

# Consumer Behaviour in Buying Food Products with Nutritional and Health Claims

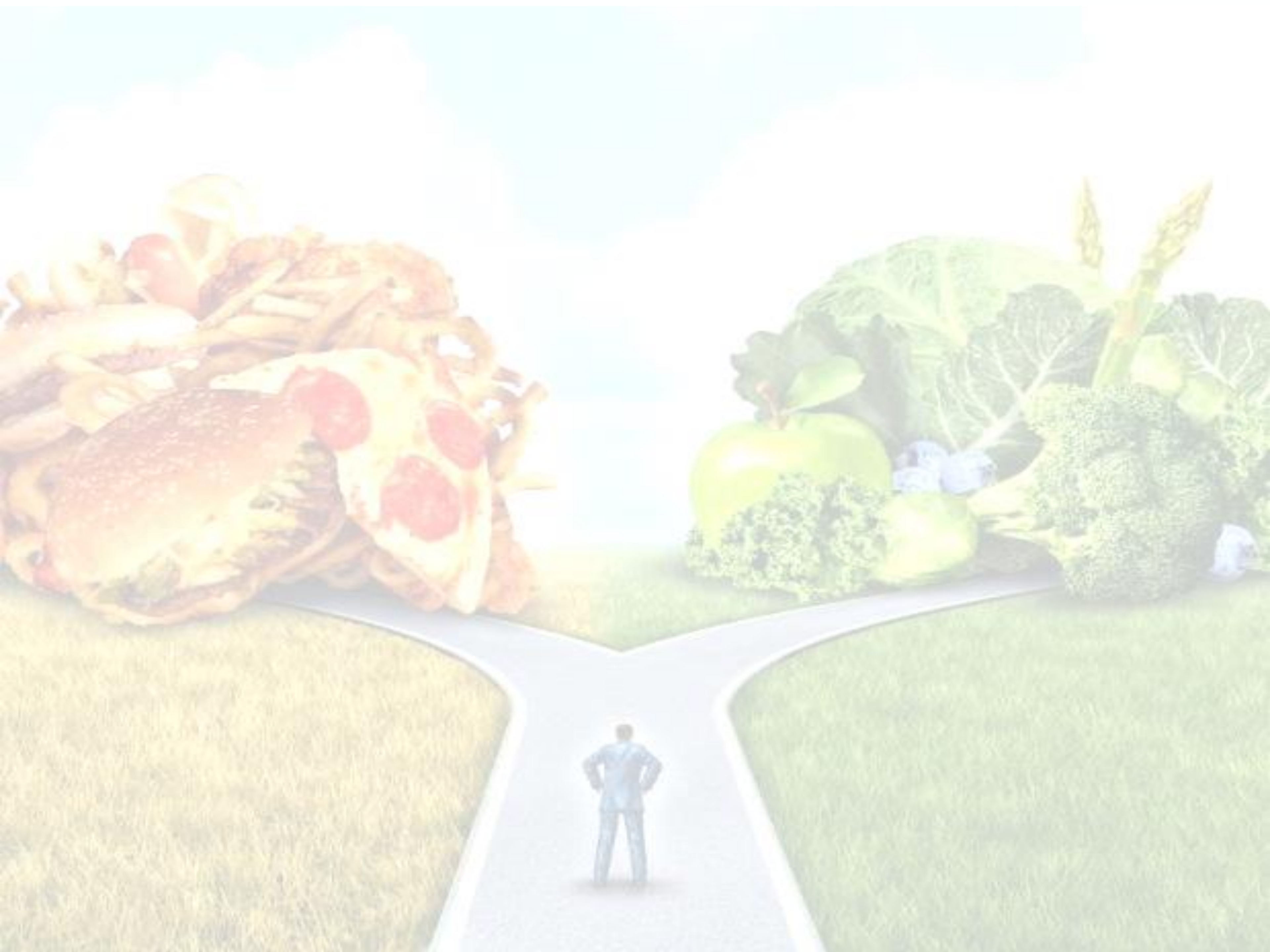


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Supervisors : Tiziana de-Magistris  
Vincenzina Caputo

