

# **Preliminary Thesis Report**

*"The case of Imperfect fruits and vegetables:*

*Can additional ethical attributes on imperfect fruits and vegetables increase problem awareness and affect consumers' purchase intentions?"*

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## **Abstract**

In this preliminary thesis report the topic of interest will be presented. The aim of the thesis is to analyze in depth a matter that has been of great interest in the last years: food waste. After various studies that have established that people waste most of their food due to imperfections in shape, color, size and packaging, the aim of this research is to fill in the gap in this field and understand if a plausible solution can be found.

The greater interest in ethical consumerism has brought great attention to the field and ethical attributes have been used in various experiments of organic products, with the aim of understanding the influence on consumers' preference.

The research will be constructed by applying additional environmental ethical attributes to imperfect fruits and vegetables in order to study if, consumers' awareness on the matter has increased and if they will be more inclined into purchasing those products.

The higher purchase intention, will consequently constitute a reduction of food waste.

## 1. Introduction

Food waste, sustainability and green consumption have all been very trending topics in the last decade. More people are becoming aware of the dangerous situation the world is facing regarding hunger, pollution and food waste but, most do not understand that they can make a difference with their individual behavior.

According to Food and Agriculture Organization (FAO), globally, we produce enough food to feed everyone in the world. Unfortunately, one-third of the food produced, approximately 1.3 billion tones, is lost or wasted each year. Food losses and waste reached about US\$ 680 billion in industrialized countries with 670 million tons of food dissipated, and 630 million tons in developing countries with a value of US\$ 310 billion. Fruits and vegetable, roots and tubers have the highest wastage rates with 40-50% of loss or waste per year, 30% for cereals, 20% for oil seeds, meat and dairy plus 35% for fish. Consumers in Europe and North America waste per capita, between 95-115 kg a year, while consumers in sub-Saharan Africa, south and south-eastern Asia, each throw away only 6-11 kg a year.

In developing countries, 40% of losses occur at post-harvest and processing levels, instead, in industrialized countries *more than* 40% of losses happen at retail and consumer levels (FAO). Generally, when a product is discarded during harvest or in storage, as we will see in depth further on, can be traced to managerial, technical or financial problems. The main effects of these losses are on the shoulders of small farmers which loose income and as a consequence raise prices for their customers. On the contrary, when we consider waste in the retail level, the main issue is quality standards that over-emphasize appearance. In fact, food retailers are generally the first to promote perfect looking products to consumers, disregarding in the supply chain what can be defined as “abnormal” (Cicatiello C., Franco S., Pancino B., Blasi E.,2016). Under the abnormal category, usually fall any food product that has any type of imperfection in shape, size or color.

The idea of flawless merchandise has increased customers’ need for beautiful necessities, which as a consequence, has shifted the attention from what is edible and for human consumption, to what is beautiful and appealing to the eye. The customer is automatically not interested in a product that does not represent perfection and is lead into rejecting it (Elder R. S., Krishna A., 2011; Loebnitz N,

Grunert G.K., 2014), either in stores -by choosing not to buy it- or in their own homes -by throwing it away-.

One-fourth of what is wasted globally is enough to end world hunger, so why are we not acting towards a solution?

The purpose of this research is to present a strategy which's aim, in the end, is to reduce food waste. The goal is to increase customers' purchase intention towards imperfect products, which are the first to be disregarded by the customer, through the increase of their awareness regarding food waste issues. The plan will be implemented by introducing additional ethical attributes on the labeling of those abnormal fruits and vegetables. We refer to these attributes as "additional" because they refer to attributes not covered by the EU regulation 834/2007 on organic production and labeling of organic products, emended in June 2007.

Given the fact that customers perceive imperfect food as being damaged, of poor quality and contaminated, they wrongfully associate this imperfection with the concepts of unhealthy and unsafe (Loebnitz N., Grunert K., 2017). This misjudgement, brings the necessity to reassure consumers and state the diverse origins, conditions under which organic food is produced, from where and how it was transported. The EU regulation sets a new course for developing further organic farming and aims at ensuring a sustainable cultivating system, high-quality products, environmental protection, attention to biodiversity, higher standards of animal protection, consumer confidence and protecting consumer interests.

