

# THE DILEMMA OF ORGANIC FRUIT AND VEGETABLES PACKED IN PLASTIC

THE VIEWS OF ICELANDIC MILLENNIALS TOWARDS ORGANIC FRUIT AND  
VEGETABLES WRAPPED IN PLASTIC

**MASTER THESIS**

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## ABSTRACT

Increasing environmental awareness encourages people to be better informed and behave in a more environmentally friendly way. The demand for organic products has increased, as organic products must follow strict guidelines for maintaining sustainability. However, organic fresh fruit and vegetables are often packed in plastic packaging in grocery stores. The current research examines the effect plastic packaging has on organic fresh fruit and vegetables, among Icelandic millennials. The research is based on reviews on organic market data, packaging features and elements, plastic packaging, consumer behavior, the theory of planned behavior, and relevant previous empirical consumer studies. Moreover, it conducts seventeen qualitative interviews. The qualitative interviews included a combination of a think aloud protocol (TAP) and in-depth interviews. The overall findings indicate that Icelandic millennials face a dilemma when organic fresh fruit and vegetables are packed in plastic. Thus, the plastic packaging had a negative effect on organic fresh fruit and vegetables. The majority of participants that expressed that they valued organic fresh fruit and vegetables chose an unpacked conventional option when the organic option was packed in plastic. The researchers conclude that organic choices would increase by either removing the packaging or choosing a sustainable alternative.

**Keywords:** *Organic Agriculture, Plastic Packaging, Fruits, Vegetables, Buying behavior, Choice, Unpacked, Environmental effects, Sustainability, Mismatch, Dilemma.*

### ***Widely used terms:***

*TAP - Think aloud protocol*

*TA - Thematic Analysis*

*IFOAM - International Federation of Organic Agriculture Movements*

*TPB - The theory of planned behavior*

*EU - European Union*

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## 1.0 INTRODUCTION

The modern-day plastic was developed around 100 years ago. Since then, plastic has become a part of our daily consumption habits, where nearly half of all plastic has been manufactured after the year 2000 (Parker, 2018). Nowadays, it is hard to go through the day without consuming a product that is packed in plastic. The plastic material is widely used and can be, for instance, found in automobiles, buildings, sports equipment, furniture, and electrical devices. Interestingly, plastic packaging accounts for 39.9% of all plastic demand, making it the second-largest demand segment for plastic material (PlasticsEurope, 2019-a). Plastic is undoubtedly a valuable source of material as it does not break, is hygienic, lightweight, durable, and secure (BPF, n.d.). However, plastic might serve its role as packaging material for days up to weeks, leading to hundreds of years decomposing in the environment (Parker, 2019). This enormous gap between usage and decomposition has led to an overflow of plastic waste that is harmful to the environment. Plastic accounts for 80% of the total marine waste, where it breaks down to fragments of microplastics, harming all living creatures on the earth (ibid.).

It is estimated that 50% of the environmental impact in Iceland can be traced to food production and consumption (Ólafsdóttir, 2020). That is mainly due to the usage of artificial fertilizers in Iceland, as excess fertilizers often wash out in the sea, impacting global warming. Additionally, the production requires immense amounts of energy and fossil fuel (ibid.). Thankfully, environmental awareness has increased in recent years, which has led to emphasis on behaving in an environmentally friendly way. According to market and media research (MMR, 2019.-a), 68% of the Icelandic population are concerned about global warming, whereas 6% claim not to worry. Further, 93% of Icelandic millennials claim to be concerned about global warming (ibid.). Due to those concerns, 62% of the Icelandic population claim to have changed their buying behavior in the past 12 months to minimize the impact on the environment either a lot or some, whereas 13% state that they have not changed at all (MMR, 2019.-b). Organic agriculture is generally believed to emit 40% less greenhouse gas emission than traditional farming (Ólafsdóttir, 2020). These facts might explain that the global

demand for organic products is greater than the supply (Willer et al., 2020), and has been increasing over the past years. According to data from an Icelandic grocery chain, the sale of organic fruit and vegetables at their stores has nearly doubled from the years 2015 to 2019, or from 3.03% to 5.38% (Anonymous, 2020). Organic agriculture prohibits the use of chemicals during production to eliminate any harm to the environment, people's health or animal well-being. However, fresh organic fruit and vegetables are often packed in plastic packaging at grocery stores for multiple reasoning. Combining plastic and organic fresh fruit or vegetables in a single product could be defined as a product with two contrary features.

This paper aims to analyze whether plastic packaging affects the Icelandic millennials' attitude towards organic fresh fruit and vegetables. This research was based on qualitative interviews with a combination of a think aloud protocol and an in-depth interview. The research sample was Icelandic millennials, responsible for grocery shopping for their homes. In total, seventeen interviews were conducted. The data gathered, indicates that Icelandic millennials are positive towards organic fresh fruit and vegetables, but negative towards plastic packaging. The majority of participants chose the organic option when unpacked. However, the negative attitude of plastic packaging outweighed organic benefits, leading to an unpacked conventional choice when the organic option was packed in plastic. Thus, according to the findings, organic fresh fruit and vegetables would benefit from eliminating plastic packaging.

## 1.1 PROBLEM STATEMENT AND THE RESEARCH QUESTION

As plastic packaging is harmful for the environment, whereas organic agriculture eliminates harmful chemicals in order to be environmentally friendly, it might be considered inconsistent to combine these factors in one product. That mismatch between organic sustainability and the environmental effects of plastic packaging might affect the purchasing decision of organic products. This dilemma inspired the following research question:

*To what extent does plastic packaging affect consumer attitude towards fresh organic fruit and vegetables among Icelandic millennials?*

## 1.2 ORGANIC MARKET DATA

According to the International Federation of Organic Agriculture Movements (IFOAM Organics International, n.d.), organic agriculture is defined as “a production system that sustains the health of soils, ecosystems, and people; relies on ecological processes, biodiversity, and cycles adapted to local conditions, rather than the use of inputs with adverse effects; and combines tradition, innovation and science to benefit the shared environment and promote fair relationship and a good quality of life for all involved” (ibid.). Thus, organic agriculture prohibits using GMOs, ionizing radiation and hormones, and limiting the use of artificial fertilizers, herbicides, pesticides, and antibiotics for animals (European Commission, n.d.-a). Furthermore, organic agriculture aims to produce organic food while maintaining a sustainable environment by not harming the soil, ecosystem or, people’s health by using polluting chemicals (ibid.).

Organic producers must follow a contrasting procedure to support healthy soil, plants, and animals, which include crop rotation, natural ways to restore the soil fertility and encourage pest control, as well as ways to strengthen the animal immune system (European Commission, n.d.-a). Thus, organic agriculture encourages the

maintenance of water quality, biodiversity, and responsible use of natural sources as well as enhancing soil fertility. Furthermore, organic agriculture emphasizes the importance of animal welfare, whereas farmers must meet the needs of animals (European Commission, n.d.-b).

### 1.2.1 ORGANIC CERTIFICATION, LAWS AND REGULATION

To produce a certified organic product, producers must follow technical standards regarding production, storing, processing, handling, and distribution (IFOAM Organics International, n.d.). The European Union (EU) legislation on organic production no. 834/2007, 889/2008, and 1235/2008 apply in Iceland, followed by the Laws on organic agriculture no. 162/1994 and regulation on organic agriculture and labeling of organic products, both imported from third countries and locally grown, no. 477/2017 and no. 481/2017 (Vottunarstofan Tún, 2019). It aims to lead to sustainable agriculture, diversity of high-quality products, environmental protection, credibility, animal welfare, and consumer protection (Matvælastofnun, n.d.). The legislation and regulation cover the entire process, from the acquisition of resources, to production, and documentation of each stage of the process. The law and regulation cover both imported and exported products and the process behind each product (ibid.).

The Tún Certification Office (Vottunarstofan Tún, n.d.) is currently the only authorized body in Iceland specializing in inspection and certification in accordance with the laws on organic agriculture no. 162/1994 and regulations no. 477/2017 and no. 481/2017 for both imported and locally grown products (ibid.). Tún, in cooperation with the Iceland Food and Veterinary Authority and the Ministry of Industries and Innovation (i. Matvælastofnun), provides a set of standards and guidelines for organic production and natural resources (Vottunarstofan Tún, 2019). Tún works according to the international standard ISO 17065: The standard for certification bodies (ibid.).

### 1.2.2 ORGANIC AGRICULTURE IN ICELAND

According to The World of Organic Agriculture statement and emerging trends for the year 2020 (Willer et al., 2020, table 63), organic agriculture only accounts for 1,3% of the total agricultural land in Iceland. The growth rate of the total organic agriculture from 2017 to 2018 was 23.2%, and 273.1% between the years 2008 and 2018 (ibid.).

The most recent data collected from Tún about certified organic entities operating in Iceland shows that there are currently 31 certified entities on Tún's list of organic farming and of processing natural products operating in Iceland and Faroe Island in 2019 (Vottunarstofan Tún, 2020). Furthermore, there are 35 certified entities on Tún's list of importers, importing organic products in all categories to Iceland, from a third country (ibid.).

#### *1.2.2.1 The Demand for Organic Agriculture*

The global demand is currently higher than the global supply of organic products (Willer et al., 2020). The organic food industry in Europe accounts for 29,8 billion Euros in retail sales value in 2015, with Germany being the leading market, with 11.4% of the global sales (Wunsch, 2020). However, according to Wunsch (2020), the highest organic food consumption per capita in Europe is in Switzerland and the Nordic countries.

There is currently no official market data on demand for organic products in Iceland. However, the researchers contacted a grocery chain in Iceland in hope of receiving indicators of the organic demand development in Iceland. The Purchasing Manager of the grocery chain, who chose to stay anonymous, kindly informed the researchers that the sale of organic fruit and vegetables at their stores nearly doubled between the years 2015 and 2019, from 3.03% in 2015 to 5.38% in 2019, of the total sale of fresh fruit and vegetables. Their most recent data for January to April 2020 showed that 5.11% of all sold fresh fruit and vegetables were organic. Further, he informed us that

they recently started importing fresh organic fruit and vegetables from the Nordic brand Änglemark, Coop (Anonymous, 2020).

Furthermore, according to a newly published study performed by Zenter for the associations VOR (VOR - Verndun og ræktun, n.d.), an association for Icelandic organic farmers, 80% of the Icelandic population are positive towards organic agriculture. Moreover, this study showed that 77.2% stated to always, often, or sometimes buy Icelandic organic agriculture rather than Icelandic conventional agriculture. The study also showed that the main reason for choosing organic was due to environmental concerns, followed by health concerns (Häsler, 2020). Thus, there are indicators that Iceland is similar to the other Nordic countries, where the demand is greater than the supply.

### 1.2.3 CERTIFICATIONS

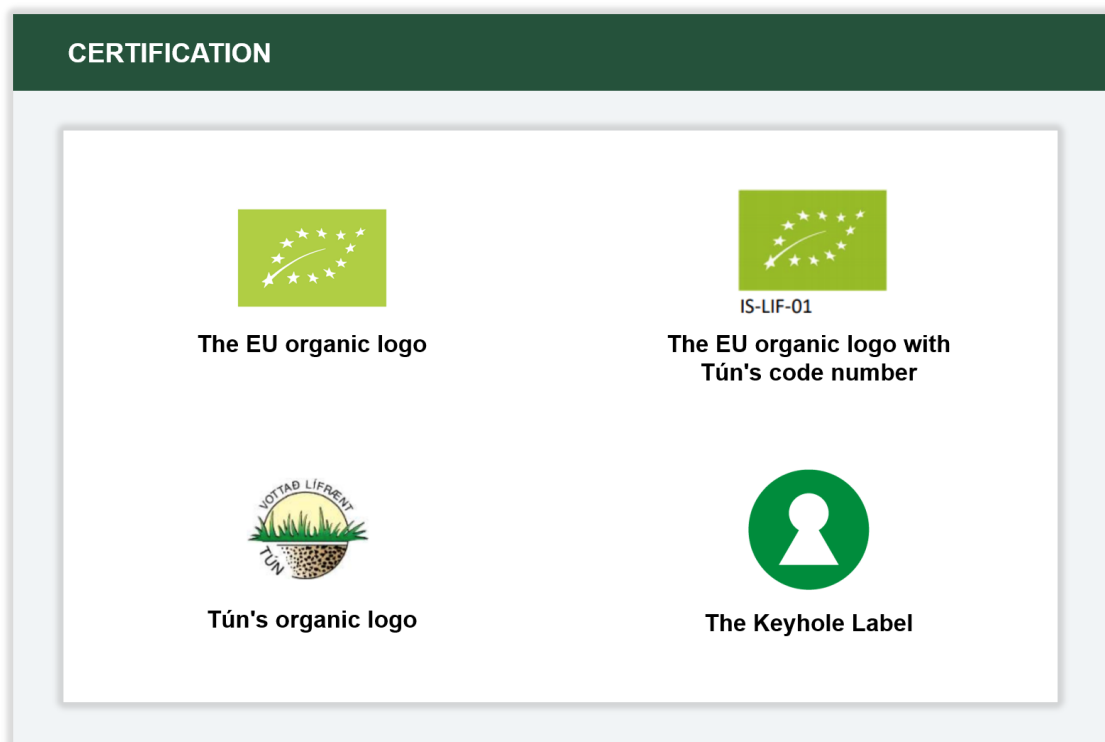
In this section, relevant certifications for this study will be discussed. If a product carries a certification, it means that the product has met all standards of a specific certification body, stated on the certification label (IFOAM Organics International, n.d.).

The EU organic certification, seen in table 1, helps consumers identify organic products from conventional products, and helps the producers to market them across Europe (European Union, n.d.-c.). The certification label must be used on all organic pre-packed products within the EU but is optional for organic products imported from a third country, EU organic products exported to a third country market, or organic products without packaging. The product must display the EU organic certification label by minimum 13,5 millimeters by 9 millimeters, in the standard colors, and without any additional styling. The certification body's number must be visible next to the certification label, as well as stated where the raw materials were farmed (ibid.). Tún's certified organic label is the only Icelandic organic certification, seen in table 1. Tún's label must be at least 9 millimeters by 9 millimeters (Vottunarstofan Tún, 2019). The label must be presented in cooperation with Tún, to ensure that the label's presentation complies with its rules. The EU Regulation on organic agriculture and labeling no. 889/2008 applies in Iceland. The Tún's code number is IS-LIF-01 (ibid.), which must



be stated next to the EU organic certification label, Icelandic organic products, seen in table 1.

Furthermore, the Keyhole label is a Nordic certification operated in Sweden, Denmark, Norway, and Iceland, implemented in Iceland in the year 2013. The Keyhole, seen in table 1, can be found on food packaging of products that meet a specific nutrient composition requirement. The certification helps consumers to choose a healthier option, as the product carrying the label is healthier than other products in the same category. Thus, the product holding the Keyhole includes less sugar, less salt, and/or healthier fats and includes more fibers (Icelandic Directorate of Health, n.d.). However, it is not an organic certification, meaning that the product is not organic unless it holds the organic certification additionally.



*Figure 1: Certifications*

## 2.0 LITERATURE REVIEW

### 2.1 PACKAGING

According to Kotler and Keller (2016), packaging refers to all activities of designing and producing a container for a product. The packaging is the container of the product that stores the product, protects it from the environment, and at the same time, serves to attract customer attention (ibid.). Packaging can be classified into three types of packaging; primary, secondary, and tertiary. This research will focus on primary packaging, which refers to the packaging that is in direct contact with the product (Hellström & Saghir, 2007). Additionally, with increased competition in the retail food market, packaging and packaging design has been viewed as an essential tool for differentiation purposes (Rundh, 2016). In this section, packaging will be discussed from a relevant perspective regarding the research aim of this research by going through the packaging functions, packaging elements, and plastic packaging.

