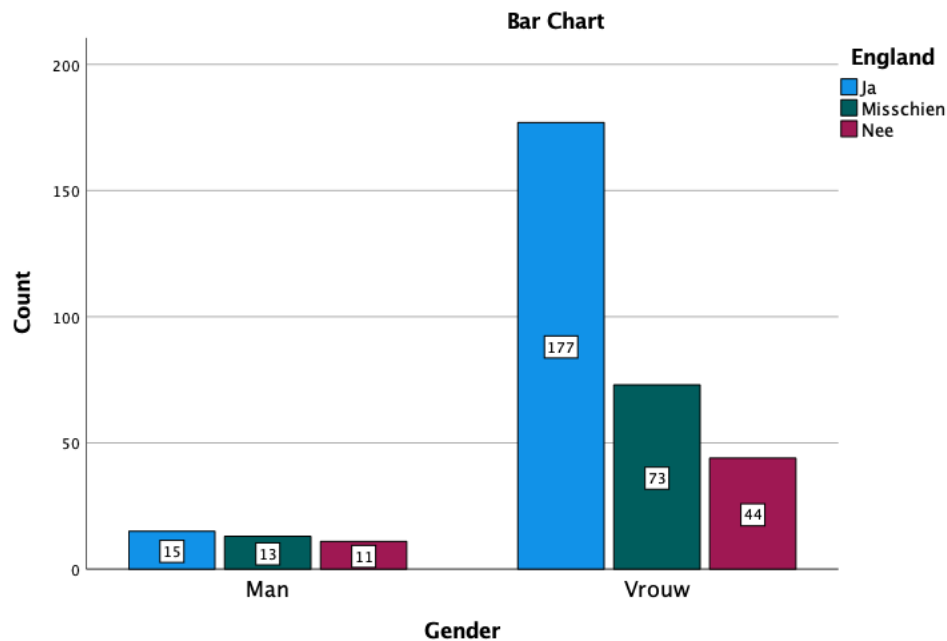


Figure 38 Chi Square Test English Label x Gender Category

The relation between the English labels and the age category was significant.  $H(6) = 12.670$ ,  $P = 0.049$ . Participants ages 57+ and ages 24 and younger found the English label clearer than participants aged 25-40 as seen in figure 39.

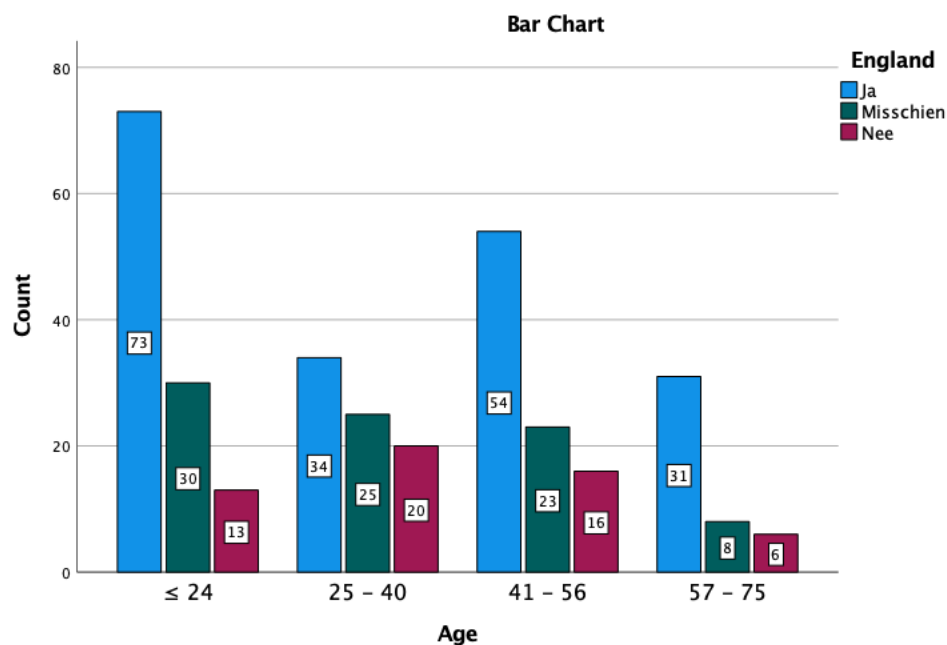


Figure 39 Chi Square Test English Label x Age Category

The relation between the Canadian labels and the age category was significant.  $H(6) = 13.443$ ,  $P = 0.037$ . Participants ages 57+ and ages 24 and younger found the Canadian label clearer than participants aged 25-40 as seen in figure 40.

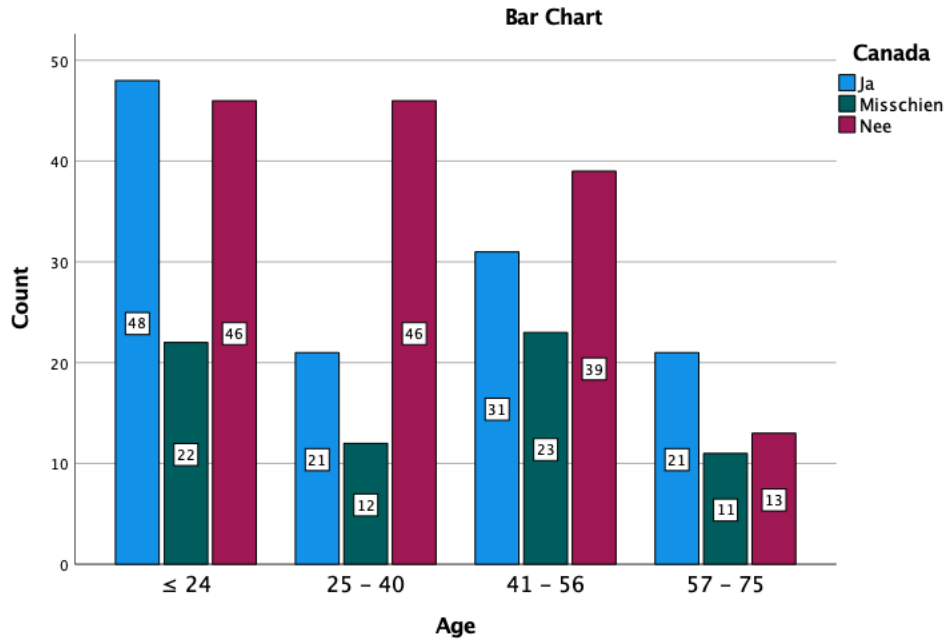


Figure 40 Chi Square Test Canadian Label x Age Category

The relation between the Canadian labels and the diet category was significant.  $H(4) = 19.341$ ,  $P = 0.001$ . Participants following an omnivore diet found the Canadian label clearer than vegan and vegetarian participants as seen in figure 41.

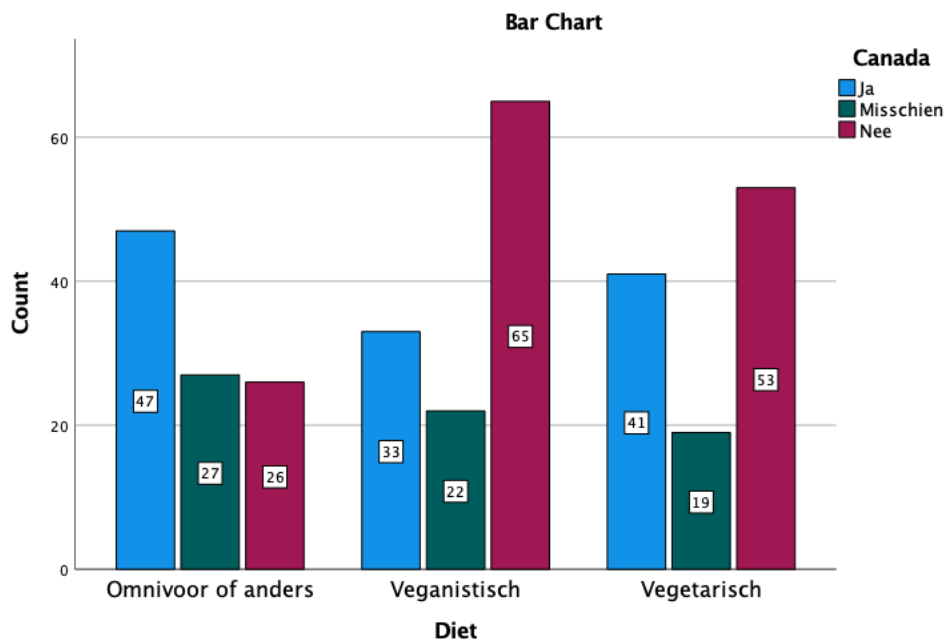


Figure 41 Chi Square Test Canadian Label x Diet Category

### 3.5 Suggestion on How to Improve the Dutch Labels

The final question in the questionnaire gave the participants the opportunity to share their suggestions about how to improve the Dutch labels. Figure 42 sums up the answers the participants mentioned most frequently. Not all participants answered this question. 132 participants mentioned the use of the 'vegan' and 'vegetarian' word on the packaging. 45 participants mentioned a clear difference in colour. 39 participants mentioned to use one

uniform logo in all supermarkets. Finally, 23 participants mentioned that they would like the logo printed larger on the label.