However, consumers are dissatisfied with anonymous, homogenous organic products and they need clarity in their purchases (Zander K, Stolz H., Hamm U., 2012.). Additional information to the one provided by the EU labelling regulations needs to be applied so the customer can see the product as being better than others, but most importantly, so that they are not threatened by its aesthetic abnormal appearance. Furthermore, literature has expanded the "labeling" topic, through experimenting the association between organic products and ethical labelling.

Research like the one conducted by Zander and Hamm, 2010: "*Consumer preferences for additional ethical attributes of organic food*", or "*Promising ethical arguments for product differentiation in the organic food sector. A mixed method research approach*" by Zander, Stolz and Hamm in 2012, aim at understanding what is valued most by the customer when purchasing an organic

product, what is their understanding of organic and if ethical labelling has an impact on their product perception. Instead Loebnitz, Schuitema, Grunert, 2015 in their paper: “*Who buys oddly shaped food and why? Impacts of food shape abnormality and organic labelling on purchase intentions.*”, went specifically in experimenting the effects of organic labeling on purchase intentions of moderately and abnormally shaped foods and discovered the relation between organic labeling and purchase intention. These papers will design the outline of the current research.

The intuition of applying additional insights on imperfect fruits and vegetables comes from the already initiated research on labeling using ethical attributes and the on-going discoveries of the positive effects during the analysis. The latter, has led to believe, that they can be applied to imperfect fruits and vegetables in order to increase consumers’ positive vision toward imperfect goods. Moreover, the aim of this study is to understand if customers’ purchase intention, toward abnormally shaped fruits and vegetable, can be affected by the insertion of additional ethical labeling.

Fruits and vegetables have been chosen because, as mentioned above, they make up the greatest share of food waste out of all the food products and, in addition, their preparation process heavily relies on energy intensive heated greenhouses, refrigeration and transportation which have a great responsibility for the percentage of wasted resources (Graham-Rowe E., Jessop D.C., Sparks P., 2015).

With respect to the ethical attributes, they have been chosen from the theoretical framework designed by Padel and Gossinger (2008) with references to the three pillars of sustainability (social, economic, environmental) and will regard the *environmental topic*; concerning the protection of natural resources, climate and food waste, the category which will be explained more in depth under the “Ethics in Literature” section.

To conclude, this thesis proposal will continue with a literature review on: food waste, imperfection as a cause of dismissal by the consumer, ethical labelling, and finally, the research question with conclusions for the thesis progression.

## 2. Literature Review

### 2.1 Food Waste

As it has been mentioned, a greater concern about hunger, the environment and the economic crises has emerged amongst the community (Cicatiello et al. 2016). *“Food waste is...a triple bottom line problem affecting people, planet and profit”* (Ribeiro I., Sobral P., Peças P., Henriques E., 2017).

Various large corporations like Food and Agriculture Organization of the United (FAO) and the European Parliament have declared campaigns against food waste in order to create greater awareness amongst people. The former with the #zerohungerchallenge, launching awareness videos and encouraging a “no waste lifestyle”, whilst the latter with the European Year against Food Waste.

First of all, a distinction between food waste and food loss needs to be discussed. Food waste refers to *“the discarding of food products that are fit for consumption or fit to proceed in the food supply chain. This mostly occurs at later stages of the food supply chain, such as retail and consumer households. Hence, the causes of food waste are often related to human behavior and is intentional.”* (Gustavsson J., Cederberg C., Sonesson U., Emanuelsson A., 2013). We can further divide food waste into: (1) avoidable and possibly avoidable waste referring to “edible” food thrown away, (2) waste deriving from food preparation that is not edible, like shells and bones, this is unavoidable food waste (Secondi L, Principato L., Laureti T., 2015).

While food losses refer to *“...a decrease in food quantity or quality in the early stages of the food supply chain, before the food products reach their final stage, reducing the amount of food suitable for human consumption. The concept food losses are thereby often related to post-harvest activities with lacking system or infrastructural capacities...it is not intentional.”* (Gustavsson, et al. 2013).