#### 2.1.1 PACKAGING FUNCTIONS

Packaging includes important functions in the supply chain of a product, from distribution to the end consumer in the retail market (Rundh, 2005). Prendergast and Pitt (1996) divide packaging functions to either logistics related or marketing related. Logistic functions cover product containment and protection. Marketing functions include selling the product or the packaging ability to attract attention and communicate with consumers. Although packaging functions can be distinguished between these two roles, logistics, or marketing, they are intertwined in practice (ibid.).

##### *2.1.1.1 Logistic Functions*

The logistic functions of packaging mostly involve products' protection, preservation from damage and deterioration, for storage, and through transportation (Prendergast & Pitt, 1996). The increased globalization within the food industry has emphasized the importance of the logistic function of packaging (Rundh, 2016). Well-designed

packaging has the functionality to induce the freshness of the product and increase the lifetime of perishable food products. Further, logistic functions enable the product to be contained, apportioned, and unitized (Prendergast & Pitt, 1996). Packaging should be designed with consumers' convenience in mind, such as the option of re-sealable bags and screw-top bottles. The design of packaging convenience relates to actual product consumption and product storage, both in shape and size, and for hygiene and safety benefits (Dobson & Yadav, 2012).

#### *2.1.1.2 Marketing Functions*

Packaging can be seen as an essential marketing tool, mainly due to its role in the consumer purchasing decision process. The purpose of packaging as a marketing tool depends on the nature of the product that it carries and which purchasing decisions are involved for the consumer. According to the literature, marketing functions of packaging include its potential role in the marketing mix, its importance for brand management, and the role of packaging in marketing communication (Wyrwa & Barska, 2017). This section will discuss the relevance of packaging as a marketing tool, firstly concerning the marketing mix, secondly in connection to brand management, and thirdly from the communicator aspect.

Many researchers have argued for the importance of packaging in the marketing mix and defined packaging as the fifth P along with price, product, place, and promotion (Kotler & Keller, 2016; Rundh, 2009; Sara, 1990). Including packaging in the marketing mix is mainly due to packaging characteristics, its place and role, which indicates how packaging can be connected to every component of the marketing mix (Wyrwa & Barska, 2017). Packaging plays an important role in brand management by presenting symbols that can affect consumers buying decisions. Well-designed packaging includes a set of symbols that create an image of the product, affecting the consumers' value perception and attitude by displaying features and attributes of the product within (Wyrwa & Barska, 2017). Kotler and Keller (2016) argue that the majority of purchasing decisions are impulsive. In the fast-moving consumer goods (FMCG) industry, the marketing function of packaging is an essential tool. The low involvement of purchasing

decisions, variety of products, self-service, and less time to make purchasing decisions in the FMCG industry illustrates the importance of the marketing functions of packaging. Due to these circumstances, the marketing functions must make an impact at the point of sale by influencing and assisting consumers' product choice and perception (Dobson & Yadav, 2012).

Packaging plays an important role in company's marketing communication as it can serve as advertisement and sales promotion, where the visual elements of packaging can influence the consumers' decision-making process (Wyrwa & Barska, 2017). Packaging also plays an important role in product differentiation, and well-designed packaging can create a competitive offering to the market (Rundh, 2009). Well-designed packaging gives information about the product itself, attracts attention, reinforces product image, and induces sales (Prendergast & Pitt, 1996). The communication function of packaging includes appropriate information, visual attractiveness, and aesthetic elements. Food labeling, a panel that can include information about the product, its manufacturer, and nutrition, is a source of information that can be beneficial from the consumer perspective and other participants in the logistic chain. Consumers' change of needs and expectations due to increased diseases related to diet, demographic changes, e-commerce development, and increased environmental awareness, has resulted in new trends in the development of food products (Wyrwa & Barska, 2017). This change has resulted in higher consumer expectations towards packaging functions, where the information function of packaging plays an important role. From the consumer perspective, the information on labels can often be seen as a guarantee of product quality, which helps consumers with their decision making (ibid.)

### 2.1.2 PACKAGING ELEMENTS

A package consists of numerous elements, creating the packaging aesthetic appearance. The aesthetic elements of packaging induce the visibility of the product (Rundh, 2016). Aesthetic considerations include the choice of material, size, shape, color, text, and graphics (Kotler & Keller, 2016). These packaging elements play an

important role in affecting consumers' buying behavior. With the packaging elements, the price of the product and other marketing functions must harmonize with each other to reach the packaging's objectives (Kotler & Keller, 2016).

The consumer attitude towards the packaging material can affect the consumption of the product itself (Rundh, 2016). The size and shape of the package is not only a crucial logistic function due to transportation and storage, but it also plays an important role in attracting consumers' attention (ibid.). Some researchers have argued that color is the most important element for packaging design as it can influence the consumer's mind more than any other packaging element. Color is a language-neutral element loaded with meaning that can evoke emotional reactions. It is a powerful tool that can serve as the identification of the brand and can also inform something about the nature of the product itself (Kotler & Keller, 2016; Rundh, 2016). The graphical element of the packaging must be designed and presented in a way that it serves to fulfill the information and promotion function to the end consumer (Rundh, 2016). As aforementioned, these packaging elements must harmonize with each other, give a holistic image of the product within, to reach the packaging objective, and attract consumer attention.

Well-designed packaging can help to create a unique position in the marketplace by being a differentiating factor in a competitive market. The packaging can be seen as a salient salesman of the product in the store and it should not only serve to protect the product itself but also inform and convince the consumer to select the product from competitive products (Rundh, 2016).

### 2.1.3 PLASTIC PACKAGING

The most common food packaging materials are plastic (37%), paper (34%), glass (11%), metal (15%) and other (3%) (Muncke, 2012). The modern-day mass-produced plastic was developed around 100 years ago (PlasticsEurope, n.d.), but nearly half of all plastic has been manufactured after the year 2000 (Parker, 2018). According to Plastics Europe, the European plastic industry employs over 1,6 million people. It

provides more than 360 billion EURO turnover for close to 60.000 companies, making the industry important for the European economy (PlasticsEurope, 2019-a).

According to the European Strategy for Plastics in a Circular Economy (European Union, 2018), the demand for plastic in 2015 was 49 million tons. Out of those 49 million tons, 39.9% was for packaging use only, which is the largest demand segment, followed by 19.8% for building and constructions (PlasticsEurope, 2019-a).

As packaging should protect and preserve, plastic has become a popular packaging resource due to its features. Plastic does not break, is hygienic, lightweight, durable and secure (BPF, n.d.). Even though plastic is often referred to as a single material, there are multiple types of plastic available designed with a specific solution in mind (PlasticsEurope, 2019-a). The main types of plastic used for fresh food packaging are polypropylene (PP), polyethylene, low density (PE-LD) and polyethylene, linear low density (PE-LLD) (PlasticsEurope, 2019-a).

However, in addition to the plastic food packaging, plastic can be a part of a carton package as well, as the cartons' ingredients are often packed in plastic (Muncke, 2012). Thus, the food contact material can be plastic, even though the outside package is of another material. Commission Regulation (EC) No. 1935/2004 provides a legal framework for all EU regarding food contact materials (FCMs). It is required that materials do not release a harmful amount of constituents for human health and that the food contact material does not change the food composition. Furthermore, the EU Regulation No 10/2011 specifies a regulation regarding plastic materials, intended to get in contact with food (European Union, n.d.-d).

#### *2.1.3.1 Environmental Impact of Plastic Packaging*

Plastic packaging might serve its role as packaging for days up to weeks, leading to hundreds of years decomposing in the environment (Parker, 2019-b). Between 1.5% to 4% of total plastic produced pollutes the ocean annually. That accounts for 5 to 13 million tons globally, or 150 to 500 thousand tons in the EU every year. Plastic accounts for 80% of the total marine waste, which can either wash up on land or damage marine

life by breaking down to microplastics (European Union, 2018). Additionally, plastic food packaging was the second most common beach waste in 2019 (Ocean Conservancy, 2018). These facts underline the severity of the environmental impact of plastic packaging.

When plastic waste breaks down, it can create fragments of microplastics. It is estimated that 75 to 300 thousand tons of microplastics are released into the environment within the EU annually (European Union, 2018). The microplastics, which are plastic particles smaller than 5 millimeters, can be ingested by marine life. It has been found in marine life such as fish and shrimps, where it can enter the human food chain (Parker, 2019-b). Microplastics have been found in every part of the globe, from Mount Everest, the highest peak of the earth, to Mariana Trench, the deepest point of the sea. Furthermore, microplastics can impact human health as it drifts through the air and can, for example, be contained in drinking water and food products (ibid.).

#### *2.1.3.2 Plastic Packaging and recycling*

Approximately 25.8 million tons of plastic are disposed of annually in Europe, while only around 30% of total plastic is recycled. Of these 25.8 million tons of plastic, 60% is generated from packaging (PlasticsEurope, 2019-b). According to The Environmental Agency of Iceland, plastic packaging waste is 13 thousand tons annually or 40 kilograms per person (Icelandic Environmental Agency, n.d.-a). The most recent recycling rate of plastic packaging for the year 2017, was 30% (Icelandic Environmental Agency, n.d.-b). The recycling rate has been fluctuating from 30 to 40% over the past years (Icelandic Environmental Agency, n.d.-b).

According to the strategy of Icelandic National Waste (Icelandic Government, 2016) for the years 2018 and 2019, producers, importers, and stores are encouraged to reduce the use of plastic packaging and promote package design in favor of waste prevention (ibid.). Plastic packaging can be highly customized by multiple additives to create a specific packaging appearance or function (European Union, 2018). The aforementioned customization can affect both the recycling process, making it costly, and the quality of the recycled plastic. Therefore, the strategy of Icelandic National Waste aims to prevent the usage of plastic additives that are either troublesome or

impossible to recycle (Icelandic Government, 2016). The aforementioned strategy is in line with the European Strategy for Plastics in a Circular Economy, which “lays the foundation to a new plastics economy, where the design and production of plastics and plastic products fully respect reuse, repair, and recycling needs, and more sustainable materials are developed and promoted” (European Union, 2018, p.2). This strategy implementation is an important factor in tackling the environmental problems caused by plastic.

### *2.1.3.3 Household Recycling in Reykjavik*

For private households in the capital of Iceland, Reykjavík, citizens have a choice of service regarding waste collection. The citizens can receive three different bins for recycling their household waste, paying for each individually. The bins are color coded by grey for general household waste, blue for paper, and green for plastic for residents to recycle at home. However, it is only mandatory to have a grey bin for general household waste, while bins for recycling paper, and plastic are optional. If citizens choose not to pay for recycling bins at their homes, the alternative is to go to waste drop off centers for recycling purposes. Those centers are located around Reykjavík and have limited opening hours (The city of Reykjavik, 2015).

There is no online data available regarding percentages of households that choose to pay for additional recycling bins. However, the researchers contacted the city of Reykjavík hoping for data but did not receive a reply in time of this research.

## PACKAGING SUMMARY

Packaging refers to all stages of designing and producing a container of a product (Kotler & Keller, 2016). The focus of this research is on primary packaging. The literature review first introduced the functions of packaging, following Prendergast and Pitt's (1996) definition of roles as logistics or marketing function. These functions were of most relevance as they connect the product to the end consumer, covering product containment and protection, and for its role as a marketing tool, affecting purchasing decisions. In addition to packaging functions, packaging elements were introduced as



they affect consumer buying behavior, related to size, shape, color, text, and graphics of the package (Kotler & Keller, 2016).

The core subject of this research, plastic packaging, was covered in addition to packaging functions and elements. Firstly, by going through the development of plastic packaging, followed by plastic demand, and plastic as a packaging resource. The environmental impact of plastic was then discussed. Furthermore, the recycling of plastic in Iceland was covered. It was stated that the recycling rate of plastic has been fluctuating from 30 to 40 % in Iceland in recent years (Icelandic Environmental Agency, n.d.-b). The final section covered household recycling in Iceland, paying attention to the recycling process in Reykjavík, Iceland. Thus, the literature review of packaging covers all relevant aspects of packaging and plastic packaging concerning this research.

## 2.2 THEORETICAL FRAMEWORK

This section of the literature review will introduce and discuss a relevant theoretical framework for this research. First, the consumer behavior will be defined, followed by the Theory of planned behavior (TPB) model which will be introduced concerning this research, as well as discussing the model's previous implementation and criticism.

### 2.2.1 CONSUMER BEHAVIOR AND DECISION MAKING

According to Arnould et al. (2005), consumer behavior is defined as “individuals or groups acquiring, using, and disposing of products, services ideas, or experiences” (Arnould et al., 2005, p.9). Thus, consumer behavior refers to the whole circle of consumption. From receiving, inheriting or purchasing a product, to consuming that particular product, and finally throwing away or recycling that product, for instance (ibid.). The cognitive perspective, often referred to as the consumer behavior approach, focuses on what goes on within the consumer mind during the purchasing decision process, which can be further used to predict behavior (Schiffman et al., 2008).

### 2.2.2 THE THEORY OF PLANNED BEHAVIOR

The theory of planned behavior (TPB; Ajzen, 1991) is an extension of the theory of reasoned action (TRA; Fishbein & Ajzen, 1975). According to the TPB, the individual's intention to behave in a certain way is affected by three motivational factors. Those three motivational factors are; the attitude toward the behavior, the subjective norm, and the perceived behavioral control. The attitude refers to the individual's evaluation of the behavior, for example, whether the behavior is good or bad and whether the individual wants to behave in a certain way. The subjective norm is the individual's perceived social pressure to behave in a certain way. Lastly, perceived behavioral control refers to the individual's actual ability to behave in a certain way, for example, due to opportunities, availability, or resources. Individuals' attitude, subjective norms, and perceived behavioral control together form the individuals' intention. The stronger the intention, the more likely it is that the individual will perform the behavior (Ajzen, 1991).

According to the TPB model, the behavior of buying organic fresh fruit and vegetables indicates the individuals' intention or willingness to purchase organic fresh fruit and vegetables. The intention is affected by the three motivational factors; the individuals' attitude towards organic fresh fruit and vegetables, the subjective norm towards organic fresh fruit and vegetables, and the perceived behavioral control towards buying organic fresh fruit and vegetables.