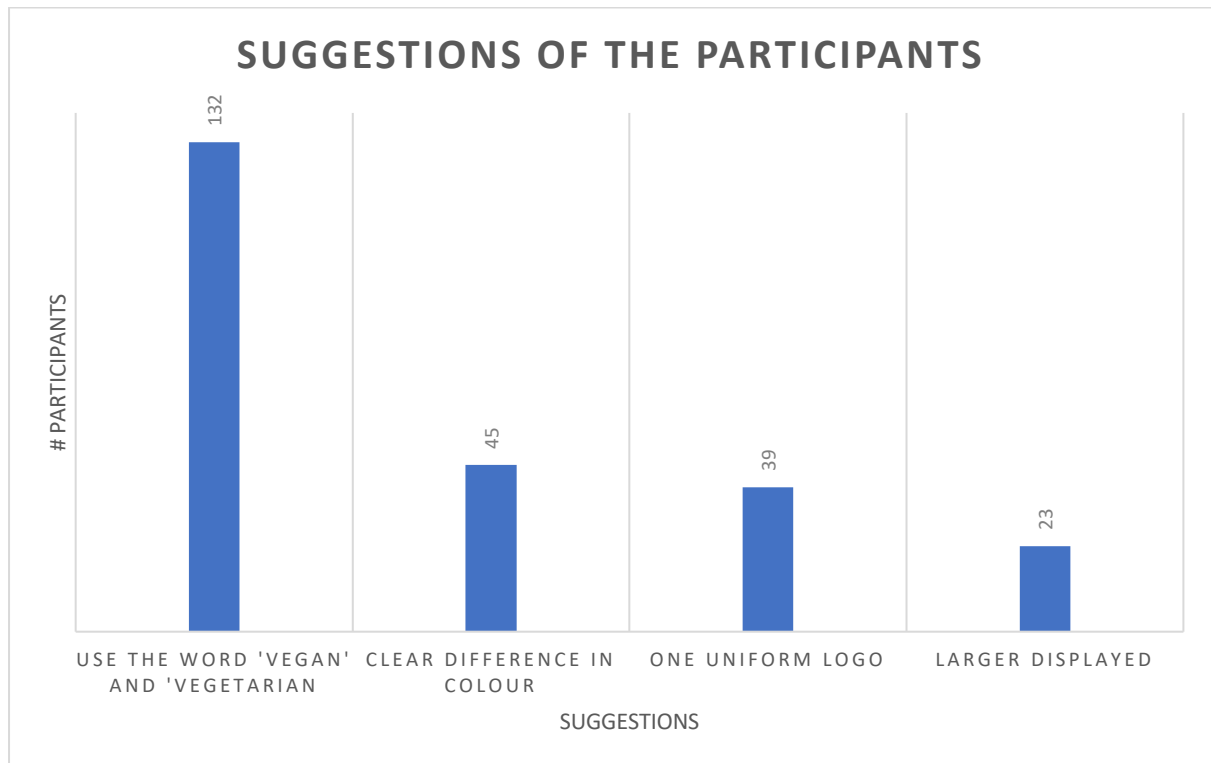


Figure 42 Respondents Suggestions on How to Make Dutch Labels More Clear

## 4. Discussion of Results

The aim of this research was to find an answer to the question ‘To what extent are the vegetarian and vegan labelling methods on food products understood by the Dutch consumers?’. In order to answer this question, a questionnaire was used amongst the Dutch consumers.


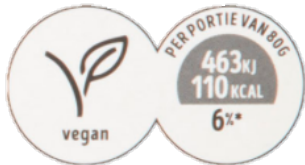


### 4.1 How Does the Consumer Decide Whether a Product is Suitable for Vegans or Vegetarians Based on Packaging?

The results show that the most frequently used aspect of the packaging to decide whether a product is vegan, or vegetarian is the vegan/vegetarian logo. This shows that it is very important that the logos used are clear and not misleading. Once this is not clear or misleading, the consumer can unintentionally consume animal products due to misunderstanding. Considering that unclear information on products is one of the main causes of consumer dissatisfaction with food labelling, transparency and clarity of the labels towards the consumer is very important to vegan and vegetarian people (Wyrwa & Barska, 2017). Besides this, a study done in the UK by Ubamarket, revealed that a quarter of vegetarians and vegans have unknowingly consumed meat due to unclear food labelling (Vegconomist, 2018).

### 4.2 To What Extent Do the Consumers Know the Meaning of Vegan and Vegetarian Labels Used by Dutch Supermarkets?

Overall, the participants struggled the most with the Albert Heijn logo. About one in five participants answered this question wrong. Whereas the logos from Jumbo, Lidl and Aldi scored much better. Table 7 Shows an overview of the labels used in the questionnaire.

Table 7 Overview Labels Used in Questionnaire

Supermarket	Labels used in questionnaire
<b>Albert Heijn</b> (Albert Heijn, n.d.)	
<b>Jumbo</b> (Jumbo, n.d.)	
<b>Lidl</b> (Lidl, n.d.)	
<b>Aldi</b> (Aldi, n.d.)	

The results show that overall, the logo used at the Albert Heijn caused the most confusion with only 78% participants answering the question correct. Comparing this outcome to the outcome of the other three logos, which scored between 94%-97% correct answers, it is significantly less. Looking at the design of the logo, the Albert Heijn logo is not mentioning the full 'vegan' or 'vegetarian' word, but uses the abbreviation 'VEGA', which is short for 'VEGETARISCH' (Dutch word for vegetarian). However, 22% of the participants interpreted this as 'VEGAN'. This clear difference in design of the Albert Heijn logo, could be the reason for the confusion. Albert Heijn is not the only supermarket using the 'VEGA' abbreviation. The Aldi uses the word for their vegetarian products as well. However, in the questionnaire, their vegan logo was given to the respondents. Therefore, the results of Aldi are not similar to the results of Albert Heijn. Therefore, the word 'VEGA' causes confusion for the consumer.

Participants aged 24 or younger struggled the most with identifying whether or not the logo was suitable for vegetarians only, or vegans and vegetarians for the Albert Heijn logo. As this generation is not in the working field yet, they might not always be responsible for the groceries which could lead to less exposure to the logos (Le, 2019). In addition, vegans and vegetarians use product labels to search for a vegan indicator to use, whereas this is not necessary for people following an omnivore diet (Le, 2019). These two factors could explain why these groups struggled to answer this question the most.

#### 4.3 What is the Consumers Opinion About the Clarity and Transparency of the Logos Used in the Netherlands?

Approximately half of the participants mentioned the Albert Heijn label being unclear and misleading. Whereas only a small number of participants choose the unclear and misleading option for the Jumbo, Lidl and Aldi logos. The difference of these logos is their design. The Albert Heijn design used an abbreviation 'VEGA', whereas the other designs did not use abbreviations. This again indicates that the logo with the word 'VEGA' (from Albert Heijn) is causing the most confusing amongst some groups. This is in line with the results from the previous question. When the participant answers the question wrong, they are more likely to give them a worse review on their clarity and transparency aspects. Again, this is a result of the design of the logo. The mentioning of the word 'VEGA' could be the reason for the many unclear and misleading feedback from the consumer since it is not obvious for everyone that 'VEGA' refers to a vegetarian product.

For both the clarity and transparency of the logo, the combination with diet gave statistically significant results. Meaning that on average, they scored the logos worse than the vegan and vegetarian group. This could have to do with the fact that vegans and vegetarians are exposed to these labels a lot more than omnivore people. Vegan and vegetarian consumer buying behaviour consist out of reading the product label in search for a vegan indicator and use it to give the conclusion of whether the product is suitable for vegans or vegetarians (Le, 2019). This behaviour is less common in an omnivore diet, as it does not contain similar restrictions (Le, 2019).

Interestingly, no significant relations have been found between the transparency of the labels and the respondents age categories. Therefore, it can be concluded that generational differences have no impact on the perception of the labels' transparency.

#### 4.4 To What Extent Does the Consumer Think the Labelling Systems Used Abroad are Clearer Than the Labelling Systems Used in the Netherlands?

When comparing labelling systems from other countries, the Indian system scored significantly lower than the English and Canadian labels. The main difference between the logos is that the Indian logos did not contain the words 'vegan' and 'vegetarian'. A system solely relying on colours would also not be ideal for colour blind people.

The Canadian logos scored better than the Indian logos. They do use the 'vegan' and 'vegetarian' word in their logo. However, the design of the two are very similar. This could explain why still so many participants answered 'no' in the questionnaire.

The English logos scored best out of the three. This logo contains the 'vegan' and 'vegetarian' words, as well as a significant different design. This clear difference is appreciated by the participants. However, some mentioned that the design was somewhat crowded.

Several relations were found between the age, gender and diet of the participants and their opinion about the labels used abroad. However, no relation was found between the participants education and their opinion about the labels used abroad. Therefore, it can be concluded that education plays no rule in the consumers preferences when it comes to label designs.

The suggestions of the participants are summed into four main categories; the use of the words 'vegan' and 'vegetarian' in the logo, a clear difference in colour, one uniform logo across all supermarkets and the logo should be enlarged. These suggestions will be taken into account once the recommendation is made on how to improve the use of vegan and vegetarian logos in the Dutch supermarkets.

#### 4.5 Reflection of Research Method

Before posting the questionnaire online, the aim was to gather at least 200 respondents. Overall, the gathering of respondents went smoothly. After two days, 200 respondents were reached and on the third day, the questionnaire was closed.