Several authors have established that food waste is a phenomenon that concerns every step of the supply chain and is in addition, heavily affected by the consumers’ background (Secondi et al. 2015; Cicatiello et al. 2016; Ribeiro et al.2017). Moreover, the one conducted by Cicatiello et al. 2016: *“The value of food waste: an exploratory study on retailing”* is aimed at understanding the extent of food

waste in retailing as well as the economic and social impact. In this research, we can see that the Food Supply Chain (FSC) is divided into: production, retail, food service and household, with the aim of understanding what are the main causes of food waste in each sector.

For an overall view, the causes of food waste in the various steps of the Food Supply Chain will be mentioned. The information below is a personal elaboration on the facts retrieved from Cicatiello, et al. 2016 and Riberio et al. 2017.

#### FSC: Production

In the Production phase of the supply chain, approximately 39% of the food being produced ends up being discarded. The main causes for food waste regard: the damage to the products by either equipment or inefficiencies during production and processing, unharvested crops due to low returns, overplanting and overproduction, products rejected due to safety regulations and finally, products rejected due to a mismatch with quality standards of buyer.

#### FSC: Post-harvest handling and storage

Include those losses due to spillage and degradation during handling, storage and transportation between farm and distribution.

#### FSC: Processing

Refers to losses due to spillage and degradation during industrial or domestic processing, e.g. juice production, canning and bread baking. Losses may occur when crops are sorted out if not suitable to process or during washing, peeling, slicing and boiling or during process interruptions and accidental spillage.

#### FSC: Retail

With respect to the retailing phase, we deal with the behavior that is enacted by retail stores, like supermarkets. We can notice that waste is caused by: damaged packaging, unpurchased holiday food, inadequate storage, technical malfunction, overstocking, difficulty in predicting the number of products purchased and to conclude, the main field of interest: blemished, wrong-sized, miss-shaped products. In this step of the supply chain, we have 5% of discard.



### FSC: Food Service/catering

With 14% of the total food waste, food services or catering mainly produce food waste through an inadequate storage or technical malfunction, by over preparing - due to difficulty in predicting the number of customers-, for rejecting products due to safety regulations.

### FSC: Household

One of the largest causes of food waste (42%) is the behavior in households. Food is wasted due to: inadequate storage, technical malfunction, excessive trimming, spillages, abrasion, bruising, consumer confusion over “use by” and “best before” dates, lack of attention about food waste issues, uneaten holiday food and lastly, socio-demographics factors (age, gender).

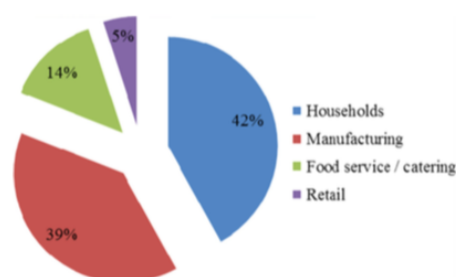


Fig. 1 Proportion of food discarded at different stages of the supply chain. (Source: Cicatiello, et al. 2016).

## 2.2 Food Imperfection as a cause of food waste

*“One of the main assumptions that contributes to global food waste is that consumers prefer cosmetically perfect fruits and vegetable because food retailers refuse to offer abnormally shaped food” (Loebnitz N, Grunert G.K., 2014)*

This opening statement sums up, at best, the current status-quo of food waste and food imperfection. First of all, to better understand the relation, a step back to the general view on consumers’ perception on imperfection of food products needs to be undertaken.

### 2.2.1 Consumers' perception toward products

First of all, a product can be explained by having intrinsic cues and extrinsic. The former refers to *“attributes that are part of the physical product, such as ingredients and shapes, they cannot be manipulated without altering the physical properties of the product itself”* (Loebnitz et al., 2014), while the latter refers to those attributes *“that are not part of the physical product such as its price and label, they can be changed without modifying the physical properties of the product* (Loebnitz et al., 2014).

We can say that, the way in which a product is depicted affects the extent to which consumers imagine using the product, and it can elicit more (or less) mental stimulation and this, as a result, can result in higher (or lower) purchase intention. These perceptions, that customers have towards any type of product, are produced by a sensorial reaction. Sensory marketing, is any marketing that *“engages the consumers' senses and affects their perception, judgement and behavior”* (Krishna A., 2011), and the senses are: haptics, audition, taste and vision.