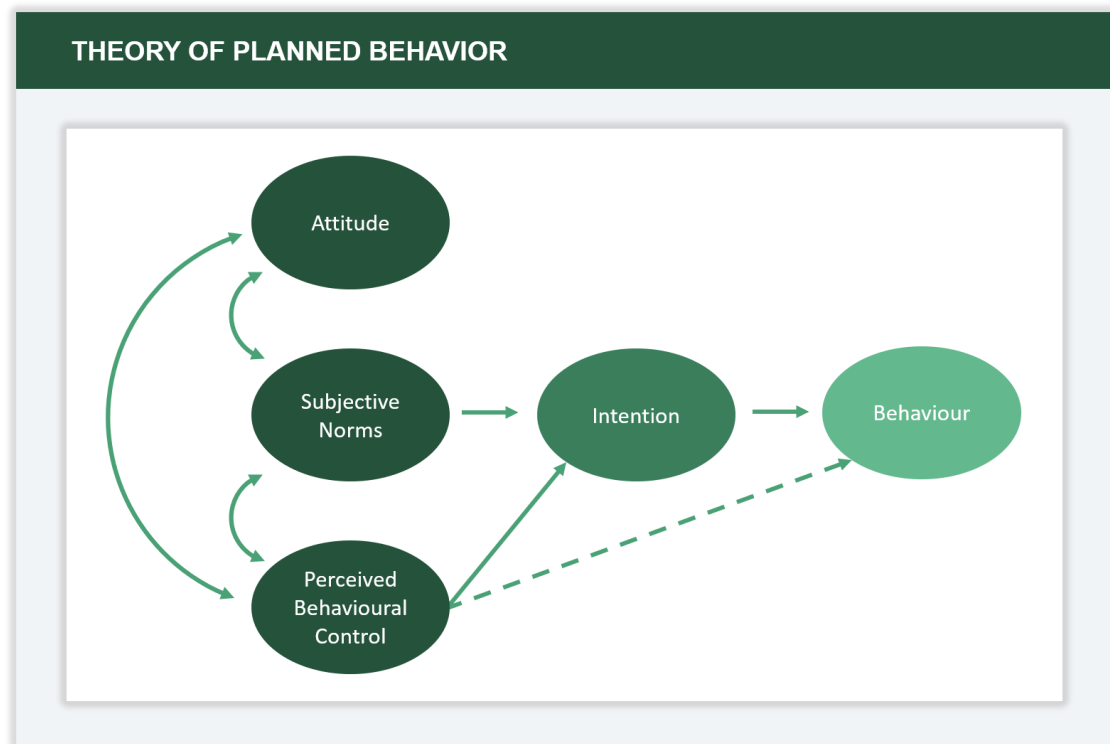


Figure 2: The Theory of Planned Behavior. Source: Ajzen, 1991.

### 2.2.3 ORGANIC FOOD CONSUMPTION AND THE TPB MODEL

Previous literature exploring consumer behavior regarding organic food purchases has been conducted using TPB to better understand the motivational factors that form the intention of organic consumption. A study by Irianto (2015) concluded that health consciousness and environmental consciousness were the two main factors influencing an individuals' positive attitude, leading to the intention of buying organic food using the TPB model. Additionally, Scalco et al. (2017) used the TPB model to gain a greater understanding of the main motives to buy organic food. They presupposed that individuals' attitudes towards organic products are the main factors that drive organic food buying, followed by subjective norms and, lastly, perceived behavioral control. However, Sheeran et al. (2013) criticized the TPB model, stating that it excluded unconscious motives driving behavior and that the model only focuses on rational reasoning. However, the TPB model has been successfully used in previous literature when examining the main motivational factors for buying organic food. Therefore, the researchers believe it applies to this research.

## THEORETICAL FRAMEWORK SUMMARY

The cognitive perspective was chosen as it focuses on what goes on within the consumer's mind during the purchasing decision process, used to predict behaviors. The TPB model predicts behavior by analyzing the three motivational factors that influence the intention towards the behavior. Those factors are the attitude of the behavior, the subject norm, and the perceived behavioral control. The TPB has been successfully used in previous research concerning organic food consumption and is therefore considered applicable for this research.

### 2.3 STATE OF THE ART

As there is limited previous research as to what extent plastic packaging affects the consumer buying decision for fresh organic fruit and vegetables among Icelandic millennials, this section of the literature review will provide an overview of the most relevant previous research related to this research. Firstly, previous literature concerning why consumers choose organically grown products will be viewed. Secondly, previous literature on consumers' packaging preferences of fresh fruit and vegetables will be analyzed. Thirdly, previous literature on the environmental impact of packaging and its effect on consumer choices will be viewed.

#### 2.3.1 WHY PEOPLE BUY ORGANIC

According to previous literature, the most common reasoning why consumers buy organic food are due to human health, animal wellbeing, environmental aspects and products quality (Honkanen et al., 2006; Krystallis & Chryssohoidis, 2005; Makatouni, 2002; Nagy-Pércsi & Fogarassy, 2019; Pearson, 2002; Pearson et al., 2011; Williams & Hammitt, 2000). However, other reasons have been studied as well. For instance, a study by Williams and Hammit (2000) concluded that organic consumers in the Boston area experience less trust in federal food safety agencies, and perceive organic food as safer than conventional food. Those consumers were willing to pay a higher price to reduce their food safety risk by purchasing organic food. These findings are in line with an international study done by Krystallis and Chryssochoidis (2005), stating that

consumers are willing to pay a higher price for organic products due to greater food quality and the trust they have for organic certifications. Additionally, Du et al. (2017) argued that consumers buy organic products due to its values and symbols for social identifications.

Even though organic agriculture is generally perceived positively, Pearson et al. (2011) state that there is a gap between the number of consumers that have a positive attitude towards organic food and the consumers that purchase organic foods in the UK. However, the category of fruit and vegetables has the highest average market share with a higher growth rate than other organic products. The study predicts that this growth rate will continue. In general, they claim that most organic purchases come from consumers that are switchers, thus, switch between organic and conventional food (ibid.).

### 2.3.2 CONSUMER PACKAGING PREFERENCE

A study performed by van der Pol and Ryan (1996) analyzed which factors influence consumers' preference for fruit and vegetables. The study results showed that the ideal fruit and vegetables are cheap, good quality, available, loose and unpacked, which influences the consumers' purchasing decisions. Their study also noted that it is important to take into account the economic viability of the product itself, where trade-offs have to be made between price and quality as the low price can only induce certain quality (ibid.). This notion of economic viability might be particularly relevant in the discussion of organic fruit and vegetable attributes. As aforementioned, consumers might be more willing to pay a higher price for organic products due to greater quality. Thus, the attribute cheap might not be of the same relevance when considering organic products. These findings correlate to van Herpen et al. (2016) findings, where it was examined whether packaging affects the choice decision for fruit and vegetables. Thus, whether removing the primary packaging increased the likelihood that the consumer would choose that particular product. The study showed a special interest in organic fruit and vegetables, as the primary plastic packaging can be perceived as contrary to the environmental aspects of organic fruit and vegetables. Their findings from two 3D

virtual experiments concluded that unpacked fruit and vegetables, both organic and conventional, were preferred without packaging. Further, it showed that offering organic fruit and vegetable unpacked, increased its choice (van Herpen et al., 2016). Furthermore, Pack and Childers (2006) stated that impulsive purchasing is more likely to occur when consumers are able to touch the product in relation to unpacked product choices. Thus, unpacked products are more likely to induce sales.

### 2.3.3 PRODUCT PACKAGING AND THE ENVIRONMENT

Rokka and Uusitalo (2008) performed a conjoint analysis to examine consumers' preferences towards environment-friendly packaging compared to other product attributes. The result showed that one-third of participants preferred recyclable-labeled, environment-friendly packaging over the non-recyclable plastic package alternative. The findings indicate that environmentally friendly product packaging is an important product attribute for consumers' decision making. Price proved to be of the same relevance as product packaging, and the attributes resealability and brand were also considered important. (ibid.).

Thøgersen's (1999) study discussed the moral reasoning of consumer buying behavior in relation to environmental concerns. The study was qualitative, performed in Denmark, where participants were reached by telephone. Interestingly, the results showed that Danish consumers are, for the most part, aware of the environmental problem of packaging. They stated that changed buying behavior would have positive environmental benefits. The study concluded that there are two conditions; environmental concerns, and the absence of other highly involving characteristics, making moral reasoning of buying behavior more likely. Thus, the tendency to choose environmentally friendly packaging is intrinsically motivated and not purely based on economic considerations.

As the consumer recognition of the environmental effect of packaging is increasing, Prendergast and Pitt (1996) researched whether there are trade-offs between packaging functions and the environment. Thus, whether environmentally compatible packaging reduces the ability of packaging to promote and protect the product. They concluded that there is no trade-off between packaging functions and

the environment, where environmentally friendly packaging does not necessarily reduce packaging's ability to protect or promote the product.

Further, Wikström et al. (2019), analyzed how packaging functions influence food waste. The study looked at the interaction between the consumer and the packaging, thus portraying packaging as a service to consumers, where packaging functions should support the consumer during its consumption. The result showed that packaging design could reduce food waste by aligning packaging functions to the consumer's needs. Protection, packaging size, information, and convenience are packaging functions that can affect food waste. Packaging should ensure food quality and must serve to protect the product during storing, from spilling, and through transportation.

Furthermore, fixed packaging size may cause consumers to buy more than they need, which can result in a waste of leftovers. Packaging must also include practical product information regarding storage, ingredients, food safety, and date labeling. Lastly, the packaging must be well designed regarding consumer convenience to resist food waste, such as easy to empty, open, close, reseal, and dose (ibid.)

## STATE OF THE ART SUMMARY

As previous literature shows, there are similarities in findings of why people buy organic food, where human health, environmental aspects, animal well-being, and products quality has been mentioned several times (Honkanen et al., 2006; Krystallis & Chryssochoidis, 2005; Makatouni, 2002; Nagy-Pércsi & Fogarassy, 2019; Pearson, 2002; Pearson et al., 2011; Williams & Hammit, 2000). Furthermore, previous literature has paid attention to trust in organic food, where it has been claimed that consumers' trust affects organic consumption (Krystallis and Chryssochoidis, 2005; Williams and Hammit, 2000). However, Pearson et al. (2016) conducted that there is a gap between the positive attitude of organic products and organic consumption in the UK.

When analyzing previous literature concerning packaging preferences, fruit and vegetables are preferred unpacked (van Herpen et al., 2016; van der Pol and Ryan, 1996). In relation to that, environmentally friendly packaging is valued over non-recyclable plastic packaging (Rokka and Uusitalo, 2008), and environmentally friendly product packaging does not reduce the packaging ability of protection and promote the product (Prendergast and Pitt, 1996). Furthermore, well-designed packaging can reduce food waste (Wikström et al., 2019). Thus, the previous literature shows that environmentally friendly product packaging is an important product attribute.



## 3.0 METHODOLOGY

This chapter aims to provide an overview of how the research process was performed. This chapter covers all relevant steps undertaken during the research process, by outlining the philosophy of choice, research orientation, research approach, and by thoroughly explaining the data collection and analysis. Further, this chapter will discuss the quality of this research and the limitations of the research process.

### 3.1 RESEARCH PHILOSOPHY

In philosophy, questions concerning existence, knowledge, or reality are often described as problems that need to be studied or resolved (Tantray & Dar, 2016). To resolve or study a phenomenon in question, scholars have adopted a certain system of beliefs and assumptions to gain or develop new knowledge. According to Saunders (2016), this process is defined as the research philosophy. A relevant research philosophy will aid the credibility of the research process as well as set the stage for the methodological choice, the strategy of the research, and which techniques are used for data collection and analysis. Thus, by developing a suitable research philosophy to examine a certain phenomenon, the research itself will establish a more coherent structure (ibid.).

To gain or develop new knowledge, beliefs and assumptions have to be made to describe a problem that needs to be studied or resolved. These beliefs and assumptions differ depending on how the researcher wants to gain knowledge for a certain problem. According to Bryman (2012), these beliefs and assumptions refer to the philosophies of ontology and epistemology. These philosophies distinguish from each other and determine the outcome of the overall research philosophy.

#### 3.1.1 ONTOLOGY

Ontology relates to the realities the researcher encounters during the research process (Bryman, 2012; Saunders et al., 2016). However, ontological orientation can take different positions, either an objectivist position, where the phenomenon implies that external facts are beyond our influence or reach, or the alternative; constructionism

(Bryman, 2012). The constructionist ontological position assumes that both perceptions and consequent actions of people construct the social reality (Bryman, 2012; Saunders et al., 2016). Objectivism and constructivism differ in terms of developing a research philosophy where the objectivist perspective embraces realism and is positivist in its research approach, adapting to positivist research methods such as experiments or surveys (Bryman, 2012). However, the constructionist perspective incorporates interpretive methods such as in-depth interviews or observations which are relativist in its nature (ibid.). For this research, a constructionist ontological perspective was adapted with an interpretive method of an interview. This perspective was chosen as this research aims to understand the cognitive process within the consumer's mind when making a purchasing decision regarding organic fresh fruit and vegetables. This insight into individual experience and beliefs will provide a better understanding of their attitudes towards organic fresh fruit and vegetables packed in plastic.

### 3.1.2 EPISTEMOLOGY

Epistemology covers assumptions that refer to what is considered acceptable knowledge for a certain phenomenon. Further, epistemology reflects on how the researcher knows reality, referring to how to communicate valid knowledge to others (Burrell and Morgan, 1979; seen in Saunders et al., 2016). Similar to ontological position, epistemology can orientate towards either positivist or interpretivist perspective. As aforementioned, this research adopted an interpretivist perspective, where an interview was the tool of data gathering. The interview design was a combination of think aloud protocol (TAP) followed by an in-depth interview. Due to the choice of method, the data was analyzed with an interpretivist perspective, where the researchers defined the codes. The chosen perspective and methods will be further defined in the following sections.

## 3.2 RESEARCH ORIENTATION

Research design is affected by the approach used to connect theory to data. Saunders et al. (2016) distinguish between three reasoning approaches that can be relied on;

deductive, inductive, and abductive. Developing a research question derived from a theoretical understanding of existing theory is a characteristic of a deductive approach. The deductive reasoning approach examines the premises and the logic behind the research question by testing and comparing previous literature to the argument made. However, with an inductive approach, theory development starts with an observation of empirical data. The collected data is then analyzed, and the results formulate a theory. Thus, induction moves from data to theory and deduction moves the opposite way around, from theory to data. Abduction can be described as a combination of induction and deduction, moving back and forth from data to theory (Saunders et al., 2016). This research undertook an abductive reasoning approach, where the phenomenon was explored by considering previous literature, looking for patterns or themes, and collecting primary data, gaining further knowledge of the subject.

The abductive approach was chosen in order to overcome the weakness of using inductive or deductive reasoning individually. This research aimed to gain knowledge regarding the consumer behavior of Icelandic millennials regarding organic fresh fruit and vegetables and to see whether plastic packaging affects their purchasing decision. To gain that knowledge, previous literature concerning the context of this research was analyzed. This step of the research process can be defined as a deductive approach as it moves from a theoretical perspective in search of an understanding of the research question (Saunders et al., 2016). After examining the previous literature surrounding the research objective, data was collected using a qualitative research approach in the form of a qualitative interview. The collected data gave a new insight into different views of the phenomenon resulting in a new paradigm. This new paradigm is an indicator of an inductive approach where theory follows data (Saunders et al., 2016), resulting in an overall abductive reasoning approach.

### 3.3 RESEARCH APPROACH

Three dominant research designs can be adapted; quantitative, qualitative, and mixed methods research (Bryman, 2012; Cooper & Schindler, 2014; Saunders et al., 2016). In broad terms, the nature of quantitative research usually includes numeric data in its

attempt to reveal the relationship between theory and the research question. The research strategy of quantitative research usually takes the form of a deductive, objectivism and derives from positivism. On the other hand, qualitative research usually collects and analyses words or non-numerical data that has not been quantified. Qualitative research strategies are usually inductive, constructionist, and derived from interpretivism (Bryman, 2012). However, qualitative research can take the form of an abductive approach by first applying deductive reasoning by analyzing previous literature for theory development (Saunders et al., 2016).

As aforementioned, this research adopted a constructionist ontological perspective with an interpretivism method in the form of a qualitative interview with an abductive reasoning approach. The qualitative approach was considered suitable for this research as it is considered to be the better alternative for understanding why and how things occur (Cooper & Schindler, 2014).