The goal was to gather an equal amount of female and male participants, as well as participants with equally distributed ages, education, and diets. As 87.8% of the participants were female and only 11.9% male, this goal was not achieved. The age category was generally speaking evenly distributed. Except the ages 76 and older were not reached. Education and diet both were distributed evenly, therefore give a valid representation of these groups.

One change has been made during the first hour the questionnaire was posted online. Question 5, 'based on the packaging, how would you decide whether a product is vegan or vegetarian?' started off by being a question where the participants could only choose one option. But after an hour, a couple of participants used the 'other' option to mention that they use a combination of two answers or even all three answers. Therefore, the decision was made to turn it into a question where the participants could cross multiple answers. Other than that, no changes were made, and the questionnaire provided a good data set to analyse and draw conclusions.

Reflecting on the questionnaire, the questions were easy to understand and to answer. Participants replied that they enjoyed the questionnaire and that it did not take long to finish it. However, for data analysis purpose it would have been interesting to see a higher number of male participants. This could be realised by distributing the questionnaire through multiple channels, not only Facebook groups.



## 5. Conclusions and Recommendations

This research was conducted to find out the understanding of the Dutch consumers of the vegan and vegetarian logos used on food products in the Netherlands. The research is especially relevant for those who identify as vegan, as they try to avoid all animal consumption. Also, retail and producers could benefit from this research to improve their communications towards the consumer.

### 5.1 Conclusions

By using a questionnaire as the research method, consumer opinions were gathered. The respondents of the questionnaire mostly use the vegan and vegetarian logos on the packaging to find out if a product is vegan or vegetarian.

Four supermarkets were used in this research to find out if their labels are clear to the consumer. Overall, logos with the words 'VEGAN' and 'VEGETARIAN' were well understood by the Dutch consumer. Only one logo showed significantly more dissatisfaction than the others. This logo used the word 'VEGA' and was interpreted many times as vegetarian instead of vegan. Statistical tests showed that mostly participants aged 24 or younger, following an omnivore diet, struggled with this question.

This different design with the word 'VEGA' used in the Albert Heijn, but also other stores like the Lidl, also had an impact on the consumers opinion about the label's clarity and transparency. Participants following an omnivore diet scored the label worse than the participants following a vegan or vegetarian diet. Therefore, the omnivore group showed the most dissatisfaction about this label. Again, labels of the Jumbo, Lidl and Aldi overall scored a lot better.

England is using a logo which is very different in overall design and uses the words 'vegan' and 'vegetarian' in it. It became clear that these differences were valued by the consumer. Many participants thought it would be a clearer system than the logos used in the Netherlands.

Finally, the participants shared their opinion about how to improve the Dutch vegan and vegetarian labelling systems. Four main topics were mentioned the most; the use of the words 'vegan' and 'vegetarian', a clear difference in colour, one uniform logo across all supermarkets and the logo should be larger displayed on the packaging.

Overall, it can be concluded that the understanding of vegan and vegetarian food labelling amongst the Dutch consumer, depends on the label design. Once they were presented with a logo stating the complete names 'VEGAN' and 'VEGETARIAN', it took the consumer little effort to understand these logos. However, once abbreviations were used like 'VEGA', significantly more consumers struggled to identify these logos.

## 5.2 Recommendations

A short-term recommendation is for the Albert Heijn and Aldi to change the design of their vegetarian logo as soon as possible. This research revealed that one in five people interpret this logo incorrect, which can cause unintentional consumption of animal products. Another short-term recommendation is to conduct a follow up research to investigate how to educate the groups that are not familiar with vegan and vegetarian food labelling. A lack of information between producers and consumers might prohibit consumers from making informed purchase decisions (Bacarella, Altamore, Valdesi, Chironi, Ingrassia, 2015). As the consumers are getting more progressive and aware of the issues related to food and impact on the economy and the environment, it is important to know the difference between these two labels (Bacarella et al., 2015)

For the long term, it is recommended that the supermarkets will implement a uniform logo across all supermarkets with a design that is clear for everyone. Taking into account the suggestions from the respondents in this research, a new design is created that covers all the suggestions. Figure 43 shows the design of the vegetarian logo, where the Dutch word 'VEGETARISCH' is used and is placed in a bright red box. The vegan logo displayed in figure 44 uses the same principle. It consists out of the entire 'VEGANISTISCH' word and is surrounded by a green box. This way, there is a clear colour difference, and no confusion can occur around the use of words.



*Figure 43 Recommendation Vegetarian Logo for Dutch Supermarkets*



*Figure 44 Recommendation Vegan Logo for Dutch Supermarkets*

Another long-term recommendation is aimed at the FAO. The lack of agreed criteria in the vegan and vegetarian food labelling legislation, causes a lot of confusion both in retail and the catering sectors (FoodIngredientsFirst, n.d.). This can be avoided by proper legislation (FoodIngredientsFirst, n.d.). Therefore, it is recommended that the proposal to the FAO to record the terms vegan and vegetarian in the General Standard for the Labelling of pre-packaged foods (CODEX STAN 1-1985), will be revised (FAO, 2018).

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## Appendix A

### Questionnaire Questions English

#### Vegan and Vegetarian Labelling Methods

My name is Marit Zwinselman and to complete my Bachelor degree I am doing research about the different vegan and vegetarian labelling methods used in the Netherlands. By answering this questionnaire you will stay completely anonymous. Please answer the questions honestly and do not go back once you answered the questions. Thank you in advance for your help!

\*Vereist

1. What is your gender? \*

*Markeer slechts één ovaal.*

- ☐ Female  
☐ Male  
☐ Other  
☐ Prefer not to say

2. What is your age? \*

*Markeer slechts één ovaal.*

- ☐ ≤ 24  
☐ 25 - 40  
☐ 41 - 56  
☐ 57 - 75  
☐ 76 ≥

3. What is your level of education? \*

*Markeer slechts één ovaal.*

- ☐ High school  
☐ MBO  
☐ Bachelor  
☐ Master/PhD

4. What is your preferred diet? \*

*Markeer slechts één ovaal.*

- ☐ Omnivore or other  
☐ Vegetarian  
☐ Vegan

5. How would you decide whether a product is suitable for vegans or vegetarians based on the packaging? \*

*Vink alle toepasselijke opties aan.*

- ☐ Vegan/vegetarian logo's  
☐ Allergen information  
☐ Ingredient list

Anders: ☐ \_\_\_\_\_



6. If a product has this logo, does that mean that it is suitable for vegetarians only, or for vegetarians AND vegans? \*



Markeer slechts één ovaal.

- ☐ Only suitable for vegetarians  
Ga naar sectie 8 (Correct. This product is only suitable for vegetarians.)
- ☐ Suitable for both vegan and vegetarians  
Ga naar sectie 9 (Incorrect. This product is only suitable for vegetarians. )

Correct. This product is only suitable for vegetarians.

Please continue to the next question, don't go back to change your answer.

Ga naar vraag 7

Incorrect. This product is only suitable for vegetarians.

Please continue to the next question, don't go back to change your answer.

7. Is this logo unclear or clear to you? \*

Markeer slechts één ovaal.

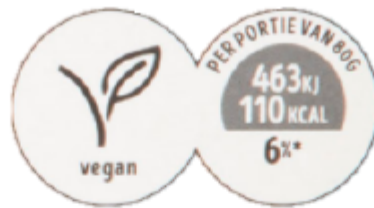
	1	2	3	4	5	
Unclear	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Clear

8. Is this logo misleading or truthful to you? \*

Markeer slechts één ovaal.

	1	2	3	4	5	
Misleading	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Truthful

9. If a product has this logo, does that mean that it is suitable for vegetarians only, or for vegetarians AND vegans? \*



Markeer slechts één ovaal.

- ☐ Only suitable for vegetarians  
Ga naar sectie 12 (Incorrect. This product is suitable for both vegan and vegetarians. )
- ☐ Suitable for both vegan and vegetarians  
Ga naar sectie 13 (Correct. This product is suitable for both vegan and vegetarians. )

Incorrect. This product is suitable for both vegan and vegetarians.

Please continue to the next question, don't go back to change your answer.

Ga naar vraag 10

Correct. This product is suitable for both vegan and vegetarians.

Please continue to the next question, don't go back to change your answer.

10. Is this logo unclear or clear to you? \*

Markeer slechts één ovaal.

	1	2	3	4	5	
Unclear	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Clear

11. Is this logo misleading or truthful to you? \*

Markeer slechts één ovaal.

	1	2	3	4	5	
Misleading	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Truthful

12. If a product has this logo, does that mean that it is suitable for vegetarians only, or for vegetarians AND vegans? \*



Markeer slechts één ovaal.

☐

Only suitable for vegetarians

Ga naar sectie 17 (Incorrect. The product is only suitable for vegetarians.)

☐

Suitable for both vegan and vegetarians

Ga naar sectie 16 (Correct. The product is only suitable for vegetarians. )

Correct. The product is only suitable for vegetarians.

Please continue to the next question, don't go back to change your answer.

Ga naar vraag 13

Incorrect. The product is only suitable for vegetarians.

Please continue to the next question, don't go back to change your answer.

13. Is this logo unclear or clear to you? \*

Markeer slechts één ovaal.

	1	2	3	4	5	
Unclear	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Clear

14. Is this logo misleading or truthful to you? \*

Markeer slechts één ovaal.