If we consider the theory of grounded cognition, as related to mental stimulation, we know that actions and even mental simulations are used to generate our cognitive activity. Our initial perceptions of objects, both conscious and nonconscious, are stored in memory and are simulated on subsequent encounters with not only the object itself but also the representation of that object (Elder et al., 2011). Moreover, if a customer had one negative experience with a product, or was negatively impressed with its physical externalities, they will tend to base future purchases on that past experiences.

Being vision, the most predominant sense of a human being (Krishna A., 2011), many researchers have shown that the physical appearance of packaging influences attitude toward the product and even motivates consumers to purchase it. Consumers rely on how the package looks like and deduct inferences, like the level of quality, innovativeness and healthfulness. If a product's packaging is damaged-like torn wrapper, dented, smashed- the consumer will perceive it as being either contaminated or having some element of risk (White K., Lin L., Dahl D.W., and Ritchie R.J.B., 2016).

For fruits and vegetables, most of the time, and in most countries, these products do not have a fancy packaging or innovative way of presentation. They are, in fact,

positioned in their simplicity and rawness, or at most in transparent packaging (Loebnitz et al.,2014), in shelves or barrels in supermarkets.

The only feature to present themselves, is how they grew from the soil.

### **2.2.2. The case of imperfect fruits and vegetables**

Fruits and vegetables have been present in our gastronomic culture since the beginning of time, but the debate on their appearance, has been of great interest only in the last century.

A product which presents any aesthetic features which does not match the standards in size, shape and colour is defined imperfect or abnormal. These abnormalities may present themselves for various reasons; either because of the limited methods of avoiding plant diseases, or for the high sensibility of the elements, for their limited duration or simply because they are mother earth's products and not machine made. To be clear, the imperfect fruits and vegetables we are concerned with, are those that are still good for human consumption, and thus, even if present aesthetic mutations, their taste or edibility are not affected.

Nonetheless, consumers want normal and typical products because they signal better quality than abnormal or atypical ones (Loebnitz et al.2015), and since the outward appearance of products is the main quality consumers use when determining the initial sensory impression (Loebnitz et al.,2014), retailers are not interested in breaking this vicious cycle. Moreover, the avoidance of imperfect fruits and vegetables, has been identified as main determinant of global food waste. In their research, Yue, Alfnes and Jensens (2009) and Loebnitz and Grunert (2014), found significant effects for the relation on food abnormality on purchase intentions, indicating that participants' purchase intentions differ with the degree of abnormality. So, the higher level of abnormality present on the product, the less the purchase intention demonstrated by the customer.

In addition to quality perceptions, consumers perceive abnormally shaped fruits and vegetables as being risky. Constant evolving technologies, such as the use of genetic modification (GM), have resulted in negative attitudes and fear of "Frankenfoods". Consumers associate GM food with the concept of "mutant", "deformity", "unnatural" and "disturbing" (Loebnitz N., Grunert K.G., 2017), thus wrongfully thinking that any abnormality on fruits and vegetables is created by a

genetic modification. Prior research, (Loebnitz et al., 2017), has further shown that, higher the risk perceived by the customer, the more he tends to prefer a familiar option, preferring fruits and vegetables with normal shape and size.

So, to conclude, there are various obstacles towards the positive perception of abnormal fruits and vegetables. First and foremost, consumers' behaviors are highly influenced from social standards, beliefs, and habits (Loebnitz et al.2015; Hooge et al., 2016). Secondly, they tend to discriminate imperfect fruits and vegetables because they perceive a lower quality and thirdly, the miss-conception that they might be risky and associated to lab experiment.

*“The consumption of abnormally shaped foods has been normal for most of human history, the rejection of it in modern life illustrated the need to better understand customers' worries and their divorce from nature”* (Loednitz et al. 2017).

By changing consumers' behavior and knowledge toward imperfect foods, we can foster a sustainable change (Loebnitz et al., 2014) and this will be the mission of this research.