Zaragoza, 13<sup>th</sup> of March 2020

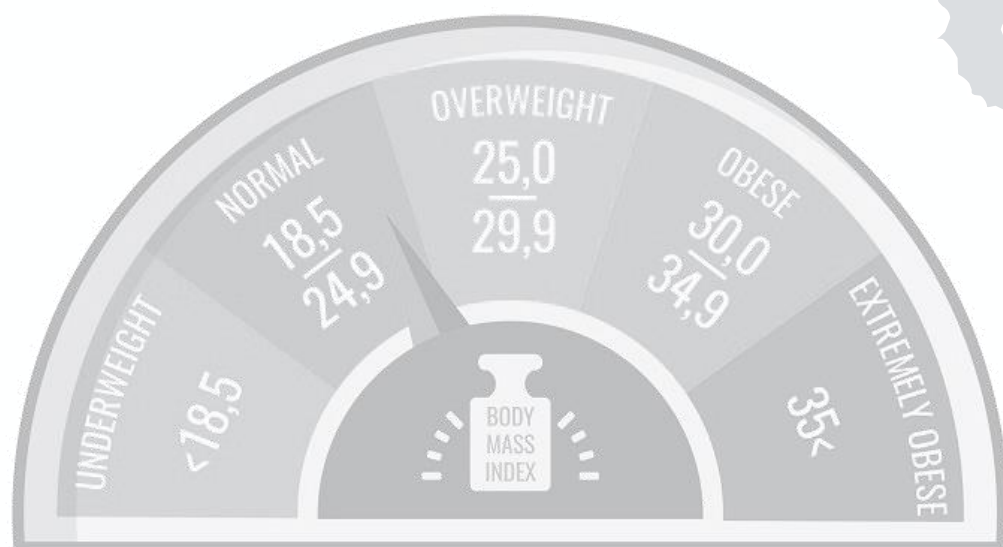
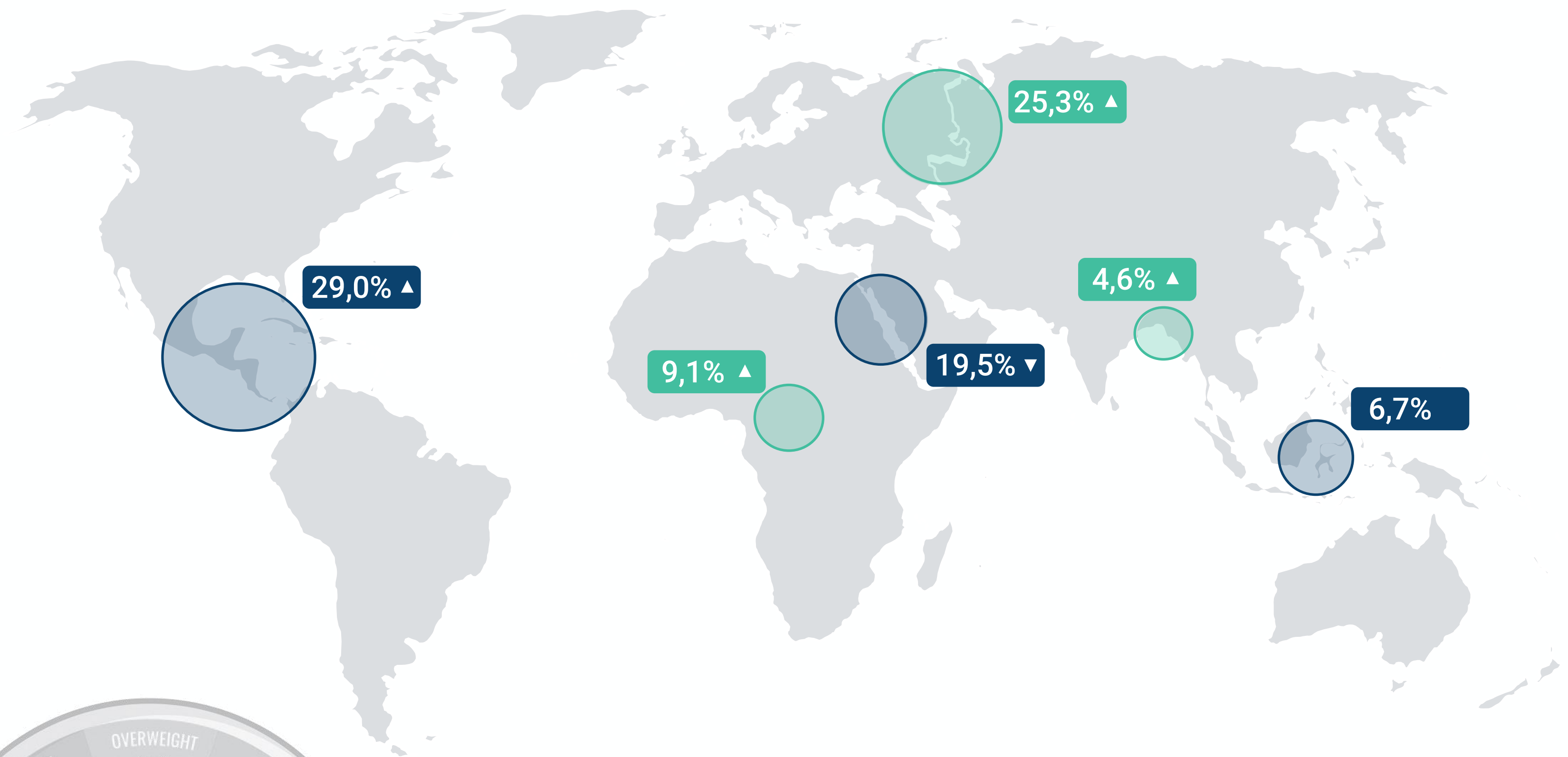




## Introduction

# Obesity

Prevalence of obesity among adults by region, BMI  $\leq 30$  (%) - 2016



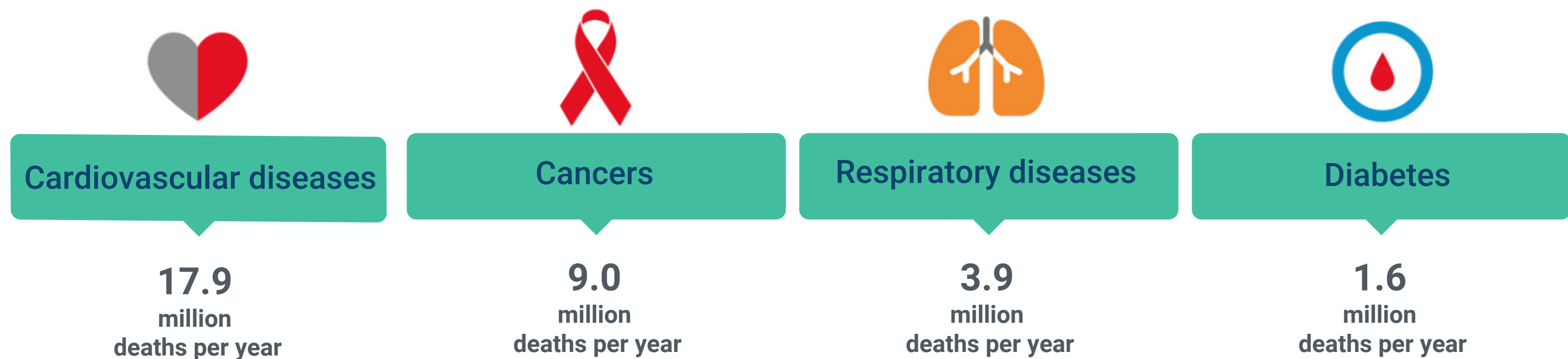
Source: [www.who.int](http://www.who.int)

# Non-communicable diseases

## Actual data - 2018

Non-communicable diseases cause 41 millions of deaths each year, equivalent to 71% of all deaths in the world.

These 4 groups of diseases represent more than 80% of all premature deaths from NCD.