	1	2	3	4	5	
Misleading	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Truthful

15. If a product has this logo, does that mean that it is suitable for vegetarians only, or for vegetarians AND vegans? \*



Markeer slechts één ovaal.

- ☐ Only suitable for vegetarians  
*Ga naar sectie 20 (Correct. The product is only suitable for vegetarians.)*
- ☐ Suitable for both vegan and vegetarians  
*Ga naar sectie 21 (Incorrect. The product is only suitable for vegetarians. )*

Correct. The product is only suitable for vegetarians.

Please continue to the next question, don't go back to change your answer.

Ga naar vraag 16

Incorrect. The product is only suitable for vegetarians.

Please continue to the next question, don't go back to change your answer.

16. Is this logo unclear or clear to you? \*

Markeer slechts één ovaal.

	1	2	3	4	5	
Unclear	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Clear

17. Is this logo misleading or truthful to you? \*

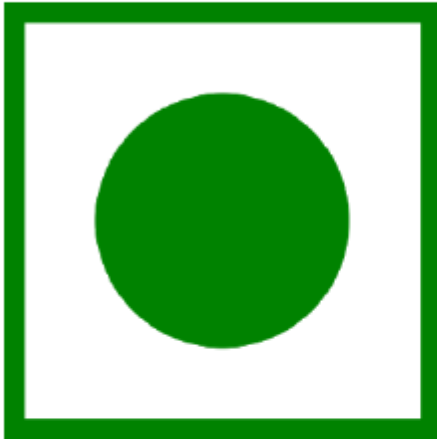
Markeer slechts één ovaal.

	1	2	3	4	5	
Misleading	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Truthful

International  
logo's

During the next three questions you will be shown vegan and vegetarian logo's used in India, the UK and Canada. You will be asked whether or not you think these systems are more understandable than the Dutch systems.

18. These logo's are used in India. The green dot represents vegetarian products, whereas the brown dot represents non-vegetarian products. A specific dot for vegan products does not exist now. Do you think this system is more clear than the Dutch vegan and vegetarian logo's? \*



Markeer slechts één ovaal.

- ☐ Yes  
☐ No  
☐ Maybe

19. These logo's are used in the United Kingdom. The vegetarian society is representing vegetarian products and the vegan logo is representing vegan products. Do you think this system is more clear than the Dutch vegan and vegetarian logo's? \*



Markeer slechts één ovaal.

- ☐ Yes  
☐ No  
☐ Maybe

20. These logo's are used in Canada. The vegan VegeCert logo represents vegan products and the vegetarian VegeCert logo represents vegetarian products. Do you think this system is more clear than the Dutch vegan and vegetarian logo's? \*



*Markeer slechts één ovaal.*

- ☐ Yes
- ☐ No
- ☐ Maybe

21. Do you have any recommendations to make the labeling of vegan and vegetarian products in the Netherlands more clear? \*

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## Appendix B

### Questionnaire Questions Dutch

#### Vegan en Vegetarische Labelling Methodes

Mijn naam is Marit Zwinselman en voor mijn Bachelor scriptie doe ik onderzoek naar verschillende methodes die in Nederland worden gebruikt om vegetarisch, en veganistische producten te onderscheiden. Door het invullen van deze vragenlijst blijft u volledig anoniem. Geef zo eerlijk mogelijk antwoord, en ga niet terug wanneer u een vraag heeft beantwoord. Alvast bedankt voor uw hulp!

**\*Vereist**

1. Wat is uw geslacht? \*

*Markeer slechts één ovaal.*

- ☐ Vrouw  
☐ Man  
☐ Anders  
☐ Zeg ik liever niet

2. Wat is uw leeftijd? \*

*Markeer slechts één ovaal.*

- ☐ ≤ 24  
☐ 25 - 40  
☐ 41 - 56  
☐ 57 - 75  
☐ 76 ≥

3. Wat is uw opleidingsniveau? \*

*Markeer slechts één ovaal.*

- ☐ Middelbare school
- ☐ MBO
- ☐ Bachelor
- ☐ Master/PhD

4. Welk dieet heeft uw voorkeur? \*

*Markeer slechts één ovaal.*

- ☐ Omnivoor of anders
- ☐ Vegetarisch
- ☐ Veganistisch

5. Hoe zou u op basis van de verpakking beslissen of een product geschikt is voor veganisten of vegetariërs? \*

*Vink alle toepasselijke opties aan.*

- ☐ Vegetarisch/veganistisch logo
- ☐ Allergenen informatie
- ☐ Ingrediënten lijst

Anders: ☐ \_\_\_\_\_



6. Betekent dit logo dat het product alleen geschikt is voor vegetariërs, of dat het geschikt is voor vegetariërs EN veganisten? \*



Markeer slechts één ovaal.

- ☐ Alleen geschikt voor vegetariërs  
Ga naar sectie 8 (Juist. Dit product is alleen geschikt voor vegetariërs.)
- ☐ Geschikt voor vegetariërs EN veganisten  
Ga naar sectie 9 (Onjuist. Dit product is alleen geschikt voor vegetariërs.)

Juist. Dit product is alleen geschikt voor vegetariërs.

Ga door naar de volgende vraag. Ga niet terug.

Ga naar vraag 7

Onjuist. Dit product is alleen geschikt voor vegetariërs.

Ga door naar de volgende vraag. Ga niet terug.

7. Op een schaal van 1 tot 5, vindt u dit logo onduidelijk of duidelijk? \*

Markeer slechts één ovaal.

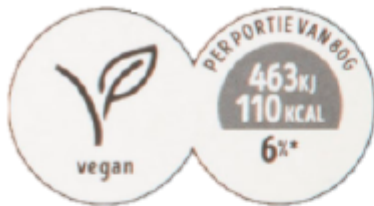
	1	2	3	4	5	
Onduidelijk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Duidelijk

8. Op een schaal van 1 tot 5, vindt u dit logo misleidend of logisch? \*

Markeer slechts één ovaal.

	1	2	3	4	5	
Misleidend	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Logisch

9. Betekent dit logo dat het product alleen geschikt is voor vegetariërs, of dat het geschikt is voor vegetariërs EN veganisten? \*



Markeer slechts één ovaal.

- ☐ Alleen geschikt voor vegetariërs  
Ga naar sectie 13 (Onjuist. Dit product is geschikt voor vegetariërs EN veganisten. )
- ☐ Geschikt voor vegetariërs EN veganisten  
Ga naar sectie 12 (Juist. Dit product is geschikt voor vegetariërs EN veganisten.)

Juist. Dit product is geschikt voor vegetariërs  
EN veganisten.

Ga door naar de volgende vraag. Ga  
niet terug.

Ga naar vraag 10

Onjuist. Dit product is geschikt voor vegetariërs  
EN veganisten.

Ga door naar de volgende vraag. Ga  
niet terug.

10. Op een schaal van 1 tot 5, vindt u dit logo onduidelijk of duidelijk? \*

Markeer slechts één ovaal.

	1	2	3	4	5	
Onduidelijk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Duidelijk

11. Op een schaal van 1 tot 5, vindt u dit logo misleidend of logisch? \*

Markeer slechts één ovaal.

	1	2	3	4	5	
Misleidend	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Logisch

12. Betekent dit logo dat het product alleen geschikt is voor vegetariërs, of dat het geschikt is voor vegetariërs EN veganisten? \*



Markeer slechts één ovaal.

- ☐ Alleen geschikt voor vegetariërs  
Ga naar sectie 17 (Onjuist. Dit product is geschikt voor vegetariërs EN veganisten. )
- ☐ Geschikt voor vegetariërs EN veganisten  
Ga naar sectie 16 (Juist. Dit product is geschikt voor vegetariërs EN veganisten.)

Juist. Dit product is geschikt voor vegetariërs  
EN veganisten.

Ga door naar de volgende vraag. Ga  
niet terug.

Ga naar vraag 13

Onjuist. Dit product is geschikt voor vegetariërs EN veganisten.

13. Op een schaal van 1 tot 5, vindt u dit logo onduidelijk of duidelijk? \*

Markeer slechts één ovaal.

	1	2	3	4	5	
Onduidelijk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Duidelijk

14. Op een schaal van 1 tot 5, vindt u dit logo misleidend of logisch? \*

Markeer slechts één ovaal.

	1	2	3	4	5	
Misleidend	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Logisch

15. Betekent dit logo dat het product alleen geschikt is voor vegetariërs, of dat het geschikt is voor vegetariërs EN veganisten? \*



**VEGETARIAN**

Markeer slechts één ovaal.

- ☐ Alleen geschikt voor vegetariërs  
Ga naar sectie 20 (Juist. Dit product is alleen geschikt voor vegetariërs )
- ☐ Geschikt voor vegetariërs EN veganisten  
Ga naar sectie 21 (Onjuist. Dit product is alleen geschikt voor vegetariërs)

Juist. Dit product is alleen geschikt voor vegetariërs

Ga door naar de volgende vraag. Ga niet terug.

Ga naar vraag 16

Onjuist. Dit product is alleen geschikt voor vegetariërs

Ga door naar de volgende vraag. Ga niet terug.

16. Op een schaal van 1 tot 5, vindt u dit logo onduidelijk of duidelijk? \*

Markeer slechts één ovaal.