## **2.3 Labeling in Food Products**

### 2.3.1 EU regulation 834/2007

As mentioned in the Introduction, the EU regulation 834/2007 on organic production and labeling of organic products, is the standard labeling criteria by which the consumer is informed on *“the basis for the sustainable development of organic production while ensuring the effective functioning of the internal market, guaranteeing fair competition, ensuring consumer confidence and protecting consumer interests. It establishes common objectives and principles to underpin the rules set out under this Regulation concerning:*

- (a) all stages of production, preparation and distribution of organic products and their control;*
- (b) the use of indications referring to organic production in labelling and advertising.*

(Official Journal of the European Union, L 189/1)

The Regulation applies to any product originating from agriculture and organic production shall pursue the following general objectives:

- “(a) establish a sustainable management system for agriculture that:*
- (i) respects nature's systems and cycles and sustains and enhances the health of soil, water, plants and animals and the balance between them;*
  - (ii) contributes to a high level of biological diversity;*
  - (iii) makes responsible use of energy and the natural resources, such as water, soil, organic matter and air;*
  - (iv) respects high animal welfare standards and in particular meets animals' species-specific behavioral needs;*
- (b) aim at producing products of high quality;*
- (c) aim at producing a wide variety of foods and other agricultural products that respond to consumers' demand for goods produced by the use of processes that do not harm the environment, human health, plant health or animal health and welfare.”*

(Official Journal of the European Union, L 189/1)

Furthermore, organic production should follow:

- “(a) the appropriate design and management of biological processes based on ecological systems using natural resources which are internal to the system by methods that:*
- (i) use living organisms and mechanical production methods;*
  - (ii) practice land-related crop cultivation and livestock production or practice aquaculture which complies with the principle of sustainable exploitation of fisheries;*
  - (iii) exclude the use of GMOs and products produced from or by GMOs with the exception of veterinary medicinal products;*
  - (iv) are based on risk assessment, and the use of precautionary and preventive measures, when appropriate;”*

(Official Journal of the European Union, L 189/1)

Having understood the general concepts which permit a product to be determined as organic and, having established that fruits and vegetables fall under such category, we need to go deeper in understanding why we should put customers through the process of reading more information about the product they are about to purchase. Since consumers' perception towards imperfect foods, makes them believe these products are of lower quality and may present risks, the need to provide the customer with more information, but especially better information on these products is a must (Loebnitz et al. 2014, Loebnitz et al. 2015, Loebnitz et al. 2017).

Loebnitz et al. (2015), left open the possibility of studying if, by increasing consumers' problem awareness, willingness to purchase abnormal food will actually increase. Moreover, since standard European labeling is not sufficient and consumers are dissatisfied with anonymous, homogenous labels on organic products (Zander et al., 2012), ethical attributes can be more appealing and convincing to the customer and could fill in the above-mentioned research gap.

### **2.3.2 Ethical attributes**

Ethical consumerism has flourished in the last decade, both in scope and scale. What was once a focus on environmental/green behavior, has expanded to cover issues of animal welfare human rights, country of origin, fair trade, health, anti-globalization and many other related concerns. When a customer needs to decide whether or not to purchase a product, he undergoes a purchase decision: problem recognition, information search, evaluation of alternatives, product choice and outcome (Zander K., Hamm U., 2011). Consumerism is gaining relevance in the food purchase decisions, it's becoming a mainstream topic and this potential, enables marketers (Zaznder et al.,2011) to break the barriers in front of abnormally shaped foods (Zaznder et al.,2012).

As mentioned, ethical attributes go beyond EU organic farming standards.

In the literature, we have Padel and Gossinger (2008) which categorized the various ethical concerns (additional to common organic farming standards) according to three pillars of sustainability (social, economic, environmental).

We have four macro categories:

- **Social issues**, such as fair, safe and equitable working conditions, ban on child labor and exploitation of foreign workers, employment of disabled people, re-integration of drug addicts or delinquents.
- **Environmental issues**, such as protection of natural resources, water, soil, biodiversity or climate, as well as conservation and enhancement of landscapes.
- **Economic issues**, such as fair prices for organic farmers, manufacturers or retailers, long-term contracts for smaller farms, processing or trading companies, support for enterprises in disadvantaged or mountainous regions.
- **Other issues** which might be summarized under the term spiritual (or cultural) concerns, such as cultural or religious convictions or the preservation of specific agricultural or manufacturing traditions.

This theoretical framework has been a guideline for many studies (Zander K., Hamm U., 2011; Zander K., Stolz H., Hamm U.,2012; Dowd K., Burke K.J.,2013), and this research will follow the same footsteps and use this theoretical framework as guideline.