### 3.4 DATA COLLECTION

This section covers the process behind the observed results. Both secondary and primary data were collected to address the overall research objective. This section will outline the origin of the secondary data as well as describe the data collection and sampling methods used for collecting the primary data. Further, the implementation of the research will be thoroughly described to explain how the data was obtained.

#### 3.4.1 SECONDARY DATA

In the first step of this research, secondary data was collected. Secondary data is collected from a secondary source and includes raw data and published summaries, originally collected to serve other purposes (Saunders et al., 2016). In this research, secondary data was collected to gain insight into existing literature concerning the context of this research. The collected secondary data was especially relevant for the discussion chapter of this research, where previous literature was analyzed and compared to the results of this research. Saunders et al. (2016) distinguish secondary

data into three groups, data based on documents, surveys, and multiple sources. The secondary data collected in this research includes organic market data, packaging features and elements, plastic packaging, the theory of planned behavior and relevant previous empirical studies. The secondary data was mainly collected from academic books and published articles in academic journals. Additionally, information from published reports and articles in public magazines were collected, both in general and in relation to the Icelandic market. The aim was to include the most relevant discussion, development, and researches related to the objective of this research.

### 3.4.2 PRIMARY DATA

When limited appropriate secondary data is available to answer a research question, a combination of both secondary and primary data is needed. Primary data can be defined as first-hand data collected by researchers with the research objective in mind (Saunders et al., 2016). As aforementioned, this research conducted qualitative interviews for primary data collection. Both authors performed the primary data collection on the 28<sup>th</sup> and 29<sup>th</sup> of March 2020. Due to the COVID19 lockdown, all interviews were conducted using the Zoom (Zoom.us) communication software, where all data was recorded. The interview design, sample, and implementation will be further discussed in the following sections.

#### *3.4.2.1 Interview Design*

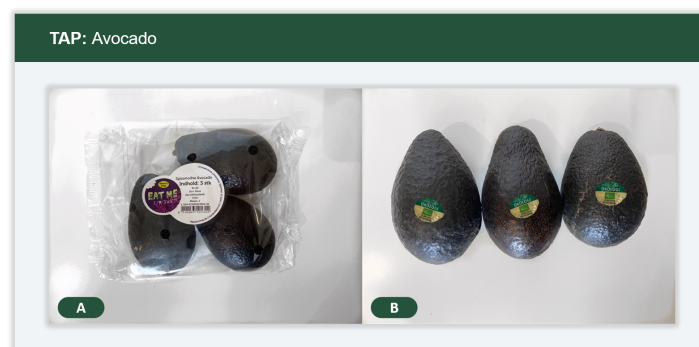
The interview was designed to explore the consumers' perception regarding organic fresh fruit and vegetables packed in plastic. The interview consisted of two main sections, first conducting a think aloud protocol (TAP) followed by an in-depth interview.

#### **Think Aloud Protocol**

TAP is an exploratory research method where participants are concurrently asked to think aloud and verbalize their thoughts while performing a task (Ericsson & Simon, 1993). TAP was chosen as it is seen as a good technique to demonstrate the cognitive

process while performing a task where it has shown to provide a rich set of verbal data for reasoning (Fonteyn et al., 1993; Someren et al., 1994). Further, TAP is useful to gather data regarding food purchasing decisions (Reicks et al., 2003; Risius et al., 2017). In this research, participants had the task to imagine that they were located in a supermarket, planning to do their grocery shopping. Their shopping list consisted of four products, avocado, lettuce, mango, and sweet potatoes. This product choice was selected with the purpose of excluding products of Icelandic origin. That was done to eliminate that locally grown products would affect the participants' choice. For the same reason, the price of the products was also excluded.

The task included four pictures, where the participants had to choose one option out of two (see figure 3-6). Each photo contained two fresh products of the same category, option A and option B, one is an organic product, and the other being a conventional product. The product options also differed in the way it was portrayed. One option was packed in plastic, where the product was clearly visible, while the other option was unpacked. In total, two organic products were packed in plastic, and two were unpacked. During the task, one photo was shown at a time, asking participants to verbalize their thoughts aloud while choosing which option they preferred. The test products were all products bought in an Icelandic supermarket. To ensure product similarities, the researchers used the same product twice. Thus, all products were bought in plastic and manipulated by removing the plastic packaging and labeling the products with an organic label when appropriate.



*Figure 3: Avocado*

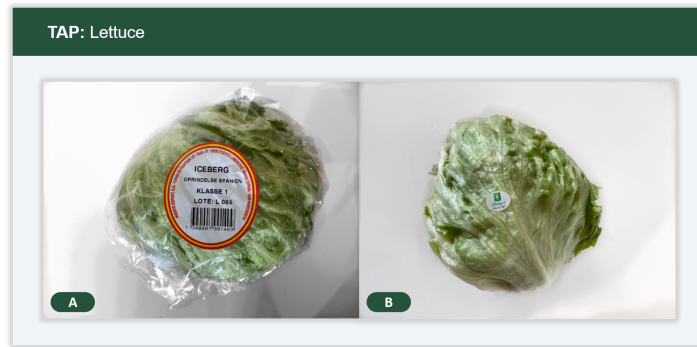


Figure 4: Lettuce

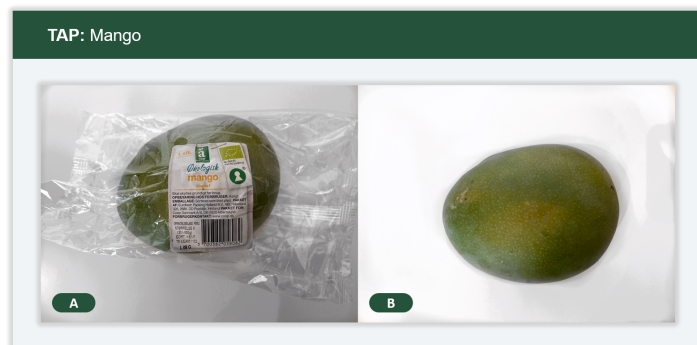


Figure 5: Mango

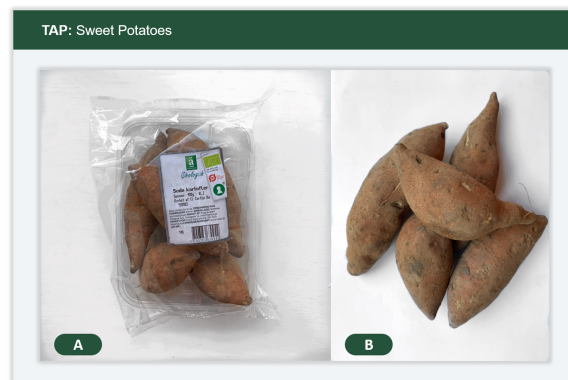


Figure 6: Sweet Potatoes

## In-depth interview

After data had been collected using TAP, an in-depth interview was performed. Participants were asked eight follow-up questions to gain further insight concerning their behavior and knowledge regarding the research objective. Asking follow up questions, after the TAP, increases the credibility of the research (Güss, 2018). During an in-depth interview, participants can talk openly about their behavior and beliefs

concerning the topic (Saunders et al., 2016). These questions revolved around recycling, plastic packaging, the participant's recognition of organic labels, organic buying behavior, and whether multipack packaging features affected their buying behavior. Due to recent times, it was believed to be relevant to ask whether the COVID19 outbreak affected their product choice. Lastly, the participants were asked to state their age. The in-depth questions can be seen in figure 7.

In-depth questions		
No	Question	Reason
1	We know that it takes time and effort to recycle, some people don't want to go through the hassle. How is it with you?	Recycle
2	Do you find it difficult to avoid plastic packaging?	Plastic
3	Does plastic packaging give you any concerns?	Plastic
4	Do you recognize the organic labels included on the pictures? If so, how do you evaluate them, how do they affect you and do they tell you anything about the product?	Organic
5	Some people do not buy organic products at all, why do you think that is the case and how is it with you?	Organic
6	Before the Covid-19 outbreak, would you have made different decisions regarding your product choice, if so, can you elaborate?	Covid-19
7	Does the number of products in the package affect your choice, if so, how and why?	Behaviour
8	What is your age?	Age

Figure 7: In-depth Questions

### 3.4.2.2 Sample

The sample target group was Icelandic millennials. The main reason for this chosen sample as the research focused on the Icelandic market. The selected sample had to have experienced the act of purchasing, and being comfortable in describing the action as this research focuses on purchase decisions of fresh fruit and vegetables.



According to Byrne (2001), qualitative studies have no exact sample size. However, qualitative studies aim to gather enough knowledge about the subject, so it provides a greater understanding of the phenomenon, transferrable to other people with similar experiences. Data saturation has been met when the next interview will not result in additional themes or understanding (ibid.). In total, seventeen interviews were conducted where researchers sought to keep the balance between gender, resulting in a total of seven male and ten female participants. This amount of interviews gave a rich set of verbalized data, enough to gain an understanding of the phenomenon. The sample size also reflected the researchers' restraints of time and budget for this research. Further information regarding participants can be seen in the participant information table (Appendix 2).

Midway through the preparation of the initial research design, the COVID19 pandemic emerged. The initial plan was to recruit participants in supermarkets, conducting the interviews at a nearby café. Due to the COVID19 lockdown, the research was forced to adapt to the changing environment, resulting in the current sampling method. As this research sought to answer a specific research question, the sampling was done with a purpose, where participants were gathered using a snowball sample. A snowball sample is a convenience sample, where the researcher first contacts a small group of people, which then directs the researchers to relevant participants. The snowball sample is not random and is considered most suitable where the subject of interest can be defined as sensitive (Bryman, 2012). Even though this research subject cannot be considered sensitive, this method was most relevant as researchers sought to recruit Icelandic millennials that regularly buy fresh organic fruit and vegetables.

#### *3.4.2.3 Implementation*

The data collection consisted of seventeen interviews conducted on the 28<sup>th</sup> and 29<sup>th</sup> of March 2020. The chosen language was Icelandic, as all participants were Icelandic citizens. Before conducting the interviews, the researchers practiced the process by performing test interviews with friends. That was done to eliminate technical errors and

better understand the online process and outcome. This gave the researchers the opportunity to practice the TAP implementation and see whether it needed some adjustments.

As aforementioned, all interviews were conducted online using Zoom communication software. Participants were reached through email or by Facebook messenger with a link to the Zoom meeting. Prior to the interview, participants received four pictures, presented in the TAP procedure. The reason was to ensure that all pictures would be clearly visible during the interview. However, to keep a good rhythm during the interview, the researchers shared their screen, showing the product pictures, one at a time. At the same time, participants were asked to “think aloud” while evaluating which fresh fruit and vegetable they preferred. The interview was structured into five steps, as figure 8 demonstrates.

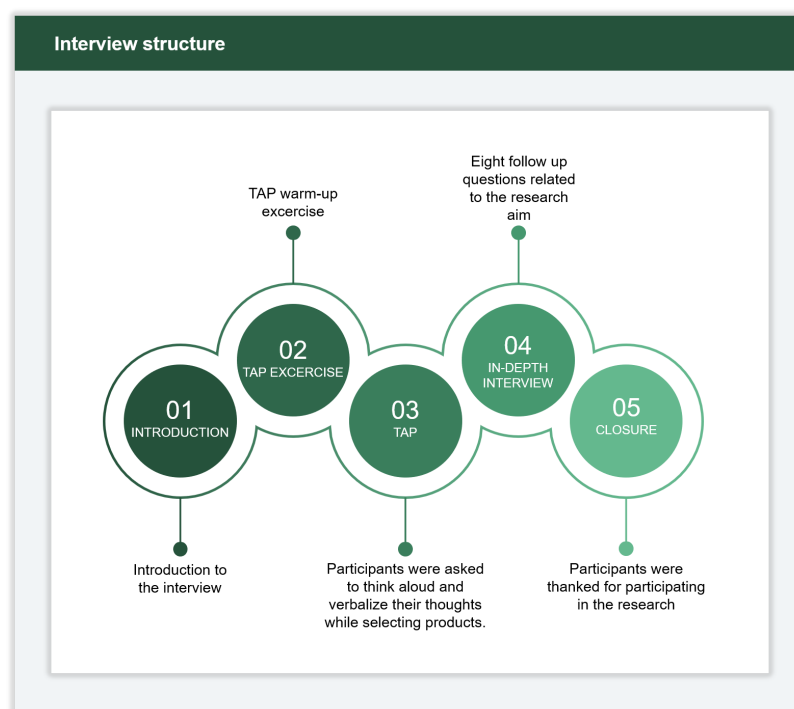


Figure 8: The Interview Structure

At the beginning of the interview, participants were informed that this interview would be recorded and transcribed. The first step of the interview consisted of an introduction, explaining the procedure. That was done without stating the research aim, making sure

that the research aim would not affect the obtained results. Further, the TAP was thoroughly explained, where the participant had the opportunity to ask questions. As it might feel unnatural for some participants to “think aloud”, a warm-up exercise is useful to make the participant feel comfortable with the task (Someren et al., 1994). That was the aim of the second step, where participants had the opportunity to exercise their “think aloud”, by expressing their thoughts concerning two different choices of popcorn.

The next two steps were the main steps for the data collection, where data was collected with TAP, followed by an in-depth interview. The TAP’s task was for the participant to imagine that he was located in the supermarket doing grocery shopping. The procedure went well, where the participants thoroughly explained aloud what went through their mind, resulting in a rich set of verbalized data. During TAPs, the researchers only interrupted if the participant started to hesitate, only by comments such as “why” and “can you elaborate”, not disrupting their thought process. The final step of the data collection was an in-depth interview, including eight open-ended questions regarding the research aim. The fifth and final step was closure, where participants were thanked for participating in this research. The duration of the interview process lasted between 15-26 minutes. The full interview guide is attached in Appendix 1.

### 3.5 DATA ANALYSIS

After gathering the data, the data was transcribed and analyzed using thematic analysis (TA). TA is a qualitative analysis method used to identify themes and patterns within the dataset, which is coded for further analysis (Braun & Clarke, 2006). This will be further described below.

#### 3.5.1 TRANSCRIPTION

All interviews were audio-recorded and manually transcribed word-to-word. All interviews were transcribed in Icelandic, as the interviews were conducted in Icelandic. However, all quotes are translated into English when applicable to this research’s findings. Clear identifiers were used for the interviewers, as well as each participant

was distinguished with a certain number. Questions were included in full, distinguished with bolded fonts and marked with the question's number. During the interviews, participants stated either "product A" or "product B" when choosing which product they preferred. However, as can be seen in the transcripts (see Appendix 4), each choice was given a letter representing the product name followed by the number 1 or 2. When writing the results, researchers stated the product name and whether it was a product packed in plastic or unpacked. This procedure was chosen to keep a good flow when conducting the interviews and to represent well-understood findings.

### 3.5.2 CODING

During the data collection, researchers were observant while engaging with the data, taking notes while conducting the interview, transcribing, and while reading through it. By thoroughly analyzing the data, themes, and patterns related to the literature review were identified, used to create codes. Additionally, during the observation of the dataset, self-assigned codes relevant to the research were created. Thus, the source of codes is both data and theory-driven (Saunders et al., 2016).

The coding process was to explore similarities within the data set, further labeled and categorized using a relevant single phrase codes that described the data. As some codes were too broad, it was divided into subcategories. This reflects the main reason TA was chosen, as it is a good way to summarize the key characteristics of the data set. Using TA resulted in an explanatory overview of the data, which is easily accessible and useful for formulating a valid conclusion (Braun & Clarke, 2006). The coding process was done by using NVivo12 data analysis software. The coding overview and descriptions can be seen in Appendix 3.