	1	2	3	4	5	
Onduidelijk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Duidelijk

17. Op een schaal van 1 tot 5, vindt u dit logo misleidend of logisch? \*

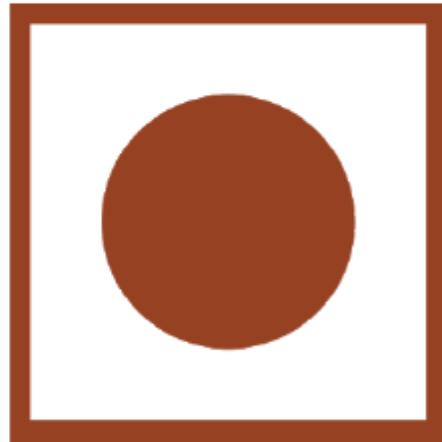
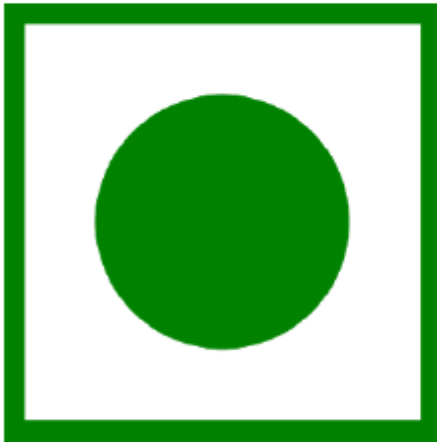
Markeer slechts één ovaal.

	1	2	3	4	5	
Misleidend	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Logisch

Internationale  
logo's

De volgende drie vragen laten drie verschillende logo's zien die worden gebruikt buiten Nederland. U wordt gevraagd of u deze logo's makkelijker vindt te begrijpen dan de logo's in Nederland of niet.

18. Deze logo's worden gebruikt in India. De groene stip geeft aan dat een product vegetarisch is en de bruine stip geeft aan dat een product niet-vegetarisch is. Een specifieke stip voor veganistische producten bestaat nog niet. Denkt u dat dit systeem duidelijker is dan de Nederlandse logo's? \*



Markeer slechts één ovaal.

- ☐ Ja  
☐ Nee  
☐ Misschien

19. Deze logo's worden gebruikt in Engeland. De 'vegetarian society' logo wordt gebruikt op vegetarische producten en het 'vegan' logo wordt gebruikt op veganistische producten. Denkt u dat dit systeem duidelijker is dan de Nederlandse logo's? \*



Markeer slechts één ovaal.

- ☐ Ja  
☐ Nee  
☐ Misschien

20. Deze logo's worden gebruikt in Canada. Het logo met het woord 'VEGAN' wordt gebruikt op veganistische producten en het logo met het woord 'VEGETARIAN' wordt gebruikt op vegetarische producten. Denkt u dat dit systeem duidelijker is dan de Nederlandse logo's? \*



Markeer slechts één ovaal.

- ☐ Ja  
☐ Nee  
☐ Misschien

21. Heeft u nog suggesties om de logo's die gebruikt worden in Nederland duidelijker te maken? \*

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## Appendix C

### Chi Squared Test Results

#### Gender x Label Albert Heijn

##### Gender \* Label1 Crosstabulation

			Label1		Total
			Alleen geschikt voor vegetariërs	Geschikt voor vegetariërs EN veganiste	
Gender	Man	Count	26	13	39
		Expected Count	30.7	8.3	39.0
	Vrouw	Count	236	58	294
		Expected Count	231.3	62.7	294.0
Total	Count		262	71	333
	Expected Count		262.0	71.0	333.0

##### Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.799 <sup>a</sup>	1	.051		
Continuity Correction <sup>b</sup>	3.032	1	.082		
Likelihood Ratio	3.457	1	.063		
Fisher's Exact Test				.061	.045
N of Valid Cases	333				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 8.32.

b. Computed only for a 2x2 table

#### Gender x Label Jumbo

##### Crosstab

			Label2		Total
			Alleen geschikt voor vegetariërs	Geschikt voor vegetariërs EN veganisten	
Gender	Man	Count	5	35	40
		Expected Count	1.3	38.7	40.0
	Vrouw	Count	6	289	295
		Expected Count	9.7	285.3	295.0
Total	Count		11	324	335
	Expected Count		11.0	324.0	335.0

##### Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	12.150 <sup>a</sup>	1	<.001		
Continuity Correction <sup>b</sup>	9.077	1	.003		
Likelihood Ratio	8.031	1	.005		
Fisher's Exact Test				.005	.005
N of Valid Cases	335				

a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 1.31.

b. Computed only for a 2x2 table

#### Gender x Label Lidl

### Crosstab

		Label3		
		Alleen geschikt voor vegetariërs	Geschikt voor vegetariërs EN veganisten	Total
Gender	Man	Count	7	33
		Expected Count	1.8	38.2
	Vrouw	Count	8	287
		Expected Count	13.2	281.8
Total	Count	15	320	335
	Expected Count	15.0	320.0	335.0

### Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	18.010 <sup>a</sup>	1	<.001		
Continuity Correction <sup>b</sup>	14.718	1	<.001		
Likelihood Ratio	11.901	1	<.001		
Fisher's Exact Test				<.001	<.001
N of Valid Cases	335				

a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 1.79.

b. Computed only for a 2x2 table

## Gender x Label Aldi

### Crosstab

		Label4		
		Alleen geschikt voor vegetariërs	Geschikt voor vegetariërs EN veganisten	Total
Gender	Man	Count	34	6
		Expected Count	37.7	2.3
	Vrouw	Count	282	13
		Expected Count	278.3	16.7
Total	Count	316	19	335
	Expected Count	316.0	19.0	335.0

### Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	7.388 <sup>a</sup>	1	.007		
Continuity Correction <sup>b</sup>	5.541	1	.019		
Likelihood Ratio	5.542	1	.019		
Fisher's Exact Test				.017	.017
N of Valid Cases	335				

a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 2.27.

b. Computed only for a 2x2 table

## Age x Label Albert Heijn



### Crosstab

			Label1		
			Alleen geschikt voor vegetariërs	Geschikt voor vegetariërs EN veganisten	Total
Age	≤ 24	Count	80	36	116
		Expected Count	91.1	24.9	116.0
	25 – 40	Count	72	7	79
		Expected Count	62.0	17.0	79.0
	41 – 56	Count	75	18	93
		Expected Count	73.0	20.0	93.0
	57 – 75	Count	36	11	47
		Expected Count	36.9	10.1	47.0
Total	Count	263	72	335	
	Expected Count	263.0	72.0	335.0	

### Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	14.084 <sup>a</sup>	3	.003
Likelihood Ratio	15.155	3	.002
N of Valid Cases	335		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 10.10.

## Age x Label Jumbo

### Crosstab

			Label2		
			Alleen geschikt voor vegetariërs	Geschikt voor vegetariërs EN veganisten	Total
Age	≤ 24	Count	2	114	116
		Expected Count	3.8	112.2	116.0
	25 – 40	Count	4	75	79
		Expected Count	2.6	76.4	79.0
	41 – 56	Count	4	89	93
		Expected Count	3.1	89.9	93.0
	57 – 75	Count	1	46	47
		Expected Count	1.5	45.5	47.0
Total	Count	11	324	335	
	Expected Count	11.0	324.0	335.0	

### Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	2.177 <sup>a</sup>	3	.536
Likelihood Ratio	2.251	3	.522
N of Valid Cases	335		

a. 4 cells (50.0%) have expected count less than 5. The minimum expected count is 1.54.

## Age x Label Lidl

### Crosstab

			Label3		
			Alleen geschikt voor vegetariërs	Geschikt voor vegetariërs EN veganisten	Total
Age	≤ 24	Count	5	111	116
		Expected Count	5.2	110.8	116.0
	25 – 40	Count	4	75	79
		Expected Count	3.5	75.5	79.0
	41 – 56	Count	4	89	93
		Expected Count	4.2	88.8	93.0
	57 – 75	Count	2	45	47
		Expected Count	2.1	44.9	47.0
Total	Count	15	320	335	
	Expected Count	15.0	320.0	335.0	

### Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	.083 <sup>a</sup>	3	.994
Likelihood Ratio	.081	3	.994
N of Valid Cases	335		

a. 3 cells (37.5%) have expected count less than 5.  
The minimum expected count is 2.10.

## Age x Label Aldi

### Crosstab

			Label4		
			Alleen geschikt voor vegetariërs	Geschikt voor vegetariërs EN veganisten	Total
Age	≤ 24	Count	112	4	116
		Expected Count	109.4	6.6	116.0
	25 – 40	Count	75	4	79
		Expected Count	74.5	4.5	79.0
	41 – 56	Count	87	6	93
		Expected Count	87.7	5.3	93.0
	57 – 75	Count	42	5	47
		Expected Count	44.3	2.7	47.0
Total	Count	316	19	335	
	Expected Count	316.0	19.0	335.0	

### Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	3.399 <sup>a</sup>	3	.334
Likelihood Ratio	3.142	3	.370
N of Valid Cases	335		

a. 2 cells (25.0%) have expected count less than 5.  
The minimum expected count is 2.67.

## Education x Label Albert Heijn

### Crosstab

		Label1		Total
		Alleen geschikt voor vegetariërs	Geschikt voor vegetariërs EN veganisten	
Education	Bachelor	Count	134	158
		Expected Count	124.0	158.0
	Master/PhD	Count	44	54
		Expected Count	42.4	54.0
	MBO	Count	66	94
		Expected Count	73.8	94.0
	Middelbare school	Count	19	29
		Expected Count	22.8	29.0
Total		Count	263	335
		Expected Count	263.0	335.0

### Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	10.736 <sup>a</sup>	3	.013
Likelihood Ratio	10.448	3	.015
N of Valid Cases	335		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 6.23.