The ethical attribute that will be taken into account for this research rely under the *environmental topic*; which's concern is the protection of natural resources, climate and hence our problem food waste.

Environmental concerns will mainly deal with topics on food waste because, even though food abnormality is strongly related to food waste issues, consumers' awareness of this connection may be weak. As mentioned, imperfect fruits and vegetables rarely appear in supermarket and consumers rarely see them, so their link to food waste may not be there (Loebnitz et al. 2015). For this reason, ethical labeling of an environmental category, with environmental causes of food waste and food waste information, can create this link between food waste and abnormal fruits and vegetables.

### **3. Research question and objectives**

Various studies have conducted experiments on food imperfection and ethical labeling. They have tested how customers feel about purchasing abnormal foods (Loebnitz et al.2015), and purchase intention of foods with additional ethical attributes (Zander K., Hamm U., 2011; Zander K., Stolz H., Hamm U.,2012; Dowd K., Burke K.J.,2013).

The aim of this research, is to follow up on previous studies, combine the two fields of research and have a deeper look into potential marketing stands that can take place, in order to diminish food waste. Having seen that consumers need more information and demand more characteristics on what they dispute as being abnormal, we want to discover what would be consumers' purchase intention towards imperfect fruits and vegetables, when these imperfect products are integrated with additional ethical labeling.

Research question:

*Can additional ethical attributes on imperfect fruits and vegetables increase problem awareness and affect consumers' purchase intention?*

#### **3.1 Hypothesis**

The beginning of our problem, is the relation consumers have with abnormally shaped foods. For research purposes we will consider only shape as an abnormality factor. The decision was taken under the circumstances that the methodology of the data gathering will be an on-line survey, and thus the other factors may be perceived by the interviewee in the wrong matter and also because, there is greater previous research to consolidate our experiment on shape (Loebnitz et al. 2014, 2015, 2017.).

In addition, the research will be structured comparing only normal shaped fruits and vegetables and abnormal fruits and vegetables because it has been verified by Loebnitz et al., 2015, that there is no difference in purchase intention between normal and moderately abnormal foods.



**H1:** *Abnormally shaped fruits and vegetables affect customers' purchase intentions, such that purchase intentions are lower for abnormally shaped food than normally shaped.*

Since we want to test if our strategy of: giving more information to the customer and increasing their knowledge on food waste, can affect how much, they intend to purchase it, hopefully, when customers are given such information, they will, relate better to it and trust the product more.

**H2:** *Customers' purchase intention toward imperfect fruit and vegetables will be higher when adding environmental ethical attributes.*

**H3:** *Customers' awareness on food waste will be higher when adding environmental ethical attributes on imperfect fruit and vegetables.*

Since food abnormality does relate to food waste issues, and there are negative consequences on the entire environment, consumers with a higher awareness of the damages they might be contributing to, could consider purchasing the product.

**H3:** *Customers' purchase intention toward imperfect fruit and vegetables will be higher when customer awareness on food waste is higher.*

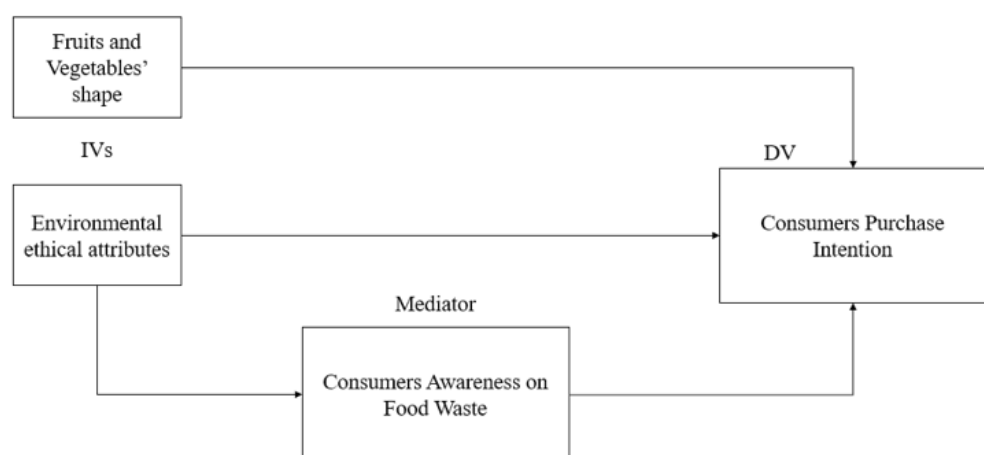


Fig 2. Conceptual framework (Source: own elaboration)