### 3.6 RESEARCH QUALITY

Reliability and validity are the main criteria of research quality (Bryman, 2012). According to Saunders et al. (2016), reliability refers to "replication and consistency". Research is viewed reliably if other researches would gain the same results when implementing the same research design. Validity refers to "the appropriateness of the

measures used, the accuracy of the analysis and results, and the generalizability of the findings” (Saunders et al., 2016, p.202). This notion of reliability and validity has a quantitative stance as it is rooted from a positivist perspective (Leung, 2015). However, qualitative researchers have re-defined these concepts of reliability and validity to evaluate the quality of qualitative research (Bryman, 2012). The underlying sections will explain how the reliability and validity of this research were met. The last section will then be dedicated to the limitation of the research design.

### 3.6.1 RELIABILITY

As aforementioned, reliability refers to the replication and consistency of the research (Saunders et al., 2016). When considering qualitative research, external reliability can be hard to achieve due to socially constructed interpretations of participants and is, in fact not the main goal (ibid.). Thus, the reliability of qualitative research lies in its consistency, or being able to collect the similar data during different time periods (Leung, 2015). According to Güss (2018), to gain reliable data performing TAPs, a well understandable audio record of the task is required. Thus, the experimental situation must be under full control.

Further, problems related to both transcribing and coding must be minimized (ibid.). For this research, it is believed that these requirements were met. Clear and understandable audio recordings of the interviews were gathered. All interviews were conducted using Zoom communication software, which can clearly record all communication when used. No technical complications occurred during data collection. As all participants were Icelandic, all interviews were conducted and transcribed in Icelandic, which minimized communication and understating barriers. Both researchers performed, transcribed, and analyzed the data. When coding the data, researchers followed a well-defined coding system, excluding coding biases, resulting in high inter-coder reliability.

Furthermore, researchers sought to present a well-defined description of the research design and methods used for this research. This description of the research design can lead other researchers wanting to replicate similar studies. However, researchers

are fully aware that even though this research design would be replicated, it might not give the same results due to socially constructed interpretations of participants, as is the nature of qualitative research (Saunders et al., 2016).

### 3.6.2 VALIDITY

In qualitative research, validity refers to the appropriateness of tools, processes, and data (Leung, 2015). Further, it refers to whether the methodology is appropriate for the stated research question, and whether the research design, the sampling, and the data analysis is appropriate. Lastly, it refers to whether the result and conclusion are valid for the chosen sample and the research context (ibid.).

The research question is relevant, as the organic fruit and vegetable market in Iceland is increasing, and plastic packaging has gained greater attention. However, no data is available concerning the Icelandic market, whether the plastic affects organic products within the category of fresh fruit and vegetables. When considering the validity of the sample, it solely included Icelandic millennials that are responsible for the grocery shopping of their home. Furthermore, the method needed to reach the participants' cognitive processing, asking the participant to "think aloud" while performing a task. It is considered a valid method as long as instructions are clear (Güss, 2018). Thus, participants are aware that they must verbalize everything that they think of. As the participants received both verbal introduction as well as a warm-up exercise, it is assumed that both the instructions and the process of this research were clear enough to state that it is valid. During TAPs, researchers only commented such as "why" and "can you elaborate" if the participant hesitated. Therefore, it is assumed that the thought process was not disrupted.

Furthermore, the credibility of the research was supported by triangulation, combining TAPs, and follow-up in-depth interviews (Güss, 2018). The in-depth interview included eight open-ended questions. The questions were designed to minimize social desirability bias, designed to have the participant answer truthfully, increasing validity. All data were audio-recorded and analyzed by transcribing all data, which was further coded using NVivo12. When considering the validity of the transcription and analysis,

biases were minimized with an intercoder approach, referred to the reliability section above. Lastly, the result and conclusion portray authentic findings, shown by including multiple quotes derived from the interviews. It is considered valid as it demonstrates real findings derived from the interviews, summarized into relevant categories created from topics mentioned during the interviews combined with previous literature review.

### 3.6.3 LIMITATIONS

The initial plan was to recruit participants at supermarkets, dividing them into two subgroups depending on their product choices. Thus, by checking whether they had organic fresh fruit and vegetables in their shopping basket or not. But due to the COVID19 lockdown, that was not possible. That might have resulted in a greater variety of people, with a greater age range. Furthermore, it might have influenced the result to conduct the interviews face-to-face, using real fresh fruit and vegetables. However, the performed research is considered to have pros. The participants were in the comfort of their own home, which eliminated participant bias, resulting in relaxed and thorough answers.

General limitations for the TAPs are that some participants might think it is unnatural or uncomfortable to verbalize constantly for a long period of time or that the background noise or the participant's soft voice might be hard to understand on tape. Further, participants might need to select verbalized thoughts as they do not have time to express all of them or that some thoughts are not conscious and, thus, hard to verbalize (Güss, 2018). During this research, these problems did not seem to occur. Nevertheless, the researchers cannot be sure that participants verbalized all thoughts that arose during the task. However, a rich set of valuable verbalized data was gathered during the interviews, resulting in additional information about the phenomenon. Furthermore, the researchers acknowledge that by not performing a mixed-method research approach, thus, only including qualitative data collections, has limitations. Due to limited time, the researchers were not able to conduct quantitative data collection, which could have resulted in generalized findings.

Thus, even though the COVID19 outbreak forced changes to the initial methodology, where researchers had to adapt to a changing environment, the researchers believe it did not harm the research findings. No prominent limitation occurred after the customization of the research design. It is believed that the research is as relevant and well-performed as it might have been before the outbreak.

## RESEARCH PROCESS SUMMARY

This research conducted an abductive reasoning approach, with an interpretivism research perspective of a qualitative interview. A snowball sample was gathered where the target group was Icelandic millennials responsible for the grocery shopping. The research design was a combination of a TAP and an in-depth interview. Participants were first asked to express everything that came to their mind while evaluating which fresh fruit and vegetable they would choose while doing grocery shopping, followed by an in-depth interview that included eight questions designed to gain more information about the phenomenon. Both researchers performed data collection, transcription, and coding. All interviews were gathered online using Zoom communication software, where all interviews were audio-recorded. The coding process was performed by using NVivo12 qualitative data analysis software.



## 4.0 RESULTS

In this research, interviews were conducted with seventeen participants from the age of 25 to 35. Ten participants were females, while seven participants were males. The participants were all Icelandic millennials, currently living in Iceland. After analyzing the data from the seventeen interviews, it is obvious that plastic packaging does affect purchase decisions for organic fruit and vegetables, among Icelandic millennials. All participants, except for one, who expressed that they valued organic products, chose the organic unpacked option in the first two categories but switched to conventional unpacked option when the organic option was packed in plastic. This will be analyzed and discussed in detail in the following sections.

### 4.1 FINDINGS

This research is based on a qualitative research approach, with a combination of TAP and an in-depth interview. This chapter will present the findings from the collected data. The chapter will be structured to best represent the findings. Hence, the topic *organic* will first be presented, with relevant sections that best describe organic findings. Thereafter, the topic of *plastic packaging* will be presented, including sections that best describe findings concerning *plastic packaging*. Furthermore, the topics *mismatch*, *improvements*, and *origin* will be discussed separately and in detail. Each section will first present findings from the TAPs section of the interviews, followed by findings from the in-depth interviews. Some sections only include data from one part of the interview, which will then be stated.

#### 4.1.1 PRODUCT CHOICES

During TAPs, participants were asked to select one product out of two options, for four product categories. Overall, participants were more drawn towards unpacked products. This resulted in most participants choosing organic when unpacked and moving from organic when packed in plastic. In total, eight plastic packaging choices occurred, from six participants, as two participants chose plastic packaging for two categories. Overall, one participant was firm with his organic choices, choosing organic

for all four categories. He stated that he valued his health greater than the environmental effect of plastic packaging.

Figure 9 shows the results from the participants' choices of avocado and lettuce. These pictures included an unpacked organic option and plastic packed conventional option. As can be seen, participants were more drawn to the unpacked organic avocado and lettuce. In total, fifteen participants chose the organic unpacked option, while two participants chose the conventional packed in plastic option. To be noted, during TAPs, twelve participants expressed that the organic certifications affected their buying behavior.

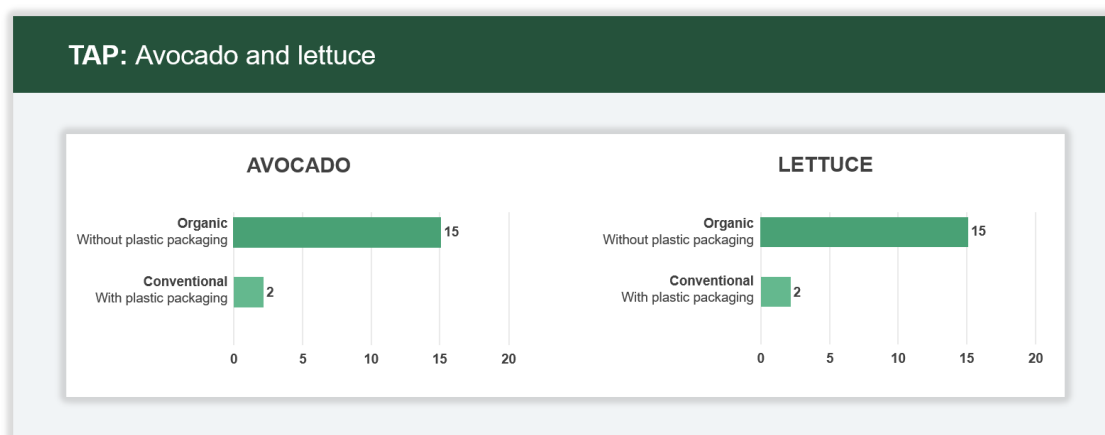


Figure 9: Avocado and Lettuce Results

Figure 10 shows the result from participants' choices of mango and sweet potatoes. These photos included the organic option packed in plastic and the conventional option unpacked. As can be seen, participants were more drawn to the unpacked conventional mango and sweet potatoes. In total, three participants chose the plastic packed organic mango, while fourteen participants chose the unpacked conventional mango. Only one participant chose the organic sweet potatoes packed in plastic, while sixteen participants chose the conventional unpacked sweet potatoes.

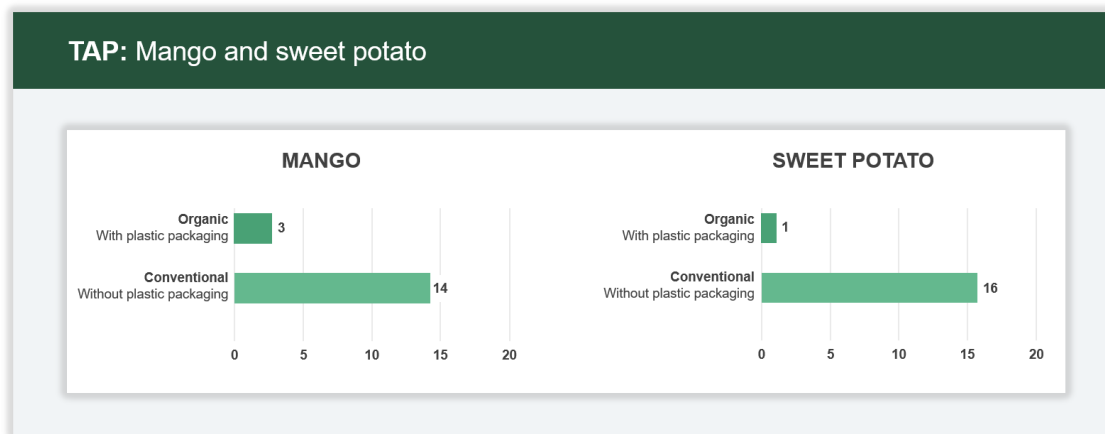


Figure 10: Mango and Sweet Potatoes Results

#### 4.1.2 ORGANIC

Overall, participants could distinguish between the organic products and the conventional products included in the task. Nevertheless, organic importance differed between participants. During TAPs, twelve participants mentioned that organic influenced their buying behavior and that they preferred organic products.

*“This is organic, that matters a lot, I would take into consideration that it is organic” (P1, I.22).*

In contrast, one participant stated that as he does not know the difference between organic and conventional well enough, organic does not impact his buying behavior greatly. Additionally, one participant stated that when evaluating the products that organic did not affect his buying behavior at all. However, during TAPs he chose organic products when unpacked:

*“I would not think about where it comes from or whether it is organic. But yes, I would choose the unpacked organic lettuce, if both options were available” (P4, I. 316-318).*

Even though most participants stated during TAPs that the organic attribute affected their buying behavior, most participants chose the organic product when unpacked. However, they changed to an unpacked conventional product when the organic product was packed in plastic. Only one participant was firm with his organic choice, choosing organic for all categories:

*“...the packed organic mango is basically the perfect product, I would definitely choose the left mango, because it is packed, and it is organic. So, the packed organic mango is basically what I look for in the store” (P7, l. 582-584).*

Organic knowledge was further explored during the in-depth section of the interview. There it became clear that organic certifications affected thirteen participants' choices. Participant 11 only mentioned that organic affects his buying behavior when asked directly during the in-depth interview. There he stated that he does sometimes look for organic labels and that he always tries to mix things up between organic and conventional fresh fruit and vegetables. In contrast, four participants mentioned that organic certifications did not affect their buying behavior. Some stated that it was due to a lack of knowledge. Thus, they were not informed enough about organic benefits. This refers to participant 3, where he further noted that he would like to be better informed:

*“No, I do not recognize these labels, I only know the Keyhole, or the green key like I said earlier, but as I say I have not introduced myself enough to the organic labels and I know very little about it, so it does not affect me as it is, but yes, you know, sometimes I pretend that I know something about this, but I do not prefer them over another, which is something that I should maybe start thinking about” (P3, l.273-277).*

#### **4.1.2.1 Health Benefits**

Few participants mentioned health benefits as an attribute that they associate with organic products. Many of them emphasized that they were not experts in organic agriculture, but that they did know it was healthier for them and the environment. Further, few participants argued that lack of knowledge regarding the health benefits of organic products was the main reason why people, in general, tend to choose conventional products over organic.

*“People might not justify buying organic. They might not know exactly what organic is and what the benefits are, most people might associate organic to some hippies that take their life too seriously or something like that. I think that it is mainly that, they think that it does not matter, they are not aware that it matters to their health, choosing organic or not, they are not informed, and may not bother to be informed” (P16, l.1716-1721).*

#### 4.1.2.2 Environmentally Friendly Agriculture

Few participants expressed their thoughts regarding organic agriculture, where it was associated with environmental benefits. Furthermore, some participants verbalized that they chose organic to avoid unnecessary chemicals, as they were aware of the harm that pesticides and other additives might cause for human health and the environment. Participant 5 verbalized it when answering question 5:

*“I would argue that it is mainly because of the price because it is more expensive, but at the same time, I would say that it is worth it, for the sake of the environment, if you think about it. Yes, I would think that it is because of the price, but I am a vegetarian, and I think a lot about the quality of vegetables and fruits that I buy and also that it is not being sprayed on, because lot more toxins and stuff like that is used for normal fruit and vegetables than is used in the organic industry. Toxins and stuff like that is of course, not extremely good for the environment” (P5, l. 451-457).*

#### 4.1.2.3 Labels

During TAPs, three participants did not realize that the unpacked option was organic. That occurred when these participants viewed unpacked avocado or lettuce, only including a small labeled sticker.