## Education x Label Jumbo

### Crosstab

		Label2		Total
		Alleen geschikt voor vegetariërs	Geschikt voor vegetariërs EN veganisten	
Education	Bachelor	Count	3	155
		Expected Count	5.2	158.0
	Master/PhD	Count	1	53
		Expected Count	1.8	54.0
	MBO	Count	6	88
		Expected Count	3.1	94.0
	Middelbare school	Count	1	28
		Expected Count	1.0	29.0
Total		Count	11	324
		Expected Count	11.0	335.0

### Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	4.149 <sup>a</sup>	3	.246
Likelihood Ratio	3.779	3	.286
N of Valid Cases	335		

a. 3 cells (37.5%) have expected count less than 5. The minimum expected count is .95.

## Education x Label Lidl

### Crosstab

		Label3		Total
		Alleen geschikt voor vegetariërs	Geschikt voor vegetariërs EN veganisten	
Education	Bachelor	Count	7	151
		Expected Count	7.1	158.0
	Master/PhD	Count	0	54
		Expected Count	2.4	54.0
	MBO	Count	7	87
		Expected Count	4.2	89.8
	Middelbare school	Count	1	28
		Expected Count	1.3	27.7
Total	Count	15	320	335
	Expected Count	15.0	320.0	335.0

### Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	4.541 <sup>a</sup>	3	.209
Likelihood Ratio	6.653	3	.084
N of Valid Cases	335		

a. 3 cells (37.5%) have expected count less than 5.  
The minimum expected count is 1.30.

## Education x Label Aldi

### Crosstab

		Label4		Total
		Alleen geschikt voor vegetariërs	Geschikt voor vegetariërs EN veganisten	
Education	Bachelor	Count	151	7
		Expected Count	149.0	9.0
	Master/PhD	Count	53	1
		Expected Count	50.9	3.1
	MBO	Count	86	8
		Expected Count	88.7	5.3
	Middelbare school	Count	26	3
		Expected Count	27.4	1.6
Total	Count	316	19	335
	Expected Count	316.0	19.0	335.0

### Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	4.528 <sup>a</sup>	3	.210
Likelihood Ratio	4.661	3	.198
N of Valid Cases	335		

a. 2 cells (25.0%) have expected count less than 5.  
The minimum expected count is 1.64.

## Diet x Label Albert Heijn

### Crosstab

		Label1		Total
		Alleen geschikt voor vegetariërs	Geschikt voor vegetariërs EN veganisten	
Diet	Omnivoor of anders	Count	48	53
		Expected Count	79.3	21.7
	Veganistisch	Count	118	2
		Expected Count	94.2	25.8
	Vegetarisch	Count	97	17
		Expected Count	89.5	24.5
Total	Count		263	72
	Expected Count		263.0	72.0

### Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	88.339 <sup>a</sup>	2	<.001
Likelihood Ratio	92.532	2	<.001
N of Valid Cases	335		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 21.71.

## Diet x Label Jumbo

### Crosstab

		Label2		Total
		Alleen geschikt voor vegetariërs	Geschikt voor vegetariërs EN veganisten	
Diet	Omnivoor of anders	Count	10	91
		Expected Count	3.3	97.7
	Veganistisch	Count	1	119
		Expected Count	3.9	116.1
	Vegetarisch	Count	0	114
		Expected Count	3.7	110.3
Total	Count		11	324
	Expected Count		11.0	324.0

### Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	20.066 <sup>a</sup>	2	<.001
Likelihood Ratio	19.999	2	<.001
N of Valid Cases	335		

a. 3 cells (50.0%) have expected count less than 5. The minimum expected count is 3.32.

## Diet x Label Lidl

### Crosstab

		Label3		Total
		Alleen geschikt voor vegetariërs	Geschikt voor vegetariërs EN veganisten	
Diet	Omnivoor of anders	Count	9	92
		Expected Count	4.5	96.5
	Veganistisch	Count	2	118
		Expected Count	5.4	114.6
	Vegetarisch	Count	4	110
		Expected Count	5.1	108.9
Total	Count		15	320
	Expected Count		15.0	320.0

### Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	7.108 <sup>a</sup>	2	.029
Likelihood Ratio	6.804	2	.033
N of Valid Cases	335		

a. 1 cells (16.7%) have expected count less than 5. The minimum expected count is 4.52.

## Diet x Label Aldi

### Crosstab

		Label4		Total
		Alleen geschikt voor vegetariërs	Geschikt voor vegetariërs EN veganisten	
Diet	Omnivoor of anders	Count	91	10
		Expected Count	95.3	5.7
	Veganistisch	Count	117	3
		Expected Count	113.2	6.8
	Vegetarisch	Count	108	6
		Expected Count	107.5	6.5
Total	Count		316	19
	Expected Count		316.0	19.0

### Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	5.669 <sup>a</sup>	2	.059
Likelihood Ratio	5.654	2	.059
N of Valid Cases	335		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.73.

## Chi Square tests labels abroad

### Gender x label India

#### Gender \* India Crosstabulation

		India			Total
		Ja	Misschien	Nee	
Gender	Man	Count	12	5	22
		Expected Count	7.4	10.1	39.0
	Vrouw	Count	51	81	162
		Expected Count	55.6	75.9	162.5
Total	Count		63	86	184
	Expected Count		63.0	86.0	184.0

### Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	6.183 <sup>a</sup>	2	.045
Likelihood Ratio	6.307	2	.043
N of Valid Cases	333		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 7.38.

## Age x label India

### Age \* India Crosstabulation

			India		Total
			Ja	Misschien	
Age	≤ 24	Count	23	33	60
		Expected Count	21.9	30.0	64.1
	25 – 40	Count	17	16	46
		Expected Count	14.9	20.4	43.7
	41 – 56	Count	13	24	56
		Expected Count	17.6	24.0	51.4
	57 – 75	Count	10	13	22
		Expected Count	8.5	11.6	24.9
Total		Count	63	86	184
		Expected Count	63.0	86.0	184.0

### Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	4.347 <sup>a</sup>	6	.630
Likelihood Ratio	4.507	6	.608
N of Valid Cases	333		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 8.51.

## Education x label India

### Education \* India Crosstabulation

			India		Total
			Ja	Misschien	
Education	Bachelor	Count	28	43	87
		Expected Count	29.9	40.8	87.3
	Master/PhD	Count	8	12	34
		Expected Count	10.2	13.9	29.8
	MBO	Count	24	25	44
		Expected Count	17.6	24.0	51.4
	Middelbare school	Count	3	6	19
		Expected Count	5.3	7.2	15.5
Total		Count	63	86	184
		Expected Count	63.0	86.0	184.0

### Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	7.017 <sup>a</sup>	6	.319
Likelihood Ratio	7.003	6	.321
N of Valid Cases	333		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.30.

## Diet x label India

### Diet \* India Crosstabulation

			India		Total
			Ja	Misschien	
Diet	Omnivoor of anders	Count	24	18	58
		Expected Count	18.9	25.8	55.3
	Veganistisch	Count	13	32	75
		Expected Count	22.7	31.0	66.3
	Vegetarisch	Count	26	36	51
		Expected Count	21.4	29.2	62.4
Total		Count	63	86	184
		Expected Count	63.0	86.0	184.0

### Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	13.879 <sup>a</sup>	4	.008
Likelihood Ratio	14.733	4	.005
N of Valid Cases	333		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 18.92.

## Gender x label Engeland

### Gender \* England Crosstabulation

			England			Total
			Ja	Misschien	Nee	
Gender	Man	Count	15	13	11	39
		Expected Count	22.5	10.1	6.4	39.0
	Vrouw	Count	177	73	44	294
		Expected Count	169.5	75.9	48.6	294.0
Total	Count		192	86	55	333
	Expected Count		192.0	86.0	55.0	333.0

### Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	7.441 <sup>a</sup>	2	.024
Likelihood Ratio	7.144	2	.028
N of Valid Cases	333		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 6.44.

### Age x label England

#### Age \* England Crosstabulation

			England			Total
			Ja	Misschien	Nee	
Age	≤ 24	Count	73	30	13	116
		Expected Count	66.9	30.0	19.2	116.0
	25 – 40	Count	34	25	20	79
		Expected Count	45.5	20.4	13.0	79.0
	41 – 56	Count	54	23	16	93
		Expected Count	53.6	24.0	15.4	93.0
	57 – 75	Count	31	8	6	45
		Expected Count	25.9	11.6	7.4	45.0
Total	Count		192	86	55	333
	Expected Count		192.0	86.0	55.0	333.0

### Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	12.670 <sup>a</sup>	6	.049
Likelihood Ratio	12.700	6	.048
N of Valid Cases	333		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 7.43.

### Education x label Engeland

#### Education \* England Crosstabulation

			England			Total
			Ja	Misschien	Nee	
Education	Bachelor	Count	91	47	20	158
		Expected Count	91.1	40.8	26.1	158.0
	Master/PhD	Count	25	15	14	54
		Expected Count	31.1	13.9	8.9	54.0
	MBO	Count	54	21	18	93
		Expected Count	53.6	24.0	15.4	93.0
	Middelbare school	Count	22	3	3	28
		Expected Count	16.1	7.2	4.6	28.0
Total	Count		192	86	55	333
	Expected Count		192.0	86.0	55.0	333.0

### Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	12.554 <sup>a</sup>	6	.051
Likelihood Ratio	12.854	6	.045
N of Valid Cases	333		

a. 1 cells (8.3%) have expected count less than 5. The minimum expected count is 4.62.