## 4. Methodology

With the aim of understanding if, through the mediation of consumers' awareness, there can be an effect on purchase intention towards imperfect fruits and vegetables by adding ethical attributes, the analysis will be conducted through an on-line survey. The survey's structure will mainly be divided into three parts: Normal fruits and vegetables, Abnormal fruits and vegetables, Abnormal fruits and vegetables with additional ethical attributes.

In the first step of the survey, regarding Normal shaped products, the interview will start by looking at an image of normal fruits and vegetables, after, the interviewee will have to answer questions regarding his/her level of awareness on food waste issues and subsequently, the candidate will have to answer questions regarding their purchase intention toward the product showed.

The scale of measurement used in the questions will be a 7-point Likert scale. This section, will be mainly present in the structure, to confirm the theory of the difference in behavior toward normal vs. abnormal shaped foods and to understand the knowledge of the candidate regarding food waste causes, under a normal condition.

Next, the candidates will move forward to our Abnormal fruits and vegetables section where, another image will be shown, of an abnormal fruit and vegetable, and the interviewee will have to answer questions regarding their current level of awareness of food waste issues and then, their purchase intention toward the product. This will be our control group for the study.

Finally, our Abnormal fruits and vegetables section with additional ethical attributes. Once again, the candidate will be shown an image of an abnormal fruit and vegetable but in this step, the image will be accompanied by one of our claims, which will be randomly assigned.

Example of claims:

*“Did you know that: by purchasing this abnormal fruit/vegetable you can reduce the global burden of food waste?”*

*“Did you know that: abnormal fruits and vegetables constitute the largest category food wasted?”*

*“Did you know that: abnormal fruits and vegetables are still edible and if discarded will amount to 40% of food wasted?”*

After seeing the image with any of the additional ethical attribute, the customer will be asked to rate, once again, his awareness on the ethical environment cause: food waste. Following, will be questions on the purchase intention toward that product. Hopefully in this case, the customer, after seeing the image with the abnormal food and reading the additional claim, will rate both his customer awareness and his purchase intention higher than in the previous sections.

## 5. Thesis Progression

The journey toward the end of the Thesis Research:

<b>Month:</b>	<b>Advancement:</b>
Mid of March	<ul style="list-style-type: none"><li>○ Increasing knowledge of field of research</li><li>○ Refining of theoretical framework</li></ul>
End of March	<ul style="list-style-type: none"><li>○ Writing of survey</li></ul>
April	<ul style="list-style-type: none"><li>○ Send final questionnaire</li><li>○ Start data collection</li></ul>
May	<ul style="list-style-type: none"><li>○ Analysis of the data,</li><li>○ Starting data pre-processing.</li></ul>
June	<ul style="list-style-type: none"><li>○ Complete analysis of the data</li><li>○ Elaboration of the final results;</li><li>○ Writing of the conclusions</li></ul>