During the in-depth section of the interview, participants were asked directly if they recognized the labels included in the pictures. Participants were most aware of the organic brand Ånglemark. However, only six participants knew the EU organic logo. Few participants expressed that they did not recognize these specific organic labels shown on the pictures, but know that the product is organic when the labels include the word organic (i. lífrænt). Concerning that, one participant stated that he prefers organic products due to his health and that he searches for products that have the word organic but did not know the difference between the labels. One participant even thought that the “Eat me” label on the conventional avocado was an organic label.

*“...no, I really do not know any of these labels specifically, but I always search for some labels like that” (P11, l.120-121).*

In relation to the labels shown in the task, six participants were familiar with the Keyhole label (i. skráargatið), which indicated that a certain product is healthier than the alternative product. Some even stated that it influenced their buying behavior:

*“I saw the Keyhole label and it sometimes influences me” (P9, 1.823).*

#### **4.1.2.4 Organic Trust**

During the interviews, participants frequently expressed their feelings towards organic products, claiming either trust or distrust. In general, participants felt trust towards organic certifications, stating that they believed those institutes were doing their jobs. Some stated that they were not entirely familiar with the meaning behind organic labels, but it increased the trust towards products. In contrast, two participants mentioned that they lost their trust towards all labels due to food scandals in Iceland. In this context, participant 17 thoroughly explained his thought towards organic agriculture, when answering question 5 in the in-depth section of the interview. He stated that if he had more trust towards organic products, believing that organic products were a much better option, giving him and his children health benefits, then he would probably always buy organic. However, during the interview, he frequently claimed that organic labels did not influence his buying behavior due to his distrust towards organic products. He explained that his distrust was both connected to food scandals and because he argued that, in some cases, organic is, in a way, just a marketing stunt. Participant 15 further stated distrust towards organic certifications due to the Brúnegg scandal in Iceland.

*“...to some extent it is also related to limited belief that this is organic. You see, you really do not know this, I think that there is not much of an organic agriculture in Iceland, except maybe for vegetables and all that is, in a way, maybe organic. But someone was producing organic barley, from Egilstaðir I think, and there was a crop failure, then they just ordered barley from the Netherlands and put it in their bags. After that, I have not been much for organic, or at least I do not make a special trip to buy organic, and I do not want to pay a higher price for it. So, for me, it is both connected to price and lack of trust”...“But on the other hand, if I would believe that I would be much healthier and would be giving my children much better food, I would choose organic. But I just so often feel like consumers are being fooled with all kinds of marketing, you know, and*

*then there are these incidences, where misleading labels are put on things” (P17, l.1854-1861; l.1863-1867).*

*“...but then it also comes to incidence like Brúnegg, that in a way broke the trust, that this is all the same stuff” (P15, l.1541-1542).*

#### **4.1.2.5 Price**

Even though price was excluded from the task, few participants mentioned price as an important attribute when evaluating which product to choose, stating that they normally check products’ price before making their choice. The overall impression was that organic products would be the more expensive choice. The in-depth section of the interview demonstrated this presumption clearly, where all participants mentioned that price affects organic buying behavior.

*“I do sometimes buy organic products, but I am always thinking that now I am going to dig more into this and buy more organic, even though it is more expensive because as it is today, I do think about the money. But as I say, I am new to the job market and have finally started to earn some money, so I should start thinking more about this” (P3, l.281-284).*

*“I think that it is the price that matters the most in Iceland. I do not think much about it, but when I am choosing between, and the price difference is small, then I choose organic” (P8, l.709-710).*

However, few participants were more aware of the health benefits associated with organic products, which they stated outweigh the price difference. They were prepared to pay a premium for quality and environmentally friendly products. Those participants seemed to be better informed about organic agriculture.

*“I always try to buy organic, and I read the content description of everything I buy, and I always try to avoid additives in everything and if it is organic, I am more likely to buy it” (P6, l.544-546).*

#### **4.1.2.6 Availability**

The findings indicate that organic importance differed between categories. Few participants stated that they have not considered whether sweet potatoes are organic.

Participant 16 chose organic fresh fruit and vegetables in all categories except sweet potatoes. There he stated that he always chooses loose sweet potatoes and does not consider whether they are organic or not. It was mentioned a few times that this notion was related to the availability of organic sweet potatoes, where two participants mentioned that they had never seen this kind of organic sweet potatoes shown in the task.

*“This may go against what I am thinking, but I have never bought organic potatoes from this label. I have always just bought single potatoes in the store. Then I immediately had a connection to the unpacked conventional sweet potatoes because of that. Also, because I feel like organic potatoes, also from this label, are so small. So, I have really never bought organic potatoes, or at least not like this”* (P16, l. 1624-1628).

*“...look, I really have never seen these organic sweet potatoes”* (P17, l. 1844).

#### 4.1.3 PLASTIC PACKAGING

During the interviews, all participants mentioned that plastic packaging was a factor influencing their buying behavior. Most participants were negative towards plastic packaging due to various reasons. The main reason was due to the environmental effects of plastic packaging, as participants seemed aware of the perceived environmental issue caused by plastic packaging. Further, the attributes linked to plastic packaging were tangibility, hygiene, multipack, recycling, and social pressure. The aforementioned attributes will be further discussed in the following sections.

##### 4.1.3.1 Environmental Effects

During TAPs, sixteen participants mentioned the environmental effects of plastic as a factor in their purchase decision. Sixteen participants assumed that plastic had a negative effect on the environment. Many participants stated that they are trying to eliminate plastic brought to their house to behave in a more environmentally friendly way. Further, some participants mentioned that as they do not recycle plastic, they know the environmental consequences of their product choices that are packed in plastic, which affects their buying decision:



*“Because it is not good for the environment. I bring it to my house and throw it in the bin immediately. From there, it goes to the ocean and clogs fish and something, that is not good. And also, it just ruins the earth as it all flows back to land” (P6, l. 491-493).*

During the in-depth interviews, when asked directly if plastic packaging gave any concerns, twelve participants stated that they had concerns about plastic packaging. Of these twelve participants, two participants stated that they have anxiety due to plastic packaging because of global warming. Furthermore, two participants showed a neutral opinion towards plastic packaging while three answered the question saying that they did not have any concerns regarding plastic packaging. Continuing the in-depth section, the environmental effect of plastic packaging was highlighted where twelve participants further elaborated on being aware of the environmental effect of plastic packaging while one participant did not care at all. Further, four stated that they feel guilty towards the environment when purchasing a product wrapped in plastic, affecting their purchase decision. Or as participant 11 stated:

*“You just know better than buying a product packed in plastic. If you can buy something not wrapped in plastic, then you do” (P11, l. 1011-1012).*

In contrast, few participants mentioned how plastic packaging might serve a purpose for products, mentioning shelf time and transportation as a factor. Further, one participant stated that it might be to create a “cleaner” image of the product; thus, the product packaging leads to a product excluding germs. Additionally, two participants verbalized that plastic packaging was convenient for protection against the COVID19 virus, which was important to those participants during the pandemic.

#### **4.1.3.2 Tangibility**

During TAPs, eleven participants mentioned the need to touch the product when making a purchasing decision. This need only occurred when they were asked to choose avocados and mangos. The reasoning for this need was mainly to estimate the fruits’ ripeness. Thus, participants wanted to know whether the fruit was ready to be consumed promptly, or as participant 5 stated in relation to the avocados without plastic packaging:

*“I can touch it, I can grab it and see whether they are ripe or not and I can pick each one individually instead of buying a package where I cannot feel if they are ripe or not. In regards to avocados, it has a lot to do with the tangibility aspect” (P5, l. 389-393).*

However, few participants stated that in a situation where none of the unpacked avocados were ripe enough, the participant might be forced to choose differently. Thus, he would purchase the packed avocados instead of excluding avocados in general:

*“...however in a complete distress, if I would desperately need avocados for tonight's meal, I would pick the ones in plastic if it is the only fruit ripe enough. But I would try my best to avoid buying avocados in plastic. I often buy the unpacked ones, even though they are not ripe enough, and allow them to get ripe at home over a few days” (P4, l. 303-306).*

#### **4.1.3.3 Hygiene**

During TAPs, hygiene was mentioned frequently as a factor influencing participants' purchasing decisions. When analyzing the results, participants were overall against plastic packaging. However, in two cases, the option packed in plastic was chosen for hygiene purposes. This was mainly verbalized during the selection of lettuce, as participants perceived it harder to clean and that it was more exposed to germs due to its nature. In contrast, one participant mentioned that a product packed in plastic is not necessarily a cleaner product.

*“I can just clean it, you know. Everybody is talking about germs and stuff like that and saying that it is better to wrap things in plastic. But I cannot know how many people have touched the packed lettuce, even though it is packed in plastic. Thus, it could be as dirty. Even though it is packed in this disgusting plastic” (P9, l. 742-746).*

Further, hygiene was mainly connected to two factors, the products' natural peel and the COVID-19 outbreak.

#### ***The Products' Natural Peel***

During TAPs, it was frequently mentioned that participants thought it was a waste of plastic to wrap products such as avocados and mangos in plastic, as the product had a natural peel to protect the part of the fruit that is edible. Furthermore, in some cases,

plastic packaging was also considered unnecessary for sweet potatoes and lettuce as participants stated that they peeled the sweet potatoes and removed a few leaves before eating the inside.

*“...without knowing anything else about this mango, thus the origin or how it is harvested, I get instantly annoyed when seeing a product packed in plastic, you know they have their own natural packaging, so it annoys me to see it in plastic packaging” (P15, l.1457-1460).*

### ***The COVID19 Outbreak***

During TAPs, two participants mentioned the COVID19 outbreak when evaluating the product's options. It was stated that the participants would usually wash the lettuce before consumption to exclude germs. However, the COVID19 outbreak has forced them to choose products packed in plastic as they do not perceive washing the product at home to be safe enough.

*“...this has changed a little due to the COVID19 outbreak, but usually you just wash the lettuce. But if it was not for the COVID19 outbreak, I would always go for the lettuce without plastic as it is more environmentally friendly and organic as well” (P5, l. 402-404).*

During the in-depth interviews, participants were asked whether the participant would choose differently before the COVID19 outbreak. The most frequent answer was that the COVID19 outbreak did not affect their purchase decision, where participants stated that they usually wash all fresh fruit and vegetables before consumption. In contrast, three participants stated that it did affect their purchase decision. However, while one of those three participants started verbalizing about his changed behavior, he realized that he has not changed his behavior:

*“Yes the plastic does affect my choice during this outbreak, many people have probably touched the products in the store, avocados and mangos for example. So yes, I believe it does affect it, 100%. But wait, I did go to the store yesterday and picked an onion unpacked. Well I was at the store yesterday, but I just picked the same as usual. First I thought, yes the outbreak does affect my choices, but yesterday I picked exactly the same things as usual. Wow funny, so no, I guess the answer is no” (P2, l. 189-195).*

#### 4.1.3.4 Multipack Products

During TAPs, the multipack attribute was frequently mentioned. Usually, it was considered an inconvenience having to buy a predefined number of products in a multipack package. The reasoning for the inconvenience was threefold. Firstly, it was considered inconvenient being unable to select each product individually. Secondly, the quantity in the multipack packages was said would possibly increase food-waste. Thirdly, the product's quality was often stated when products were in a multipack package. The third reason was most often mentioned when participants evaluated the avocados:

*“...when packed together like the packed avocados, then the product's quality can be so different. Sometimes one is perfect while the other two are not. I hate having to buy three at a time like that” (P13, l. 1156-1158).*

During the in-depth interviews, all participants stated that the multipack package influenced their choice of product. Sixteen participants stated that they preferred the products unpacked to prevent food waste and to ensure the quality of the individual products. In contrast, one participant preferred buying multipack products due to perceived convenience. However, that participant also stated in the in-depth section of the interview that he tried avoiding food waste, so the package size mattered greatly:

*“After they (the government) banned plastic bags in the fruit and vegetable section, you now have to hand select one and one tomato and avocados, so I prefer selecting a pre-packed package which is more convenient”...“I do not select a package with twelve tomatoes, you know. But if it is four or six in a package then I buy it. So if I think it will go bad, then I buy fewer at a time” (P12, l. 1056-1059; l. 1144-1145).*

#### 4.1.3.5 Recycling

When it came to recycling plastic, the main findings are that those participants who had access to recycling bins recycled. At the same time, others felt it was too much of a hassle going to a recycling station (i. Sorpa) weekly, solely to recycle plastic. During TAPs, some participants mentioned the inconvenience followed by buying products packed in plastic, as it increased recycling at their home. Few participants verbalized that they did not have enough space at home to recycle multiple types of waste, but

were looking for ways to improve it. Participant 4 stated that as he did not have access to a green plastic bin for recycling, so he tried to exclude buying products packed in plastic as he does not have the conscience to put plastic in the general house waste bin:

*“I would always buy the unpacked avocados because it does not come with a lot of plastic packaging that I then need to get rid of. It is just so annoying when you start to collect plastic at your home due to plastic packaging. At least, I do not have the conscience to throw it out in the general house waste bin. I just think it is bad for the planet to throw away plastic, and it is just shocking to see how much plastic gathers in a small home like mine” (P4, l. 299-303).*

Furthermore, during the in-depth interviews, participants were asked if they recycled. All participants stated that they recycled paper, while only eight participants said recycle plastic. Two of the participants stated that it had become a habit to recycle, as it was a part of their upbringing. Those participants that did not recycle plastic all provided similar reasoning. They reasoned that they claimed to have a blue paper bin outside their home, while not having access to a green plastic bin. Thus, the availability to recycle was more convenient with paper than plastic. As participants had access to a blue paper bin, some participants even felt forced to recycle paper. However, it was common to verbalize that the participants believed they would recycle plastic if the availability to recycle it was better.

*“I am not recycling plastic and I am very aware of that, I feel guilty about it. But the reason is that I do not have enough room for recycling stations in my apartment. Also, I have only got a bin for house waste including one blue bin for paper outside my home. The blue bin is always full of paper, but it is the only bin that is for something other than general house waste. If there was a bin for plastic outside my home, I would definitely recycle more. But as I do not have access to a plastic bin, I would always need to go to Sorpa with the one purpose to recycle plastic” (P13, l. 1205-1211).*

#### **4.1.3.6 Social Pressure**

During the interviews, few participants implied that they avoided plastic due to social pressure. Thus, they were trying to eliminate buying products packed in plastic, as that is what they perceived everyone is doing, or is meant to be doing. Interestingly, one

participant verbalized that he tried to exclude plastic packaging to avoid being yelled at while grocery shopping:

*“...because otherwise, everyone would yell at you at the store, and when you do not bring your own bag to the store and all that. No just saying, according to all the bad attention plastic has received over the past years, we know better than buying plastic, pretty much” (P11, l. 986-987).*

#### 4.1.4 THE MISMATCH

At some point during the interviews, all participants stated that they had opinions concerning either organic products or plastic packaging. As aforementioned in previous sections, those opinions varied between participants, while still maintaining a certain pattern previously viewed. However, eleven participants verbalized that they believed there was a mismatch between the plastic packaging and organic products, expressing that organic fresh fruit and vegetables packed in plastic is absurd, ironic, contradicting, unattractive and does not make any sense. These statements arose when participants spoke about the sustainability attribute of organic products. Some even stated that this mismatch affected their purchasing decision.