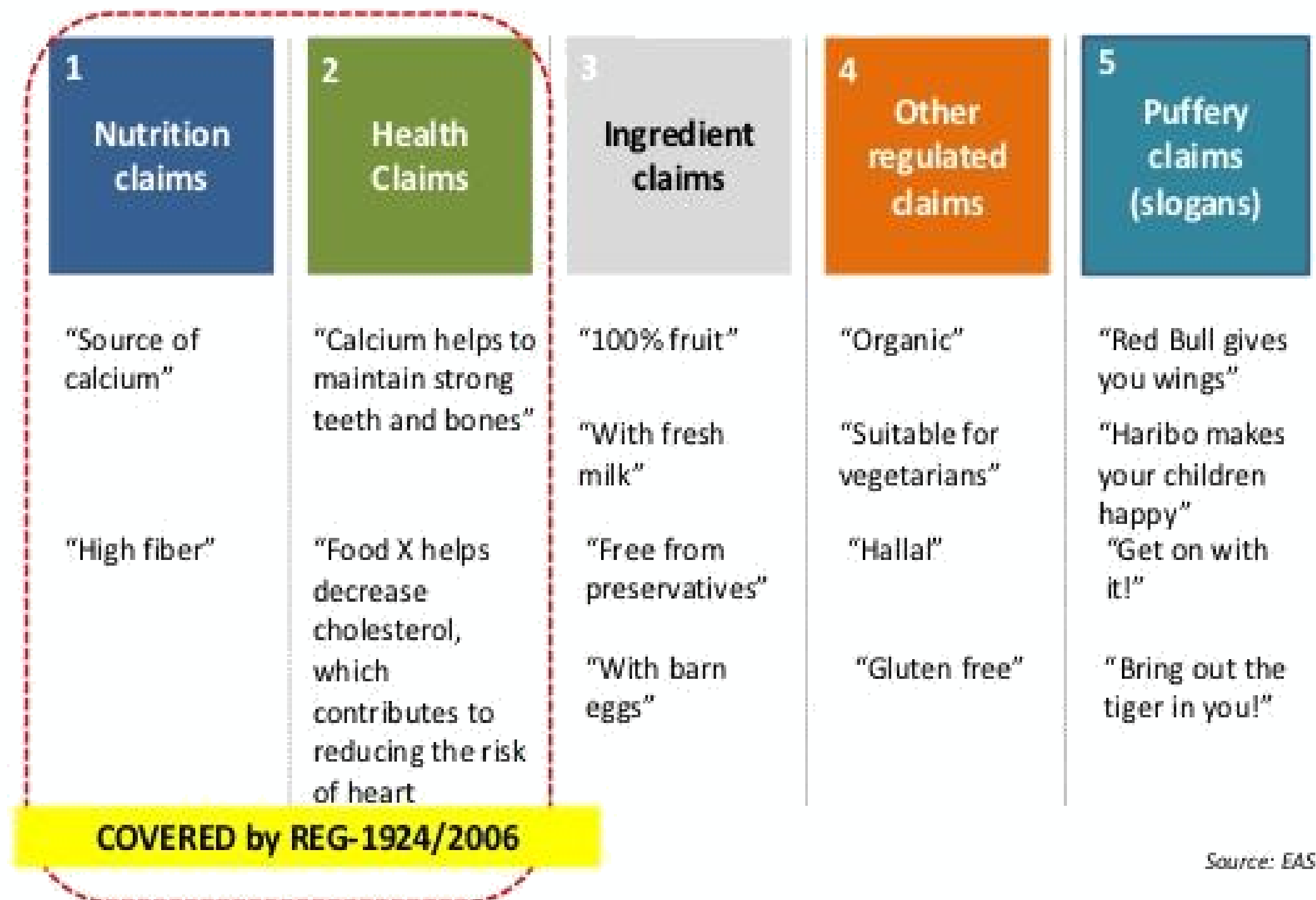


## Introduction

# Nutritional and health claims

## Actions taken

Given the actual situation the European Food Safety Authority (EFSA), has introduced nutritional information on the packages of processed food with the aim to provide trustful information and allow consumers distinguish the healthiness of food.



Source: EAS

Figure 1- Nutritional and health claim labelling program REG-N° 1924/2006.



## Introduction

# Research on NCs and HCs

People who read them tend to have a healthier diet (Campos et al., 2011).

Consumers are willing to pay premium prices for food bearing NCs and HCs (de-Magistris et al., 2016; Jurado & Gracia, 2017; Van Wezemael et al., 2014).

Yet, purchase intentions do not always match stated views.



## Introduction

# Factors affecting choices

Low attractiveness  
(Oliveira et al., 2016)

Consumers choose within a few seconds, and may not attend to all the information available on the FOP (Milosavljevic & Cerf, 2008)

Partially process food information (Oliveira et al., 2016)

Sometimes are unconscious of its presence on the label (Wedel & Pieters, 2008).

Knowledge  
(Ares et al., 2009)

Food with NC and HC although healthier, do not always meet consumers' sensory expectations (i.e., taste) (Civille & Oftedal, 2012).

Understanding  
(Nocella & Kennedy, 2012)

Interest in healthy eating  
(Hung et al., 2017)

Lifestyles & characteristics  
(Kaur et al., 2017)

Healthy = less tasty  
(Suzuki & Park, 2018)





## Introduction

# Main objective

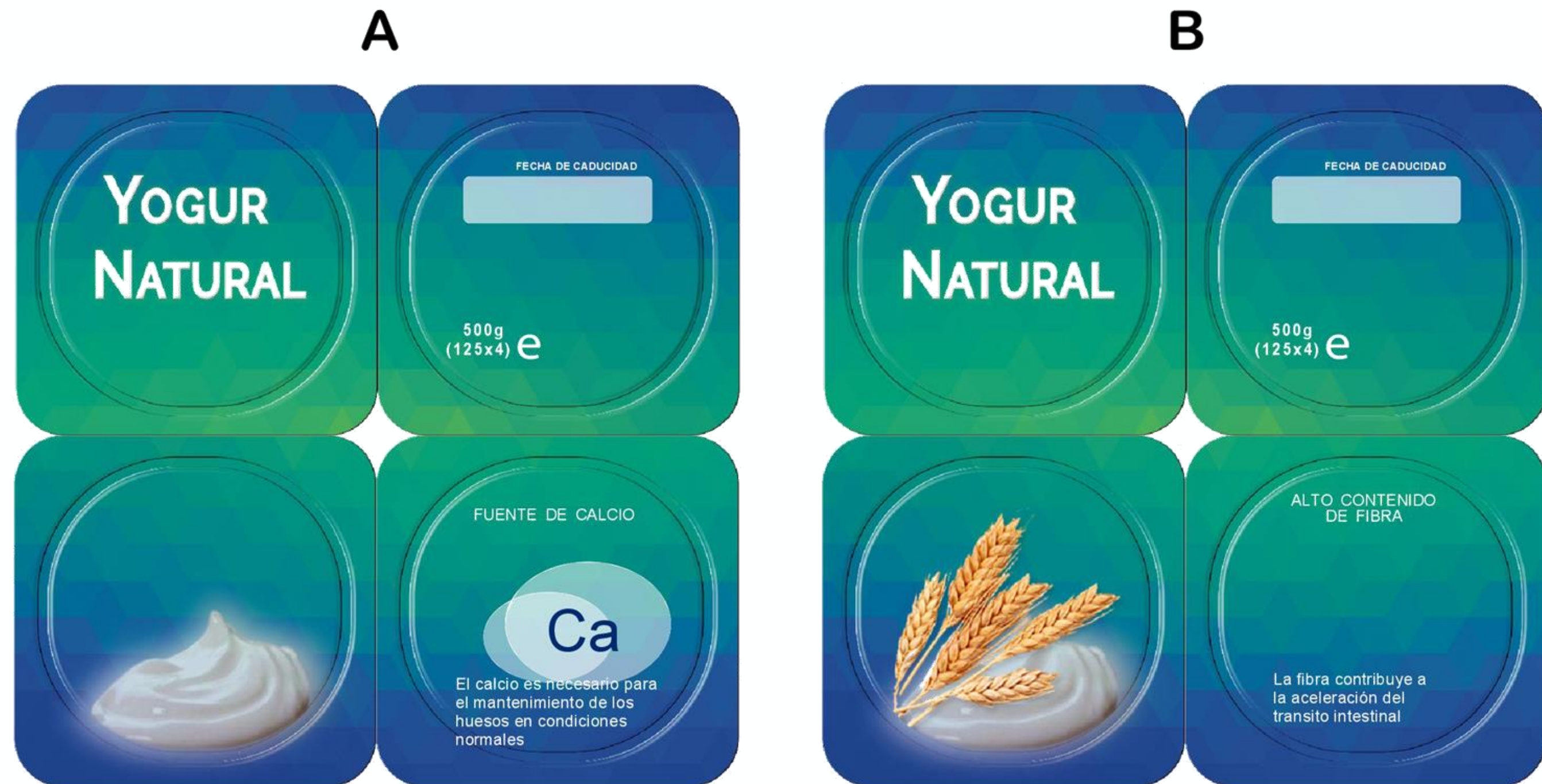
Explore consumer behaviour in buying food products with nutritional and health claims through:



# Materials and methods

## Methodology

a) A discrete choice experiment (DCE)



**NINGUNO**

# Materials and methods

## Methodology

b) Examine the influence of taste, which is a key attribute that influences the purchase and re-purchase of a food product

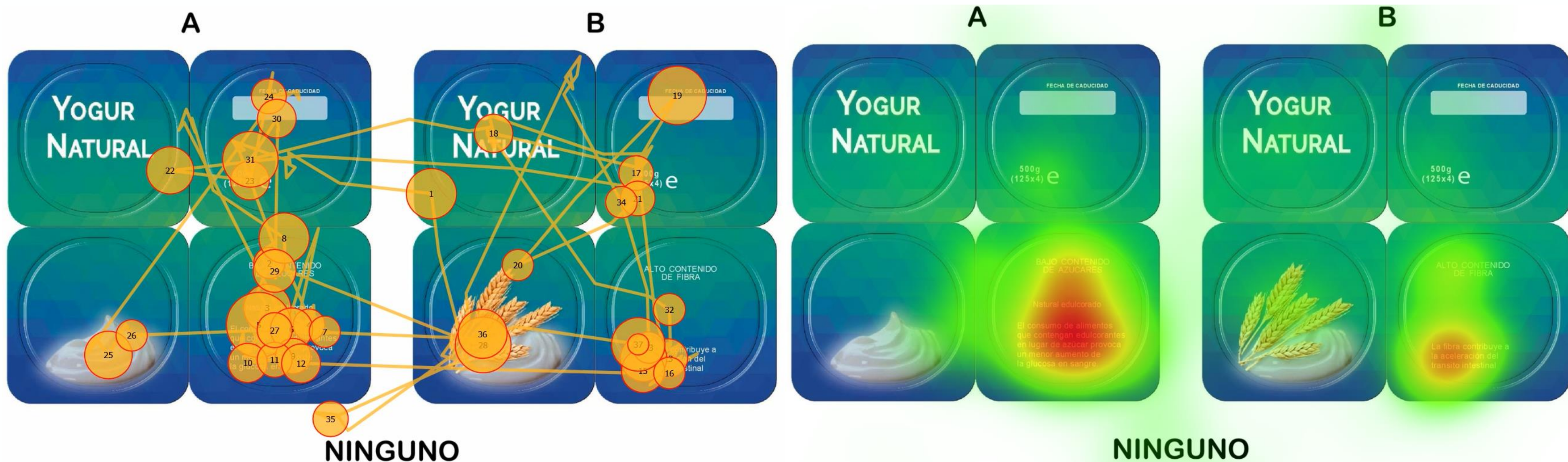




# Materials and methods

## Methodology

c) Explore the visual attention that consumers provide to NCs and HCs and if this attention is associated with the final purchase of the product.





# Materials and methods

## Methodology

1

Select the product of reference.



**N=408**



# Materials and methods

## Methodology

1

Select the product of reference.



**N=261**  
**1 NC on the FOP**

**N=67**  
**1 HC on the FOP**

# Materials and methods

## Methodology

1

Select the product of reference.



**Healthy food (Moore et al., 2018)**

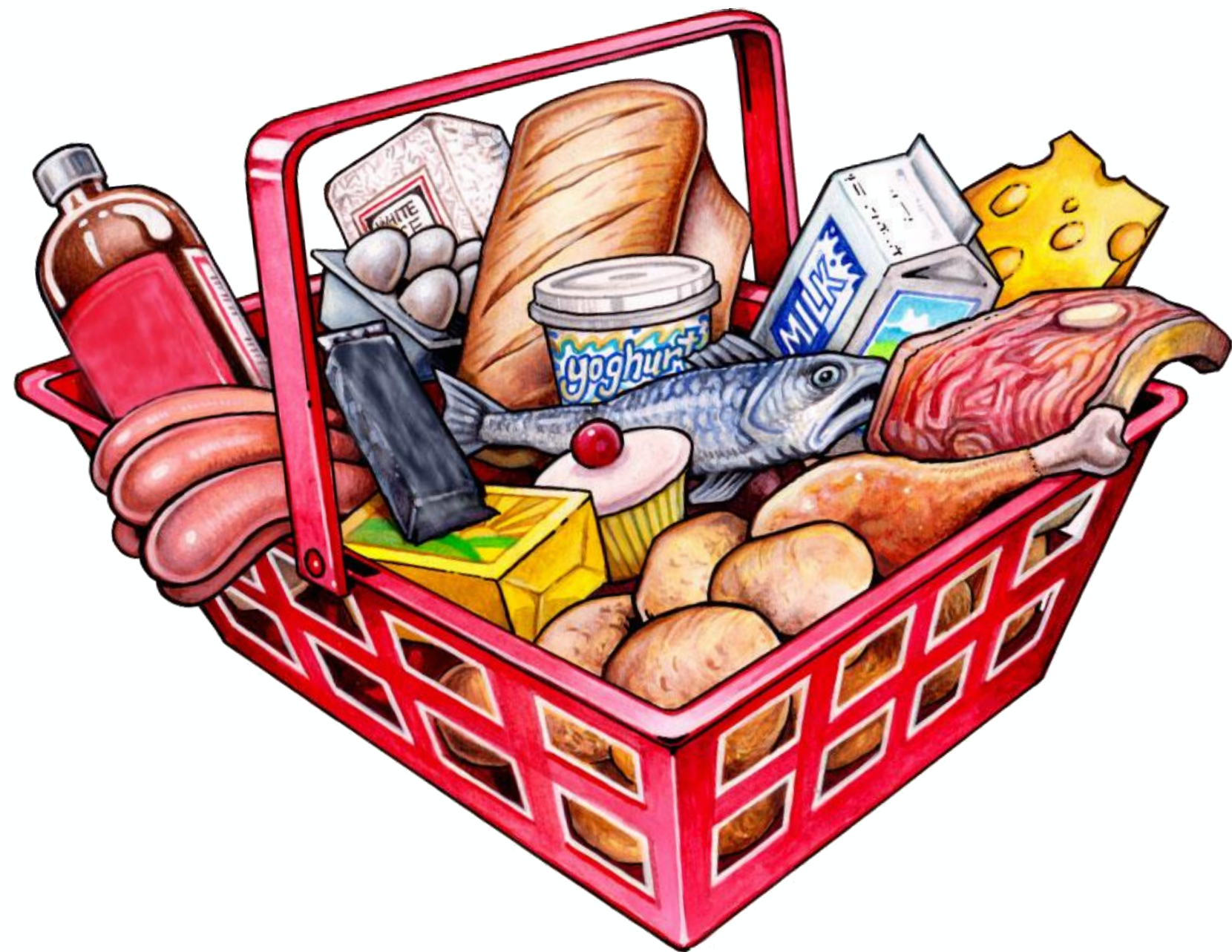


# Materials and methods

## Methodology

1

Select the product of reference.