## References

- Bonini S., Oppenheim J., 2008. *"Cultivating the Green Consumer"*. Stanford Social Innovation Review.
- Bray J., Johns N., Kilburn D., 2010. *"An Exploratory Study into the Factors Impeding Ethical Consumption "* Journal of Business Ethics (2011) 98:597–608 DOI 10.1007/s10551-010-0640-9.
- Burke P. F., Eckert C., Davis S., 2014. *"Segmenting consumers' reasons for and against ethical consumption."* European Journal of Marketing, Vol. 48 Issue: 11/12, pp.2237-2261.
- Cicatiello C., Franco S., Pancino B., Blasi E., 2016. *"The value of food waste: An exploratory study on retailing."* Journal of Retailing and Consumer Services 30 (2016) 96–104.
- Dean M., Raats M.M., Sheperd R., 2008. *"Moral concerns and consumer choice of fresh and processed organic foods."* Journal of Applied Social Psychology, 38,8 pp. 2008-2107.
- Dowd K., Burke K.J., 2013. *"The influence of ethical values and food choice motivations on intentions to purchase sustainably sourced foods."* Appetite 69 (2013) 137-144.
- Elder R. S., Krishna A., 2011. *"The "Visual Depiction effect" in advertising: facilitating embodied mental simulation through Product orientation."* Journal of Consumer Research, Vol.38.
- EU science hub, 2015. *"Average EU consumer wastes 16% of food; most of which could be avoided."* Retrieved from <https://ec.europa.eu/jrc/en/news/average-euconsumer-wastes-16-food-most-which-could-be-avoided> .
- Food and Agriculture Organization of the United Nations, 2018. *"Food loss and food waste."* Retrieved from: <http://www.fao.org/food-loss-and-food-waste/en/>.
- Graham-Rowe E., Jessop D. C., Sparks P., 2015. *"Predicting household food waste reduction using an extended theory of planned behavior."* Resources, Conservation and Recycling 101 (2015) 194–202.
- Gustavsson J. , Cederberg C., Sonesson U., Emanuelsson A., 2013. *"The methodology of the FAO study: "Global Food Losses and Food Waste - extent, causes and prevention"- FAO, 2011"*. SIK – The Swedish Institute for Food and Biotechnology.
- Hooge, Oostindjer, Aschemann-Witzel, Normsnn, Muller Loose, Almi, 2016. *"This apple is too ugly for me! Consumer preferences for suboptimal food products in the supermarket and at home."* Food Quality and Preference 56 (2017) 80-92.

- Krishna A., 2011. "An integrative review of sensory marketing: Engaging the sense to affect perception, judgement and behaviour." *Journal of Consumer Psychology* (2011), doi:10.1016/j.jcps.2011.08.003.
- Lockie S., Lyons K., Lawrence G., Grice J., 2004. "Choosing organic: a path analysis of factors underlying the selection of organic food among Australian consumers." *Appetite* 43 (2004) 135-146.
- Loebnitz N, Grunert K.G., 2014. "The effect of food shape abnormality on purchase intentions in China." *Food Quality and Preference* 40(2015) 24-30.
- Loebnitz N., Grunert K.G., 2017. "The impact of abnormally shaped vegetables on consumers' risk perception." *Food Quality and Preference* 63(2018) 80-87.
- Loebnitz, Schuitema, Grunert, 2015. "Who buys oddly shaped food and why? Impacts of food shape abnormality and organic labelling on purchase intentions." *Psychology & Marketing*, Vol 32(4):408-421.
- Padel S., Gossinger K., 2008. "Farmer consumer partnership communicating ethical values. A conceptual framework". CORE Organic project no. 1897
- Ribeiro I., Sobral P., Peças P., Henriques E., 2017. "A sustainable business model to fight food waste." *Journal of Cleaner Production* 177(2018)262-275.
- Secondi L, Principato L., Laureti T., 2015. "Household food waste behaviour in EU-27 countries: A multilevel analysis" *Food Policy* 56 (2015) 25-40.
- Smithers R., 2013. "Almost half of the world's food thrown away." Retrieved from: <https://www.theguardian.com/environment/2013/jan/10/half-world-food-waste>.
- Tristram S., 2012. "The global food waste scandal" Retrieved from: [https://www.ted.com/talks/tristram\\_stuart\\_the\\_global\\_food\\_waste\\_scandal](https://www.ted.com/talks/tristram_stuart_the_global_food_waste_scandal)
- White K., Lin L., Dahl D.W., and Ritchie R.J.B., 2016. "When do consumers avoid imperfections? Superficial packaging damage as a contamination cue." *American Marketing Association*, ISSN: 022-2437(print), 1547-7193 (electronic.)
- Zander K., Hamm U., 2008. IFOAM Organic World Congress. Modena, Italy, Jun 16-20, 2008.
- Zander K., Hamm U., 2011. "Information search behavior and its determinants: the case of ethical attributes of organic food". *International Journal of Consumer Studies* ISSN 1470-6423, 36(2012) 307-316.
- Zander K., Padel S., Zanolli R., 2015. "EU organic logo and its perception by consumers." *British Food Journal*, Vol 117 N°5

Zander K., Stolz H., Hamm U., 2012. *“Promising ethical arguments for product differentiation in the organic food sector. A mixed methods research approach”*. *Appetite* 62 (2012) 133-142.