The findings show that those participants who valued the environmental factors of plastic more than the health benefits of organic products swayed away from purchasing the organic product when wrapped in plastic. In contrast, few participants valued the personal benefit of organic products more than the environmental effect of plastic packaging. This can be interpreted when participant 16 evaluates the organic mango packed in plastic. He expressed that organic mango packed in plastic made him think of his values. He concluded that he would choose the organic product packed in plastic as he values his own health, and the benefits of the organic products more than the environment:

*“Ok, I can see the organic certification on the packed Mango, also the Ånglemark label, which immediately catches my attention. But then there is the plastic packaging around the mango. It is basically two factors that contradict. I know that the organic is a high quality product, and then I start to evaluate if it was better for my health, which I would*

*normally put first before the environment. So, I would choose the organic mango packed in plastic, as I would value my health higher than the environment. (P16, l. 1592-1597).*

However, participant 1 had the opposite and more common view. During the interview he continuously expressed that he would always buy organic products if it were not for the plastic packaging. He claimed that he is aware of organic certifications and that he does value the benefits. However, as soon as the products were packed in plastic, it leveled out the organic factor, as he considered the plastic more effective than the perceived organic value.

*“...and yes, it does matter that the sweet potatoes are organic, it is a factor. However, as it is packed in plastic as well as including a plastic tray, which evens it out. It evens out the organic factor” (P1, l. 54-56).*

Most participants repeatedly expressed this view of organic products packed in plastic. Participants also claimed that they did not understand why someone would wrap organic fresh fruit and vegetables in plastic, as it contradicts the sustainable image of organic products. Participant 13 even expressed that due to the plastic packaging of organic products, it was hard to behave according to his beliefs. Furthermore, participant 6 mentioned that organic fresh fruit and vegetables packed in plastic are ironic and absurd.

*“I try to buy as much organic as I can. I think it is attractive that the product holds these certifications and labels, but then I do not understand why it is packed in plastic. It is just absurd. I think it is so ironic” (P6, l. 535-537).*

The mismatch of organic products packed in plastic was expressed both from participants that claimed that organic certifications affected their choice and those who expressed that they did not value organic certifications. This was thoroughly expressed during the in-depth interview by participant 17, who previously claimed that organic certifications did not affect his choice. Organic fresh fruit and vegetables wrapped in plastic made him question whether the fresh fruit and vegetable was truly organic and made him question the organic certifications.

*“To pack something organic in plastic, which is not a natural material, is kind of a paradox, an opposition or irony, to wrap something that is supposed to be organic in plastic packaging which is not needed. You know, they are selling you the ideology that*

*you are doing something good for you, something that is clean, but still it has been put in plastic. It is often stated that plastic particles end up in our food and are throughout our environment. It goes directly in the ocean, some microplastics that end up in the water. Then this water is used to make our food, you know. The environmental problem and the things you eat then contain microplastics, so we want to minimize the plastic in our food. So, to put an organic stamp on something that is wrapped in plastic is just weird”...“When things are good for the environment, it is good for everyone. Not just me and not just the seller, but for me, the seller and everyone on the planet. Then it would become this perfect circle” (P17, l. 1779-1787; l.1790-1792).*

Thus, the findings show that organic fresh fruit and vegetables packed in plastic, make participants think of their values. They had to choose between two factors that strongly affected them during their evaluation, plastic packaging and organic certifications.

#### 4.1.5 IMPROVEMENTS

As organic fresh fruit and vegetables packed in plastic were viewed negatively by the majority of participants, as previously stated, some participants mentioned improvements regarding the presentation of organic products. Participants continuously expressed that they valued the organic certification, the Keyhole label (i. Skráargatið), and the product's origin, but they assumed that there must be a better way to present these labels without plastic packaging. Few participants argued that stickers placed on the product or signs in grocery stores, presenting these labels, would be a better alternative.

*“It just frustrates me so much that plastic is wrapped around it. It could just have a sticker. Somehow it could be labeled in a way that shows that this is the better choice than the conventional mango. But the plastic should be removed, maybe there should be a sign beside the mango that would state that it is organic and that it has the Keyhole label” (P9, l.775-779).*

During the in-depth interview, few participants mentioned that consumers might not be fully aware of the difference between organic and conventional fresh fruit and vegetables and that there should be additional information regarding its benefits available in stores. One participant even expressed that he did not fully understand the Danish word økologisk, where he claimed that these labels need to be clearer.



*“...I also think that there is a lack of information, for labels and such, that explains what organic is. For example, if there would be some kind of a sign that would say this label means this” (P1, l.92-95).*

*“...but I also think that it is not positive when some international brands only label their products in Danish. I think that is very negative. Because, for example, when you are in Iceland, then you would rather want to have international labels. For example, this lettuce, I would not see that it is organic. It has to be clearer” (P13, l.1236-1240).*

#### 4.1.6 ORIGIN

Even though locally grown fresh fruit and vegetables were excluded from the task, four participants mentioned that during TAPs. They stated that they looked for an Icelandic product when it came to fresh fruit and vegetables. Additionally, two participants verbalized that they would like to see the products' origin when evaluating the two options. However, one participant stated during TAPs that he did not really think about the origin, except for one product:

*“...I do not really think about where it comes from, except for tomatoes. I think Icelandic tomatoes are better than imported tomatoes. I do not know whether that is only due to the fact that we live in Iceland and there are so many things imported, so you do not really think about it. I do not expect that someone is growing a mango next door” (P13, l.1186-1189).*

#### RESULTS SUMMARY

This research aimed to examine whether plastic packaging influences the buying behavior of Icelandic millennials when it comes to organic fresh fruit and vegetables. These research findings indicate that Icelandic millennials are positive towards organic fresh fruit and vegetables but negative towards plastic packaging. The main attitudes that were associated with organic and plastic packaging can be seen in figure 11.

## RESULTS: Attitude towards organic and plastic packaging

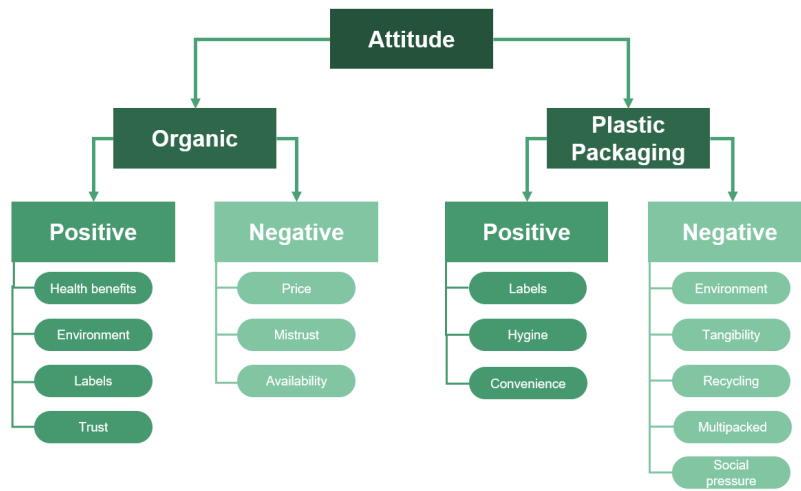


Figure 11: Results Overview

## 5.0 DISCUSSION

This chapter is dedicated to the discussion of the research results, where previous literature concerning the context of this research will be analyzed in relation to the main findings, which together answer the research question. The first section will discuss findings associated with the organic attribute, divided into the sections; reasons for choosing organic, trust towards certifications, price, and the organic gap. The second section will discuss findings associated with plastic packaging, divided into the sections; reasons for unpacked choices, reasons for packed choices, and recycling. The third section will discuss findings concerning the perceived mismatch between the organic attribute and plastic packaging. Lastly, the theory of planned behavior model will be discussed in relation to the findings. Importantly, the findings are only relevant for plastic packaging, and the researchers want to emphasize that these findings cannot be interpreted for all types of packaging. Thus, the researchers are aware of the possibility of different outcomes if the packaging would be of other sorts than plastic.

### 5.1 ORGANIC

These research findings indicate that Icelandic millennials are positive towards organic fresh fruit and vegetables, whereas the reasoning may vary. In this section, the researchers will discuss the main attributes that affect the buying decision for organic fresh fruit and vegetables among Icelandic millennials, as well as connecting the findings to previous literature. Firstly, by discussing the main reasons for choosing organic products. Secondly, by discussing the trust and distrust towards certification bodies. Thirdly, by discussing the price attribute and lastly, about the organic gap.

#### 5.1.1 REASONS FOR ORGANIC CHOICES

The findings indicate that the reasons for choosing organic among participants were mainly due to health and environmental benefits, and product quality. Those findings are in line with a recent study where it is stated that the Icelandic consumer chooses

organic products due to environmental and health concerns (Häsler, 2020). No participant spoke about animal wellbeing as a factor in their organic choice, which is one of the attributes emphasized in previous literature.

The majority stated that they did not consider themselves to be organic experts. However, they did know that organic products were beneficial for their health and the environment, which indicated that consumers might be aware of the benefits, but not fully invested in its meaning. In contrast, few mentioned that the reasoning for choosing organic was to eliminate pesticides and harmful chemicals, which indicates what appears to be a small segment of Icelandic millennials who are better informed about the meaning of organic products and organic agriculture than the majority.

#### 5.1.2 TRUST TOWARDS CERTIFICATIONS

The trust towards certifications was verbalized both positively and negatively among participants in this research. Participants stated that the organic certification label did influence their perceived product value, which, in some cases, influenced their buying decision. This is in line with Williams and Hammit (2000) study, that conducted that consumers in the Boston area experienced organic food to be safer than conventional.

In contrast, few participants stated that these organic certification labels made them skeptical about the organic label, in some cases leading to questioning the product. This is an interesting notion due to the multiple food scandals that have arisen in Iceland, a few of them being mentioned in the research findings. One participant mentioned the Brúnegg scandal from 2016. Brúnegg, an egg farm that used to labelled and market its product as eco-friendly green eggs (i. vistvænt), while the chickens suffered inhumane treatment. The chickens were not fed properly and were overcrowded in a poorly ventilated ammonia-polluted air (RÚV, 2016).

Scandals, similar to Brúnegg, where companies market and label products without following the labels guidelines, can impact the trust consumers hold towards labels. Even though the label eco-friendly green eggs (i. vistvænt) is not an organic certification label, it still affected the participants' trust when evaluating organic labels in this research. The researchers believe it is important to increase the trust towards

Tún, the organic certification office in Iceland, by increasing knowledge about organic benefits and recovering lost trust.

### 5.1.3 PRICE

Overall, the price of organic fresh fruit and vegetables was perceived to be higher than the conventional in these research findings. However, few participants stated that when considering their health, they did not always consider the price to be the most important factor influencing their buying decision. That is in line with the research done by Krystallis and Chryssochoidis (2005), where the findings show that consumers are willing to pay a higher price for organic products due to greater food quality. Hence, the researchers believe that by increasing organic knowledge, consumers might value the organic benefits higher than in the current research, making them less price-sensitive towards organic products.

### 5.1.4 THE ORGANIC GAP

The findings indicate that the majority of Icelandic millennials have a positive attitude towards organic fresh fruit and vegetables. That is in line with the most recent study done for VOR, an association for Icelandic organic farmers, that conducted that 80% of the Icelandic population are positive towards organic agriculture (Häsler, 2020). However, interestingly, the majority of participants swayed away from choosing organic when it was packed in plastic, leading to an unpacked conventional product. Those findings indicate that other factors influence the buying decision among Icelandic millennials when choosing fresh organic fruit and vegetables. Thus, in this research, the general rule seems to be that the plastic packaging outweighs the perceived value of fresh organic fruit or vegetables. This is in line with previous literature, where Pearson et al. (2011) state that there is a gap between consumers that have a positive attitude towards organic food and the consumers that actually purchase organic food. According to that study, most consumers that buy organic food can be categorized as switchers, thus, switching between organic and conventional food (ibid.). These research findings indicate that the majority of Icelandic millennials appear to be switchers, choosing organic and conventional when best suited.

Consumers might choose the product that best fits their preferred attributes concerning multiple factors, where organic is one of those attributes. These research findings show that the main negative attribute for these switchers is the plastic packaging of organic products.

However, the findings indicate that a minority of Icelandic millennials always choose organic, even though they perceive plastic packaging negatively. The reasoning, taken from the findings, suggests that when organic fresh fruit and vegetables are highly associated with personal benefits, such as health benefits, it might outweigh the environmental effects associated with plastic packaging. Additionally, it seemed that when there is much knowledge regarding organic agriculture, the organic product quality outweighs the assumed negative effect of plastic packaging. Thus, the findings indicate that when these beliefs are met, consumers are firm with their organic fresh fruit and vegetable choice.

## 5.2 PLASTIC PACKAGING

This section is dedicated to the discussion of packaging preferences that were mentioned during this research. Firstly, reasons for unpacked choices will be discussed. Secondly, the reasons for packed choices will be discussed. Lastly, findings concerning plastic recycling will be discussed.

The research findings indicate that plastic packaging affects the buying behavior of fresh organic fruit and vegetables among Icelandic millennials. In most cases, plastic packaging had a negative effect on purchasing decisions, resulting in an unpacked product choice. Overall, six participants chose packed products over unpacked, resulting in eight plastic packaging choices in total, where two participants chose the packed product for two product categories. Thus, the result of the current research is in line with van Herpen et al. (2016) findings, where it is stated that fresh fruit and vegetables are preferred unpacked. Furthermore, the research findings are also in line with van der Pol and Ryans' (1996) results that the ideal fruit and vegetable are of good

quality, available, loose and unpacked. However, their research also demonstrated that the ideal fruit and vegetable are cheap, not analyzed in this research.

### 5.2.1 REASONS FOR UNPACKED FRESH FRUIT AND VEGETABLES

The negative attitude towards plastic packaging was mainly related to the environmental concerns of plastic, which correlates with Thøgersens' (1999) findings that showed that consumers are aware of the environmental effect of packaging. However, the attributes tangibility, natural peel, and pre-packed also influenced the unpacked product choice. These frequently mentioned packaging attributes indicate that packaging design does influence purchasing decisions.

The findings from the TAP section of this research demonstrated that the main reason for unpacked fresh fruit and vegetable choice was due to environmental concerns of plastic packaging. This correlates to a recent study that showed that the Icelandic consumer is aware of their impact on the environment, where 62% of Icelandic consumers stated that they had made significant or some changes to their buying behavior due to environmental concerns (MMR, 2019-b).

However, organic certifications portrayed on unpacked organic fresh fruit and vegetables also influenced most participants' choices. Interestingly, in most cases, environmental concerns of plastic packaging outweighed other beneficial attributes that participants associated with the organic product. Therefore, the findings suggest that appropriate packaging material is essential for organic fresh fruit and vegetables to gain attractiveness, which is in line with Rundh (2016) notion, that packaging material can affect consumers' consumption.

Additionally, the research findings demonstrate that for fresh fruit and vegetables that need to be in a certain condition for consumption, plastic packaging is not preferred. That is related to the tangibility attribute, where it is considered convenient to touch and feel whether the fresh fruit or vegetable is ripe enough for consumption. Previous studies have shown that unpacked fresh fruit and vegetables, where consumers can touch the product, increase the product's choice and induce impulsive purchasing

(Pack & Childers, 2006; van Herpen et al., 2016). Furthermore, it was frequently expressed that when fresh fruit or vegetable had a natural peel, the unpacked option was also preferred. This indicates that plastic packaging for fresh fruit and vegetables that either has a natural peel or have different stages of ripeness might work as a repelling attribute for purchasing decisions among Icelandic millennials.