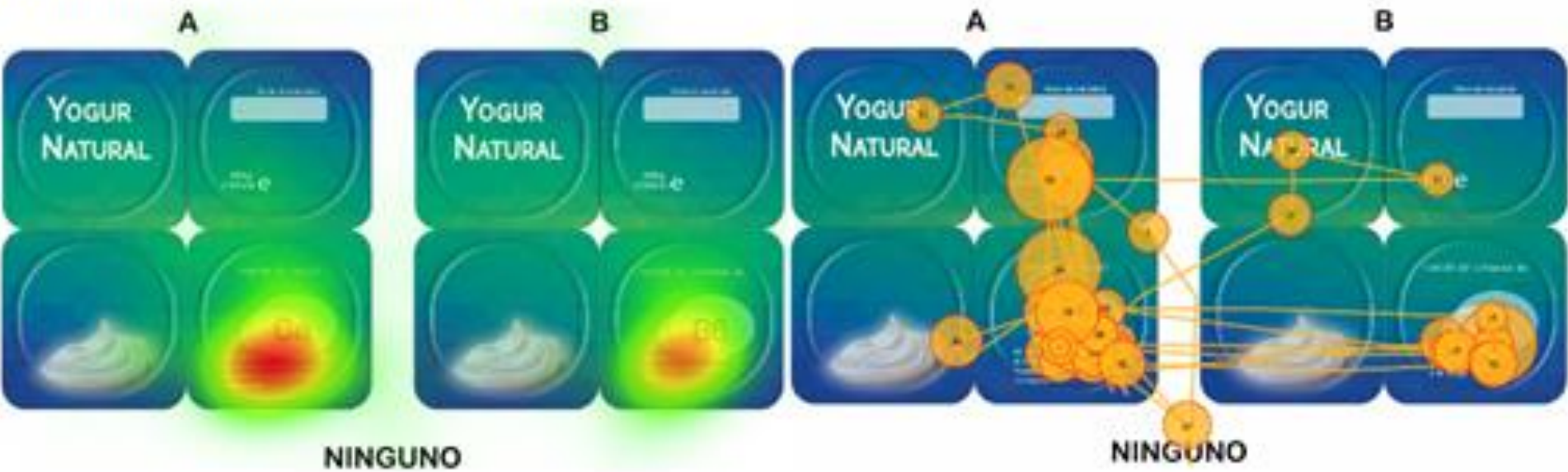



**Common ingredient in the shopping basket of Spanish households (MAPAMA, 2014)**



# Materials and methods

## Methodology

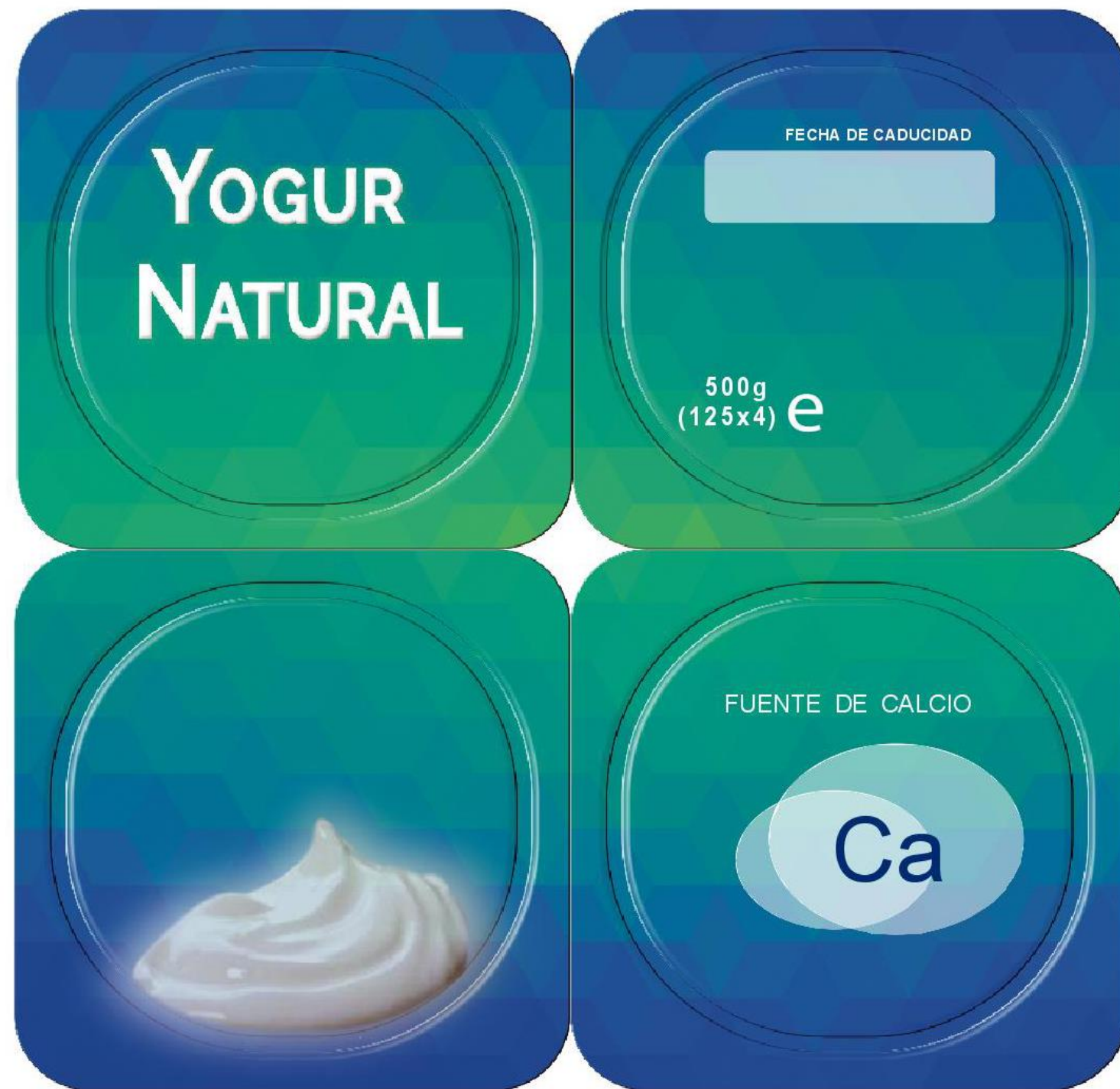
<i>Taste</i> (N=115)	<i>No-Taste</i> (N=103)
1. Sensorial analysis (NCs and HCs)	
 <p><u>Evaluation based on taste and information</u> (Scale of 1 dislike – 9 like it very much) <u>Purchase intention</u> (Scale of 1 definitely no – 5 definitely yes)</p>	 <p><u>Evaluation only based on information</u> (Scale of 1 dislike – 9 like it very much) <u>Purchase intention</u> (Scale of 1 definitely no – 5 definitely yes)</p>
2. Eye tracking and choice paradigm	
 <p style="text-align: center;">NINGUNO</p> <p style="text-align: center;">NINGUNO</p>	
3. Questionnaire	
	