### Diet x label England



### Diet \* England Crosstabulation

			Ja	England Misschien	Nee	Total
Diet	Omnivoor of anders	Count	59	25	16	100
		Expected Count	57.7	25.8	16.5	100.0
	Veganistisch	Count	72	28	20	120
		Expected Count	69.2	31.0	19.8	120.0
	Vegetarisch	Count	61	33	19	113
		Expected Count	65.2	29.2	18.7	113.0
Total	Count	192	86	55	333	
	Expected Count	192.0	86.0	55.0	333.0	

### Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1.248 <sup>a</sup>	4	.870
Likelihood Ratio	1.242	4	.871
N of Valid Cases	333		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 16.52.

## Gender x label Canada

### Gender \* Canada Crosstabulation

			Canada			Total
			Ja	Misschien	Nee	
Gender	Man	Count	13	10	16	39
		Expected Count	14.2	8.0	16.9	39.0
	Vrouw	Count	108	58	128	294
		Expected Count	106.8	60.0	127.1	294.0
	Total	Count	121	68	144	333
		Expected Count	121.0	68.0	144.0	333.0

### Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	.749 <sup>a</sup>	2	.687
Likelihood Ratio	.714	2	.700
N of Valid Cases	333		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 7.96.

## Age x label Canada

### Age \* Canada Crosstabulation

			Canada			Total
			Ja	Misschien	Nee	
Age	≤ 24	Count	48	22	46	116
		Expected Count	42.2	23.7	50.2	116.0
	25 - 40	Count	21	12	46	79
		Expected Count	28.7	16.1	34.2	79.0
	41 - 56	Count	31	23	39	93
		Expected Count	33.8	19.0	40.2	93.0
	57 - 75	Count	21	11	13	45
		Expected Count	16.4	9.2	19.5	45.0
	Total	Count	121	68	144	333
		Expected Count	121.0	68.0	144.0	333.0

### Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	13.443 <sup>a</sup>	6	.037
Likelihood Ratio	13.442	6	.037
N of Valid Cases	333		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 9.19.

## Education x label Canada

### Education \* Canada Crosstabulation

			Canada			
			Ja	Misschien	Nee	Total
Education	Bachelor	Count	60	37	61	158
		Expected Count	57.4	32.3	68.3	158.0
	Master/PhD	Count	18	9	27	54
		Expected Count	19.6	11.0	23.4	54.0
	MBO	Count	33	17	43	93
		Expected Count	33.8	19.0	40.2	93.0
	Middelbare school	Count	10	5	13	28
		Expected Count	10.2	5.7	12.1	28.0
Total	Count	121	68	144	333	
	Expected Count	121.0	68.0	144.0	333.0	

### Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	3.253 <sup>a</sup>	6	.777
Likelihood Ratio	3.256	6	.776
N of Valid Cases	333		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.72.

### Diet x label Canada

### Diet \* Canada Crosstabulation

			Canada			
			Ja	Misschien	Nee	Total
Diet	Omnivoor of anders	Count	47	27	26	100
		Expected Count	36.3	20.4	43.2	100.0
	Veganistisch	Count	33	22	65	120
		Expected Count	43.6	24.5	51.9	120.0
	Vegetarisch	Count	41	19	53	113
		Expected Count	41.1	23.1	48.9	113.0
Total	Count	121	68	144	333	
	Expected Count	121.0	68.0	144.0	333.0	

### Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	19.341 <sup>a</sup>	4	<.001
Likelihood Ratio	20.069	4	<.001
N of Valid Cases	333		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 20.42.

## Appendix D

### Kruskal Wallis Test Results

#### Clarity Albert Heijn label x gender

##### Test Statistics<sup>a,b</sup>

Ranks				Label1Clear. N	
	Gender.N	N	Mean Rank	Kruskal-Wallis H	.600
Label1Clear.N	Man	40	157.11	df	1
	Vrouw	295	169.48	Asymp. Sig.	.439
	Total	335		a. Kruskal Wallis Test b. Grouping Variable: Gender.N	

#### Misleading Albert Heijn label x gender

##### Test Statistics<sup>a,b</sup>

Ranks				Label1Mislea ding.N	
	Gender.N	N	Mean Rank	Kruskal-Wallis H	.928
Label1Misleading.N	Man	40	181.55	df	1
	Vrouw	295	166.16	Asymp. Sig.	.335
	Total	335		a. Kruskal Wallis Test b. Grouping Variable: Gender.N	

#### Clarity Albert Heijn label x age

##### Test Statistics<sup>a,b</sup>

Ranks				Label1Clear. N	
	Age.N	N	Mean Rank	Kruskal-Wallis H	2.521
Label1Clear.N	≤ 24	116	166.25	df	3
	25 – 40	79	176.69	Asymp. Sig.	.472
	41 – 56	93	171.82	a. Kruskal Wallis Test b. Grouping Variable: Age. N	
	57 – 75	47	150.16		
	Total	335			

#### Misleading Albert Heijn label x age

##### Test Statistics<sup>a,b</sup>

Ranks				Label1Mislea ding.N	
	Age.N	N	Mean Rank	Kruskal-Wallis H	4.242
Label1Misleading.N	≤ 24	116	170.38	df	3
	25 – 40	79	179.63	Asymp. Sig.	.237
	41 – 56	93	167.20	a. Kruskal Wallis Test b. Grouping Variable: Age. N	
	57 – 75	47	144.16		
	Total	335			

#### Clarity Albert Heijn label x Education

##### Test Statistics<sup>a,b</sup>

Ranks				Label1Clear. N	
	Education.N	N	Mean Rank	Kruskal-Wallis H	1.828
Label1Clear.N	Bachelor	158	162.15	df	3
	Master/PhD	54	169.81	Asymp. Sig.	.609
	MBO	94	178.36	a. Kruskal Wallis Test b. Grouping Variable: Education.N	
	Middelbare school	29	162.95		
	Total	335			

#### Misleading Albert Heijn label x education

Ranks				Test Statistics <sup>a,b</sup>	
	Education.N	N	Mean Rank	Label1Misleading.N	
Label1Misleading.N	Bachelor	158	161.30	Kruskal-Wallis H	1.822
	Master/PhD	54	176.69	df	3
	MBO	94	175.23	Asymp. Sig.	.610
	Middelbare school	29	164.88	a. Kruskal Wallis Test	
	Total	335		b. Grouping Variable: Education.N	

### Clarity Albert Heijn label x diet

Ranks				Test Statistics <sup>a,b</sup>	
	Diet.N	N	Mean Rank	Label1Clear.N	
Label1Clear.N	Omnivoor of anders	101	137.01	Kruskal-Wallis H	15.742
	Veganistisch	120	178.18	df	2
	Vegetarisch	114	184.74	Asymp. Sig.	<.001
	Total	335		a. Kruskal Wallis Test	
				b. Grouping Variable: Diet.N	

### Misleading Albert Heijn label x diet

Ranks				Test Statistics <sup>a,b</sup>	
	Diet.N	N	Mean Rank	Label1Misleading.N	
Label1Misleading.N	Omnivoor of anders	101	146.61	Kruskal-Wallis H	8.085
	Veganistisch	120	172.11	df	2
	Vegetarisch	114	182.63	Asymp. Sig.	.018
	Total	335		a. Kruskal Wallis Test	
				b. Grouping Variable: Diet.N	

### Clarity Jumbo label x gender

Ranks				Test Statistics <sup>a,b</sup>	
	Gender.N	N	Mean Rank	Label2Clear.N	
Label2Clear.N	Man	40	140.18	Kruskal-Wallis H	4.754
	Vrouw	295	171.77	df	1
	Total	335		Asymp. Sig.	.029
				a. Kruskal Wallis Test	
				b. Grouping Variable: Gender.N	

### Misleading Jumbo label x gender

Ranks				Test Statistics <sup>a,b</sup>	
	Gender.N	N	Mean Rank	Label2Misleading.N	
Label2Misleading.N	Man	40	136.85	Kruskal-Wallis H	5.977
	Vrouw	295	172.22	df	1
	Total	335		Asymp. Sig.	.014
				a. Kruskal Wallis Test	
				b. Grouping Variable: Gender.N	

### Clarity Jumbo label x age

### Test Statistics<sup>a,b</sup>

Ranks				Label2Clear. N	
	Age.N	N	Mean Rank		
Label2Clear.N	≤ 24	116	168.27	Kruskal-Wallis H	2.085
	25 – 40	79	166.97	df	3
	41 – 56	93	175.80	Asymp. Sig.	.555
	57 – 75	47	153.65	a. Kruskal Wallis Test	
	Total	335		b. Grouping Variable: Age. N	

### Misleading Jumbo label x age

### Test Statistics<sup>a,b</sup>

Ranks				Label2Mislea ding.N	
	Age.N	N	Mean Rank		
Label2Misleading.N	≤ 24	116	168.66	Kruskal-Wallis H	1.637
	25 – 40	79	173.65	df	3
	41 – 56	93	169.48	Asymp. Sig.	.651
	57 – 75	47	153.94	a. Kruskal Wallis Test	
	Total	335		b. Grouping Variable: Age. N	