# Results

1

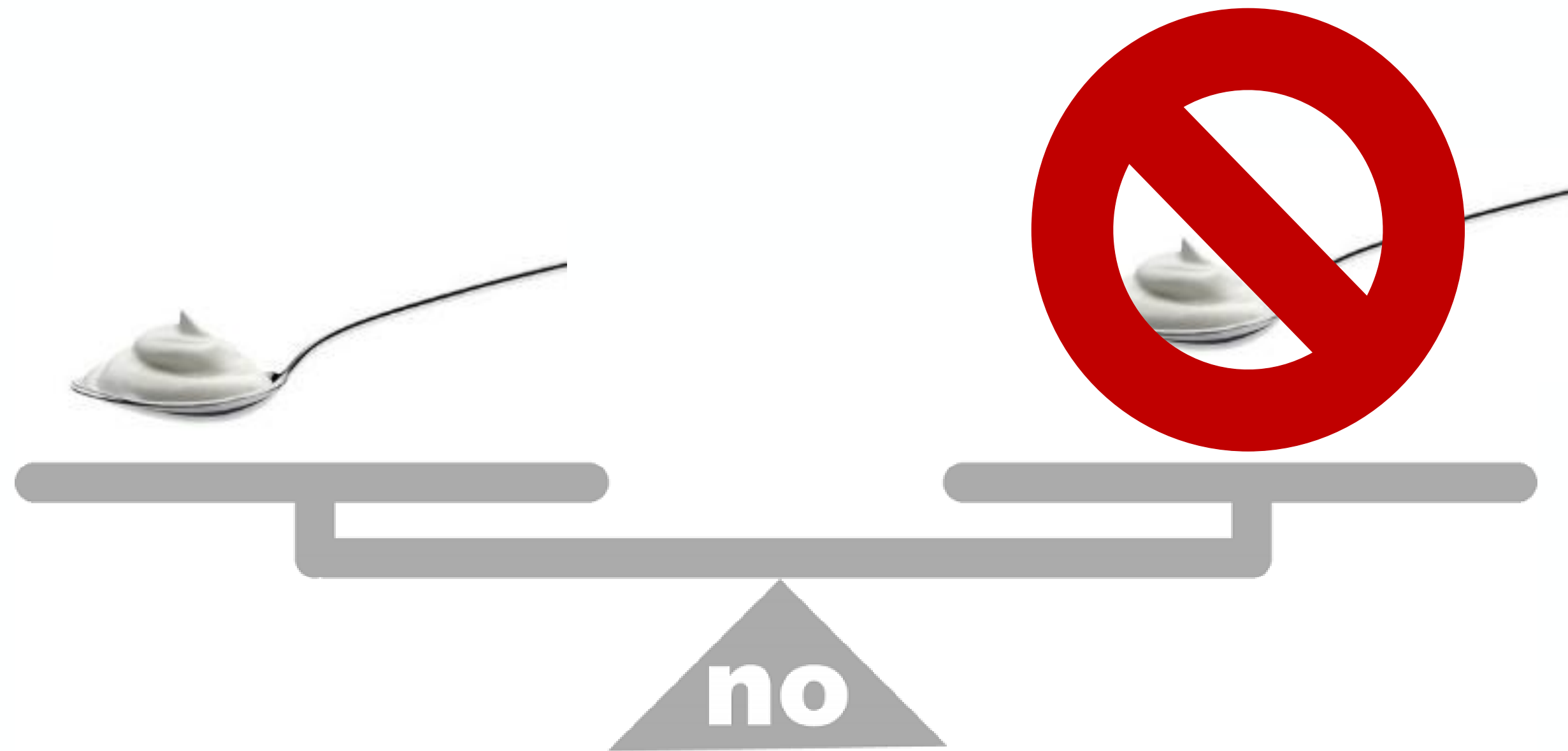
Health claims are mostly preferred compared to nutritional claims



# Results

2

There was no difference in preferences for yogurts between the taste and the no-taste treatment



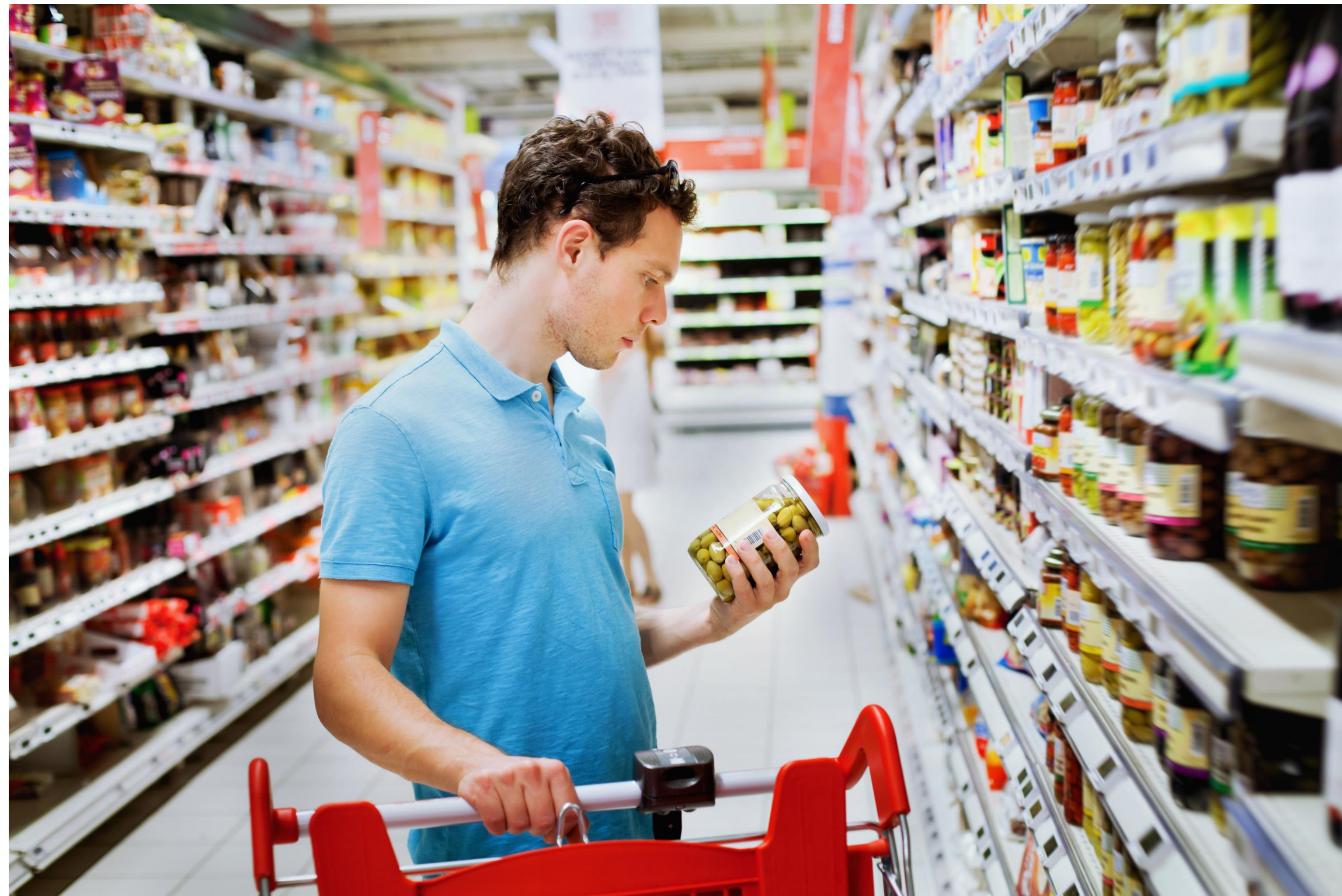
**no significant difference**



# Results

3

Looking longer = higher probability to purchase a product





# Implementation plan

## Plan and schedule

<b>Actividades</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>
Define policies and analyze the local market of healthy foods in a general context (EU legislation and supermarket analysis).	√				
Identify personal factors that influence consumers in the decision to buy healthy foods (previous literature review).	√				
Analyze the data and study results of the market situation.	√				
Organization of field work to select the primary information to be used.		√			
Design tools (survey), eye tracking and sensorial analysis design.		√			
Data collection.		√			
Organizing the primary data to be analyzed (e.g. codification etc.).			√		
Selecting the appropriate statistical software and the appropriate models to analyze.			√		
Analysis of data collected			√		
Preparing 4 manuscripts to be published				√	
Preparation of the final report thesis.					√



# 1. Publications in journals

- Amato, M., Ballco, P., López-Galán, B., De Magistris, T., & Verneau, F. (2017). Exploring consumers' perception and willingness to pay for "Non-Added Sulphite" wines through experimental auctions: A case study in Italy and Spain. *Wine Economics and Policy*, 6(2), 146–154.
- Ballco, P., Caputo, V., & de-Magistris, T. (2020). Consumer valuation of European nutritional and health claims: Do taste and attention matter? *Food Quality and Preference*, 79, 103–793.
- Ballco, P., & de-Magistris, T. (2018). Valuation of nutritional and health claims for yoghurts in Spain: A hedonic price approach. *Spanish Journal of Agricultural Research*, 16(2), 01–08.
- Ballco, P., & De Magistris, T. (2019). Spanish Consumer Purchase Behaviour and Stated Preferences for Yoghurts with Nutritional and Health Claims. *Nutrients*, 11(11), 27–42.
- Ballco, P., de-Magistris, T., & Caputo, V. (2019). Consumer preferences for nutritional claims: An exploration of attention and choice based on an eye-tracking choice experiment. *Food Research International*, 116, 37–48.
- Ballco, P., & Gracia, A. (2020a). An extended approach combining sensory and real choice experiments to examine new product attributes. *Food Quality and Preference*, 80, 103830.
- Ballco, P., & Gracia, A. (2020b). Do market prices correspond with consumer demands? Combining market valuation and consumer utility for extra virgin olive oil quality attributes in a traditional producing country. *Journal of Retailing and Consumer Services*, 53, 101999.

## 2. Oral presentations at congresses

- Ballco, P., Gracia, A., (2019). Combining market valuation and actual consumer utilities for extrinsic extra virgin olive oil quality cues. 174<sup>th</sup> European Association of Agricultural Economists seminar. 10-12<sup>th</sup> October, 2019, Matera, Italy.
- De Magistris, T., López-Galán, B., & Ballco, P., (2019). New trends to explore consumer preferences through a virtual reality store: Does hunger matter? 174<sup>th</sup> European Association of Agricultural Economists seminar. 10-12<sup>th</sup> October, 2019, Matera, Italy.
- De Magistris, T., Ballco, P., & López-Galán, B., (2019). What will I buy? The role of health-related claims in healthiness and tastiness food within a virtual store setting. XII Congress of Spanish Association of Agricultural Economics. 4-6 September 2019, Lugo, Spain.
- Ballco, P., De Magistris, T., & Caputo, T., (2019). Do taste and attention affect consumer preferences for multiple nutritional and health claims on a health food product? An empirical investigation on Spanish consumers. XII Congress of Spanish Association of Agricultural Economics. 4-6 September 2019, Lugo, Spain.
- Ballco, P., & De Magistris, T. (2018). Preferencias de los consumidores por yogures con declaraciones nutricionales y de propiedades saludables. Combinando el experiment de eleccion con el seguimiento ocular y la percepcion del sabor. Instituto Universitario de Investigación Mixto Agroalimentario de Aragón (IA2) Universidad de Zaragoza, November 26<sup>th</sup>, 2018, Zaragoza, Spain.
- Ballco, P., & De Magistris, T., (2018). Does taste matter? The importance of taste in the valuation of European Union mandatory nutritional and health claim labelling program in Spain. 2<sup>nd</sup> Mediterranean Forum for PhD Students and Young Researchers. September 18-20, 2018, Bari, Italy.



- Ballco, P., Caputo, V., & De Magistris, T. (2018). Combining discrete choice experiment, eye tracking and sensory tests to assess consumer preferences for nutritional and health claims. Agricultural & Applied Economics Association. 5-7 August, 2018, Washington, United States.
- Ballco, P., & De Magistris, T., (2017). Market valuation of nutritional and health claims on yoghurts in Spain: A hedonic price function approach. XI Congress of Spanish Association of Agricultural Economics. 13-15 September 2017, Elche, Spain.
- Amato, M., Ballco, P., López-Galán, B., De Magistris, T., & Verneau, F., (2017). Assessing consumers' perception and WTP for "Non-added sulphite" wines through experimental auctions: A case study in Italy and Spain. XV European Association of Agricultural Economists (EAAE) congress. August 29th – September 1st, 2017, Parma, Italy.
- Ballco, P., & De Magistris, T., (2017). Attention and choice: Use of eye-tracking in choice behaviour research for nutritional claims. An empirical evidence of yoghurts in Spain. XV European Association of Agricultural Economists (EAAE) congress. August 29th – September 1st, 2017, Parma, Italy.
- Ballco, P., & Gracia, A. (2016). The importance of taste in the valuation of food product attributes: the case of extra virgin olive oil. 157th European Association of Agricultural Economists (EAAE) seminar. June 30th – July 1st, 2016, Barcelona, Spain.
- Ballco, P., Gracia, A., & Jurado, F. (2015). Consumer preferences for extra virgin olive oil with Protected Designation of Origin (PDO). X Congress of Spanish Association of Agricultural Economics. 09-11 September 2015, Cordoba, Spain.