### Clarity Jumbo label x education

### Test Statistics<sup>a,b</sup>

Ranks				Label2Clear. N	
	Education.N	N	Mean Rank		
Label2Clear.N	Bachelor	158	171.20	Kruskal-Wallis H	11.686
	Master/PhD	54	177.74	df	3
	MBO	94	146.26	Asymp. Sig.	.009
	Middelbare school	29	202.88	a. Kruskal Wallis Test	
	Total	335		b. Grouping Variable: Education.N	

### Misleading Jumbo label x education

### Test Statistics<sup>a,b</sup>

Ranks				Label2Mislea ding.N	
	Education.N	N	Mean Rank		
Label2Misleading.N	Bachelor	158	169.66	Kruskal-Wallis H	10.818
	Master/PhD	54	171.75	df	3
	MBO	94	150.35	Asymp. Sig.	.013
	Middelbare school	29	209.22	a. Kruskal Wallis Test	
	Total	335		b. Grouping Variable: Education.N	

### Clarity Jumbo label x diet

### Test Statistics<sup>a,b</sup>

Ranks				Label2Clear. N	
	Diet.N	N	Mean Rank		
Label2Clear.N	Omnivoor of anders	101	149.72	Kruskal-Wallis H	9.049
	Veganistisch	120	184.59	df	2
	Vegetarisch	114	166.73	Asymp. Sig.	.011
	Total	335		a. Kruskal Wallis Test	
				b. Grouping Variable: Diet. N	

### Misleading Jumbo label x diet

Ranks				Test Statistics <sup>a,b</sup>	
	Diet.N	N	Mean Rank	Label2Misleading.N	
Label2Misleading.N	Omnivoor of anders	101	140.94	Kruskal-Wallis H	19.890
	Veganistisch	120	192.55	df	2
	Vegetarisch	114	166.14	Asymp. Sig.	<.001
	Total	335		a. Kruskal Wallis Test b. Grouping Variable: Diet. N	

### Clarity Lidl label x gender

Ranks				Test Statistics <sup>a,b</sup>	
	Gender.N	N	Mean Rank	Label3Clear.N	
Label3Clear.N	Man	40	138.48	Kruskal-Wallis H	6.200
	Vrouw	295	172.00	df	1
	Total	335		Asymp. Sig.	.013
				a. Kruskal Wallis Test b. Grouping Variable: Gender.N	

### Misleading Lidl label x gender

Ranks				Test Statistics <sup>a,b</sup>	
	Gender.N	N	Mean Rank	Label3Misleading.N	
Label3Misleading.N	Man	40	141.28	Kruskal-Wallis H	4.813
	Vrouw	295	171.62	df	1
	Total	335		Asymp. Sig.	.028
				a. Kruskal Wallis Test b. Grouping Variable: Gender.N	

### Clarity Lidl label x age

Ranks				Test Statistics <sup>a,b</sup>	
	Age.N	N	Mean Rank	Label3Clear.N	
Label3Clear.N	≤ 24	116	169.50	Kruskal-Wallis H	2.988
	25 – 40	79	176.20	df	3
	41 – 56	93	167.73	Asymp. Sig.	.394
	57 – 75	47	151.05	a. Kruskal Wallis Test b. Grouping Variable: Age. N	
	Total	335			

### Misleading Lidl label x age

Ranks				Test Statistics <sup>a,b</sup>	
	Age.N	N	Mean Rank	Label3Misleading.N	
Label3Misleading.N	≤ 24	116	166.27	Kruskal-Wallis H	4.344
	25 – 40	79	180.73	df	3
	41 – 56	93	168.70	Asymp. Sig.	.227
	57 – 75	47	149.50	a. Kruskal Wallis Test b. Grouping Variable: Age. N	
	Total	335			

### Clarity Lidl label x education

### Test Statistics<sup>a,b</sup>

Ranks				Label3Clear. N	
	Education.N	N	Mean Rank	Kruskal-Wallis H	11.072
Label3Clear.N	Bachelor	158	170.94	df	3
	Master/PhD	54	176.42	Asymp. Sig.	.011
	MBO	94	148.40	a. Kruskal Wallis Test b. Grouping Variable: Education.N	
	Middelbare school	29	199.84		
	Total	335			

### Misleading Lidl label x education

### Test Statistics<sup>a,b</sup>

Ranks				Label3Mislea ding.N	
	Education.N	N	Mean Rank	Kruskal-Wallis H	10.076
Label3Misleading.N	Bachelor	158	170.74	df	3
	Master/PhD	54	180.45	Asymp. Sig.	.018
	MBO	94	147.99	a. Kruskal Wallis Test b. Grouping Variable: Education.N	
	Middelbare school	29	194.72		
	Total	335			

### Clarity Lidl Label x diet

### Test Statistics<sup>a,b</sup>

Ranks				Label3Clear. N	
	Diet.N	N	Mean Rank	Kruskal-Wallis H	16.460
Label3Clear.N	Omnivoor of anders	101	145.07	df	2
	Veganistisch	120	188.77	Asymp. Sig.	<.001
	Vegetarisch	114	166.46	a. Kruskal Wallis Test b. Grouping Variable: Diet. N	
	Total	335			

### Misleading Lidl label x diet

### Test Statistics<sup>a,b</sup>

Ranks				Label3Mislea ding.N	
	Diet.N	N	Mean Rank	Kruskal-Wallis H	26.047
Label3Misleading.N	Omnivoor of anders	101	139.19	df	2
	Veganistisch	120	195.45	Asymp. Sig.	<.001
	Vegetarisch	114	164.62	a. Kruskal Wallis Test b. Grouping Variable: Diet. N	
	Total	335			

### Clarity Aldi label x gender

### Test Statistics<sup>a,b</sup>

Ranks				Label4Clear. N	
	Gender.N	N	Mean Rank	Kruskal-Wallis H	4.965
Label4Clear.N	Man	40	137.59	df	1
	Vrouw	295	172.12	Asymp. Sig.	.026
	Total	335		a. Kruskal Wallis Test b. Grouping Variable: Gender.N	

### Misleading Aldi label x gender

### Test Statistics<sup>a,b</sup>

Ranks				Label4Misleading.N	
	Gender.N	N	Mean Rank	Kruskal-Wallis H	3.219
Label4Misleading.N	Man	40	143.39	df	1
	Vrouw	295	171.34	Asymp. Sig.	.073
	Total	335		a. Kruskal Wallis Test b. Grouping Variable: Gender.N	

### Clarity Aldi label x age

### Test Statistics<sup>a,b</sup>

Ranks				Label4Clear.N	
	Age.N	N	Mean Rank	Kruskal-Wallis H	8.104
Label4Clear.N	≤ 24	116	187.15	df	3
	25 – 40	79	156.87	Asymp. Sig.	.044
	41 – 56	93	154.91	a. Kruskal Wallis Test b. Grouping Variable: Age.N	
	57 – 75	47	165.35		
	Total	335			

### Misleading Aldi label x age

### Test Statistics<sup>a,b</sup>

Ranks				Label4Misleading.N	
	Age.N	N	Mean Rank	Kruskal-Wallis H	5.155
Label4Misleading.N	≤ 24	116	182.94	df	3
	25 – 40	79	165.96	Asymp. Sig.	.161
	41 – 56	93	155.91	a. Kruskal Wallis Test b. Grouping Variable: Age.N	
	57 – 75	47	158.48		
	Total	335			

### Clarity Aldi label x education

### Test Statistics<sup>a,b</sup>

Ranks				Label4Clear.N	
	Education.N	N	Mean Rank	Kruskal-Wallis H	1.753
Label4Clear.N	Bachelor	158	170.55	df	3
	Master/PhD	54	172.02	Asymp. Sig.	.625
	MBO	94	158.00	a. Kruskal Wallis Test b. Grouping Variable: Education.N	
	Middelbare school	29	179.03		
	Total	335			

### Misleading Aldi label x education

### Test Statistics<sup>a,b</sup>

Ranks				Label4Misleading.N	
	Education.N	N	Mean Rank	Kruskal-Wallis H	.474
Label4Misleading.N	Bachelor	158	166.72	df	3
	Master/PhD	54	168.27	Asymp. Sig.	.924
	MBO	94	166.57	a. Kruskal Wallis Test b. Grouping Variable: Education.N	
	Middelbare school	29	179.14		
	Total	335			

### Clarity Aldi label x diet



Ranks				Test Statistics <sup>a,b</sup>	
	Diet.N	N	Mean Rank	Label4Clear.N	
Label4Clear.N	Omnivoor of anders	101	179.03	Kruskal-Wallis H	5.372
	Veganistisch	120	152.60	df	2
	Vegetarisch	114	174.43	Asymp. Sig.	.068
	Total	335		a. Kruskal Wallis Test	
				b. Grouping Variable: Diet.N	

### Misleading Aldi label x diet

Ranks				Test Statistics <sup>a,b</sup>	
	Diet.N	N	Mean Rank	Label4Misleading.N	
Label4Misleading.N	Omnivoor of anders	101	177.38	Kruskal-Wallis H	5.286
	Veganistisch	120	152.47	df	2
	Vegetarisch	114	176.04	Asymp. Sig.	.071
	Total	335		a. Kruskal Wallis Test	
				b. Grouping Variable: Diet.N	