## 3. Research stays

- October 2017- March 2018, Michigan State University (USA) in the Agricultural, Food, and Resource Economics department under the supervision of Vincenzina Caputo.
- May 2019 – July 2019, University of Wageningen (Netherlands) in the Marketing and Consumer Behavior department under the supervision of Betina Piqueras-Fiszman.

## 4. Invited speaker

- Ballco, P. (2019). La tecnología de eye-tracking y preferencias de los consumidores. (Universidad de Burgos).
- Ballco, P. (2018). Attention and choice: use of eye-tracking in choice behavior research of nutritional claims. (Michigan State University).
- Ballco, P. (2018). The importance of taste in the valuation of food product attributes: The case of extra virgin olive oil. (Michigan State University).



# 4. Seminars

- February 21st , 2019 "IX Jornada de divulgación científica de la Universidad de Zaragoza, "La ciencia marca tendencia", Zaragoza –Spain.
- November 26th, 2018 "Nuevos Retos de Colaboracion y Lineas Estrategicas" II Encuentro Grupos de Investigacion IA2. Universidad de Zaragoza, Departamento de Veterinaria – Zaragoza – Spain.
- January 23ed, 2018 (11.50 – 13.00) "Tweeter for Profession Use" Speakers: Dr Danielle M. Kaminski and Dr. Sam Ward, Seminar sponsored by the Justin Morris Hall of Agriculture – Michigan State University – East Lansing.
- December 5th, 2017 (17.00 – 18.30) "Indegenous Climate Change Studies and Science" Speaker: Dr. Kyle Whyte, Seminar sponsored by the Office Diversity, Equity and Inclusion. Brody Square – Michigan State University – East Lansing.
- November 1st, 2017 (15.30-17.00) "Choice Experiments are not conducted in a Vacuum: The effects of external price information on choice behavior" Speaker: Prof. Vincenzina Caputo, Seminar sponsored by the Department of Agricultural, Food, and Resource Economics of the Michigan State University – East Lansing.
- November 7th, 2017 (17.00-18.15) "Path, Journey, or Destination? A roadmap to success" Speaker: Jenó Rivera, Seminar sponsored by the Office Diversity, Equity and Inclusion. Brody Square – Michigan State University – East Lansing.
- November 15th, 2017 (12.00-13.00) "Conflict, Terrorism & Development: Preventive Strategies & Early Warning Systems" Speaker: Prof. William Donohue – Seminar Discussion Series sponsored by "MSU Conflict, Terrorism & Development Collaboratory". Justin Morris Hall of Agriculture – Michigan State University – East Lansing.

- November 30th, 2017 (15.30-17.00) "Simulating the Effect of the Nutrition Fact Label Revision: Added sugar and the demand for Ready-to-Eat Breakfast cereals" Speaker: Prof. Alessandro Bonanno (Colorado State University), Seminar sponsored by the Department of Agricultural, Food, and Resource Economics of the Michigan State University – East Lansing.
- October 18th, 2017 (16.00-17.30) "Market Scenarios of Traditional and Novel Food Products in the European Context" Speaker: Dr. Giovanni Sogari – Food Science and Human Nutrition Fall Seminar Series, Institute for Food Laws and Regulations.
- October 26th, 2017 (10.00-11.00) Dissertation proposal defense Dr. Sophia Tanner – Essays: "Burning down the house: the effect of wildfires on housing prices"; "Heterogeneous preferences over recreation sites in wildfire-prone areas"; "Estimating the impact of fires on recreation in the Angeles National Forest using combined revealed and stated preference methods". Department of Agricultural, Food, and Resource Economics of the Michigan State University – East Lansing.
- October 26th, 2017 (15.30-17.00) "When your view goes up in flames: Effect of wildfires on property values", Speaker: Prof. Cloe Garnache, Seminar sponsored by the Department of Agricultural, Food, and Resource Economics of the Michigan State University – East Lansing.
- September 27th, 2016 "Obesidad infantil y juvenil" organizado por la Real Academia de Medicina de Zaragoza (RAMZ) y la Academia Española de Nutrición (AEN) en colaboración con la Sociedad Española de Nutrición Comunitaria (SENC).
- June 6 - 7th, 2016, "Primer encuentro de grupos de investigación del IA2" organized by Instituto Universitario de Investigación Mixto Agroalimentario de Aragón Universidad de Zaragoza.



# 5. Transversal classes

## University of Zaragoza

- February 11-15th, 2019 "Herramientas para la escritura científica", speakers: Elías Cueto Prendes, organized by Campus Rio Ebro, Zaragoza – Spain.
- December 3 – 18th, 2018 "Datos con la hoja de calculos Excel", speakers: M<sup>a</sup> Jesús Lapeña Marcos, Inés Escario Jover, Ramón Hermoso Traba, organized by the University of Zaragoza – Spain.
- May 25th, 2018 "Aprender a hacer las mejores presentaciones", speaker: Diego Marqueta. The transversal activity was organized by the Campus Iberus, Zaragoza – Spain.
- February 7th, 2017 "Como hacer un curriculum academico", speakers: Pilar de Luis Carnizer, Aranzazu Novales Alquezar, Susan Sarfson Gleizer, Luis Morello Alquezar, Francisco Javier Garcia Marco and Maria Elosegui Ichaso. The transversal activity was organized by the Doctorate school of the University of Zaragoza.
- January 12th - April 11th, 2016 "Inteligencia Emocional, Psicología Positiva, Coaching De Equipos Y Emprendimiento", speakers: Santos Orejudo Hernández, César Rodríguez Ledo y Álvaro Serra Mercé Belén. The transversal activity was organized by the Doctorate school of the University of Zaragoza.

# 6. Courses

- January 21-25th, 2019, "Food loss and waste reduction and management", organized by CIHEAM – IAMZ- Zaragoza-Spain.
- May 7-11th, 2018, "Choice Experiments and Psychometrics – Theory, Methods and Applications", speakers: Vincenzina Caputo, Marco Perugini, Juliette Richetin. The course was organized by the university of Milan – Italy.
- May 8-12th, 2017. "How to reach international food markets: experiences from the United States and Europe", organized by CIHEAM – IAMZ – Zaragoza Spain.
- June 22ed - July 1st, 2016, "Postgraduate course of introductory to econometrics" Speaker: Profesor Giorgio Calzolari , organized by the Italian Econometric Association.
- January 18-22th, 2016 "Discrete choice experiments" lecturer: Profesor Michael Burton from the Manchester University, organized by Mediterranean Institute of Zaragoza (IAMZ).
- December 15th, 2015, "The effect of Communication and Implicit Associations on Consuming Insects: An Experiment in Denmark and Italy" speaker: Profesor Fabio Verneau from the University of Nápoles-Italy Federico II.



Thank you!