Moreover, the findings demonstrated that a single product was preferred over a multipack product. Thus, it indicates that the optional choice is a single unpacked product, where each and every product can be analyzed and chosen separately. It was frequently expressed, that when a predefined size of fresh fruit and vegetable is bought, some portion likely ends up being damaged. This correlates with Wikström et al. (2019) findings, that packaging size affects food waste, as fixed packaging size can cause consumers to buy more than they need.

Lastly, the findings show that participants who expressed that organic certifications did not affect their purchasing behavior, chose the organic product when unpacked. That indicates that organic products might benefit when unpacked, as it might attract both Icelandic millennials that value the organic attribute and Icelandic millennials that value unpacked fresh fruit and vegetables. Thus, Icelandic millennials that do not care about the organic attribute might buy organic only due to the unpacked attribute.

#### 5.2.2 REASONS FOR PACKED FRESH FRUIT AND VEGETABLES

Even though the findings indicate that the majority of Icelandic millennials prefer unpacked fresh fruit and vegetables, some valuable packaging attributes might affect purchasing decisions. These attributes are hygiene, convenience, and labels such as organic certifications, origin, and the Keyhole label.

Products packed in plastic were mainly chosen due to the organic certification and other labels it carried. Participants' personal benefits and the quality of organic fresh fruit and vegetables outweighed the plastic packaging's negative effects. This indicates that organic certifications are valuable for purchasing decisions and highlight the



importance of packaging for marketing purposes (Kotler & Keller, 2016; Prendergast & Pitt, 1996; Rundh, 2009; Wyrwa & Barska, 2017). Furthermore, in some cases, participants expressed that they would prefer locally grown fresh fruit and vegetables, if available. Although this was expressed, Icelandic origin did not affect the choice during the task, as no product included in the task was locally grown. However, these notions highlight that the origin of fresh fruit and vegetables might affect purchasing decisions among Icelandic millennials.

Due to the nature of lettuces, not containing a natural peel for protection, the hygiene attribute of plastic packaging was considered valuable. These results give the impression that plastic packaging is of more relevance for fresh fruit and vegetables that do not have a natural peel that protects them from the external environment. This attribute is particularly relevant due to recent times, where few participants expressed some concerns about the cleanliness of the products due to the COVID19 pandemic, wondering whether other consumers had touched it. This indicates that plastic packaging is perceived valuable for the protection of the product.

Furthermore, the results showed that in one case, plastic packaging was considered a convenience as it was perceived more convenient to buy a multipack product than a single product, especially after plastic bags have been banned in the fruit and vegetable section in Iceland. This might indicate that removing plastic bags from the fruit and vegetable section does not necessarily reduce plastic usage. Furthermore, plastic packaging is valuable for the product's transportation, highlighting the importance of the logistic function of packaging (Prendergast & Pitt, 1996).

### 5.2.3 RECYCLING

Even though the findings demonstrate that plastic packaging is viewed negatively and, in some cases, even causes concerns and anxiety, only a portion of those participants expressing these concerns recycled plastic, which correlates to the 30 to 40% recycling rate of plastic in Iceland (Icelandic Environmental Agency, n.d.-b). This is an interesting notion, as it seems that participants are not doing everything that they can to act in an environmentally friendly way when it comes to plastic packaging. However, according to the findings, there is a connection between recycling and availability of recycling

bins. Thus, if recycling bins solely for plastic would be mandatory in Iceland, not a choice like it currently is (Reykjavik City, 2015), the researchers believe that recycling of plastic would increase. That might be an important step for a cleaner environment, as the most common food packaging is plastic (Food packaging material, n.d), which takes up to hundreds of years to decompose in the environment (Parker, 2019-b).

### 5.3 MISMATCH

When analyzing the data that arose during TAPs, the most interesting notion among participants was that fresh organic fruit and vegetables, and plastic packaging did not match in a single product. Thus, the sustainable attribute linked to organic products did not match the environmental effects perceived from plastic packaging. Interestingly, participants phrased it as being ironic, contradicting, and a paradox. Organic agriculture aims to produce organic food while maintaining a sustainable environment, where all procedures must support healthy soil, plants, and animals by excluding chemical pollution (European Union, n.d.-a). In contrast, according to the literature, plastic packaging was the second most common beach waste in 2019 (Ocean Conservancy, 2019). Plastic packaging in the ocean can break down to microplastics, which is harmful for all living creatures on the earth (Parker, 2019-a). These findings indicate that fresh organic fruit and vegetables suffer when packed in plastic, as it might lower the perceived value towards the organic products among Icelandic millennials.

### 5.4 THE THEORY OF PLANNED BEHAVIOR MODEL

When analyzing the data, the three motivational factors influencing intention to buy organic fresh fruit and vegetables became visual among participants. Firstly, the individual's attitude towards organic fresh fruit and vegetables varied. Thirteen participants were considered organic thinking, thus had positive attitudes towards organic products. The reasoning leading to a positive attitude was mainly due to health benefits, sustainability aspects, and trust towards organic certifications. However, sixteen participants had negative attitudes towards plastic packaging, that for some participants, overweight the positive attitudes towards the organic attribute. The

reasoning leading to a negative attitude towards plastic packaging was mainly environmental effects, limited tangibility, and inconvenience regarding multipack packages. Secondly, the subjective norm was verbalized among three participants, whereas they all agreed that it was considered the norm to buy unpacked products. However, no participant stated that organic subjective norms affected their decision. Lastly, the perceived behavioral control towards buying organic fresh fruit and vegetables could be viewed when participants stated that they felt like they could not afford the organic product, due to perceived high prices, or that they did not recall it available in their local store.

The findings indicate that multiple motivational factors influence the intention to purchase fresh organic products in this research, where some are packed in plastic while others are unpacked. Those factors are positive attitudes towards organic agriculture, negative attitudes towards plastic packaging, the perceived subjective norms to avoid plastic packaging, and lastly, the perceived purchasing power and availability of the organic products. To analyze the data further regarding the TPB model, and conclude a final result of the purchase decision, a quantitative analysis must be conducted, giving each attribute an appropriate weight (Ajzen, 1991).

## 6.0 CONCLUSION

This conclusion section aims to address the research question initially stated in this research. The purpose of this research was to gain a better understanding of the packaging preferences of Icelandic millennials when it comes to organic fresh fruit and vegetables. By seeking existing Icelandic market data, exploring previous literature and empirical consumer studies, analyzing the TPB model and finally, conducting a qualitative research, this research is believed to have collected relevant data to answer the research question:

*To what extent does plastic packaging affect consumer attitude towards fresh organic fruit and vegetables among Icelandic millennials?*

The results indicate that plastic packaging has a negative effect on attitudes towards organic fresh fruit and vegetables. Overall, the results indicate that Icelandic millennials are positive towards organic fresh fruit and vegetables, but felt strongly against plastic packaging. The majority of participants swayed away from organic fresh fruit and vegetables when it was packed in plastic. Those same participants chose the organic option when unpacked. The exception to the general finding was when participants valued their personal health above the environmental effect caused by organic fresh fruit and vegetables packed in plastic. However, during the interviews, the participants verbalized multiple factors influencing their product choice. Those factors were, for instance, perceived environmental effects, health benefits, price, labels, organic trust, tangibility, hygiene, recycling issues, and social pressure. Nevertheless, the choice was most often influenced by negative linkage towards plastic packaging.

The majority of participants were well informed about perceived environmental effects that were linked to plastic packaging, as some mentioned that these packaging would wash to the ocean, damage wildlife, and, eventually, end up in our food as microplastics. Further, it was considered an irony to pack a product that was harvested sustainably, in plastic that was considered an opposition to the product's previous sustainable image.

These findings show a sizable dilemma to consider when choosing appropriate packaging for organic fresh fruit and vegetables. The results indicate that the plastic packaging harms the attraction for organic fresh fruit and vegetables among Icelandic consumers, forcing them to choose the alternative product. The following sections further discuss the possible managerial implementation to adjust to recent findings, followed by this research considered strengths and limitations and, lastly, future research.

## 6.1 MANAGERIAL IMPLEMENTATION

This section will present the researchers' suggestions for increasing the purchasing decision for organic fresh fruit and vegetables among Icelandic millennials. These suggestions are founded on findings gained from this research process. This section is dedicated to the organic sector, to induce organic sales and for organic awareness and knowledge empowerment.

Due to the effect that plastic packaging had on participants' buying decisions in this research, the researchers strongly recommend avoiding plastic packaging for organic fresh fruit and vegetables. The findings indicate that unpacked fresh fruit and vegetables are preferred, especially for fruit and vegetables with a natural peel and/or are dependent on ripeness. However, as some participants did not realize that the unpacked avocado and lettuce were organic, the researchers recommend clear and distinguishing stickers, including the organic labels. Moreover, in some cases, packaging was chosen due to its beneficial attributes. Therefore, researchers suggest that the organic industry should exclude plastic packaging and offer a more sustainable packaging option when suitable, which does not cause a dilemma for organic product choices.

The researchers believe that increased knowledge about organic benefits would increase sales of fresh organic fruit and vegetables. As these research findings show, participants stated that consumers might not be fully informed about the benefits of choosing organic. Thus, Tún (the Icelandic certification office) and VOR (the association for Icelandic organic farmers) collaborating with grocery stores, could

create informative stands that would demonstrate the benefits of choosing organic. Those stands would need to be eye-catching and simple, for example, by displaying the benefits graphically. Empowered organic knowledge among consumers would be beneficial for the whole organic sector.

To summarize, the researchers suggest eliminating plastic packaging or using more sustainable choices. Secondly, the researchers suggest the usage of certification labels on unpacked fresh fruit and vegetables that must be clear and noticeable. Lastly, the researchers suggest emphasizing on increasing both organic awareness and knowledge, by creating noticeable informational stands to influence the purchasing decision on the point of purchase locations.

Importantly, the researchers are aware that these suggestions might be challenging to meet and that the organic industry might be aware of the plastic problem. Moreover, the researchers are aware of the EU commission regulation No. 48/2003, stating that organic products must be separated from conventional products, clearly labeled as organic, and must not get in contact with conventional products. The reasoning is partly for consumers to be fully able to identify the product difference. Additionally, plastic packaging might be seen as an optimal packaging material for fresh fruits and vegetables, as plastic is hygienic, lightweight, durable, and secure. However, the researchers believe that the regulation can be met by labeling products without plastic packaging, or by using a more sustainable packaging alternative and that it will be worth the effort.

## 6.2 STRENGTHS AND LIMITATIONS

Although the COVID19 pandemic arose midway through the initial research design, the researchers believe the modified research resulted in a rich set of relevant verbalized data to gain a better understanding of packaging preferences of organic fresh fruit and vegetables among Icelandic millennials. The research strength is

considered twofold, concerning the implementation of the qualitative interviews and concerning the fresh fruit and vegetable variety.

The implementation of the research is considered a strength. Participants were comfortable at their homes during the interviews, which appeared to make it easy for the participants to verbalize their thoughts without interruption or cautiousness. Participants were able to select the time of the interview, which led them to be dedicated and have enough time to participate fully in the research. However, if the initial research design had been adopted, the actual fresh fruit and vegetables would have been used instead of pictures. That might have resulted in a different set of data, as participants would have been able to touch and feel the actual products while evaluating them. Thus, some packaging attributes might have had more value.

The selected product's variety is considered a strength in this research. These four categories demonstrated a good variety of fresh fruit and vegetables available in Icelandic supermarkets. The products included in the research did not only differ between organic and conventional, and between plastic and unpacked. They also differed in nature, where avocado and mango have a natural peel and are dependent on ripeness. The other two products, lettuce and sweet potatoes can be consumed directly. Furthermore, two categories, avocados, and sweet potatoes were shown in a multipack package. Therefore, multiple factors affected the participants' thoughts while evaluating the products. Thus, researchers believe that the research design was of good quality, for evaluating packaging preferences of organic fresh fruit and vegetables among Icelandic millennials.

In contrast, the limitations of this research are threefold. Firstly, the in-depth interview did not include a question to further understand why participants chose organic when they did. Thus, in addition to the gained insight from TAPs, it would have been interesting to ask participants why they value organic products directly. Furthermore, some participants stated during TAPs that the organic factor was not an attribute that influenced their buying behavior while still choosing organic when unpacked. Thus, the researchers might have gained additional information about whether those participants

only picked the organic product as it was the only unpacked product available, or whether the organic factor was important in their purchasing decision.

Secondly, it might have been valuable if the task would have included two additional pictures, where both products shown on the picture would have been either unpacked, or plastic packed, but differ between organic and conventional. That might have resulted in valuable data that would have demonstrated whether participants are more against plastic packaging when it comes to organic products, or if organic certifications outweigh the conventional product when it is comparable in regards to packaging.

Thirdly, as this study only conducted a qualitative data set, the results must be interpreted with caution. The findings cannot be used to generalize the findings for the Icelandic millennials. A quantitative study must be conducted to generalize the findings, and test whether these findings are relevant for the majority of the segmented consumers.

### 6.3 FUTURE RESEARCH

The goal of this research was to contribute to the literature of organic products, specifically, the factors influencing the buying decision for organic fresh fruit and vegetables among Icelandic millennials. The findings indicate that organic fresh fruit and vegetables are less likely to be purchased when wrapped in plastic packaging due to believed negative environmental effects of plastic packaging among participants. However, as the findings of this research cannot be generalized for the Icelandic millennials, quantitative research must be conducted. Future research could, thus, conduct quantitative study to test whether the findings from this research are relevant for the majority of the segmented consumers.

Further, as only plastic packaging was included in this research, future research could examine whether other packaging solutions provide the same result. In particular, whether sustainable food packaging for fresh organic fruit and vegetables would



impact the attitude towards fresh organic fruit and vegetables among Icelandic millennials.

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## APPENDICES

### APPENDIX 1 – INTERVIEW GUIDE

#### INTERVIEW GUIDE

##### ***Introduction:***

Good morning and thank you for participating in this research.

This interview is designed in that way that it will start by a Think Aloud Protocol, where you will be asked to verbalize everything that comes to your mind while evaluating the fresh fruit and vegetables that will be shown on the screen. The idea is that you are located in a supermarket, planning to do your grocery shopping. Your shopping list consists of four products, avocado, lettuce, mango and sweet potatoes. While you are evaluating each product, you should “think aloud” everything that comes to your mind regarding these products and which products shown on the picture would end up in your shopping cart. After the Think Aloud Protocol, you will be asked eight follow up questions related to our master thesis.

To get you started, we will first do a warm-up exercise. During the exercise, you will see two types of popcorn where you will be asked to evaluate the popcorn by expressing everything that comes to your mind and state which product you prefer, here you have the opportunity to ask questions regarding the task.

##### ***Recording:***

The interview will be recorded and transcribed, participant names is kept anonymous and results cannot be traced.

##### ***Time:***

The interview will take the maximum of 40 minutes.

##### ***The Research Design***

The data collection consists of two sections, first conducting TAP followed up by qualitative in-depth interview of eight open-ended questions.

##### ***The Procedure:***

Before the interview, participants will receive four pictures by email, each containing two fresh products of the same category, one organic and the other one non-organic. One product on the picture is packed in plastic with the product being clearly visible, and the other one is without plastic packaging. In total two organic products are packed in plastic, and two without plastic packaging.

The test products are all products that were bought in an Icelandic supermarket. To ensure product similarities, the researchers used the same product twice. Thus, avocado, sweet potato, iceberg salad and mango were bought in plastic and then manipulated by removing the plastic packaging and labeling the products with an organic label where appropriate.

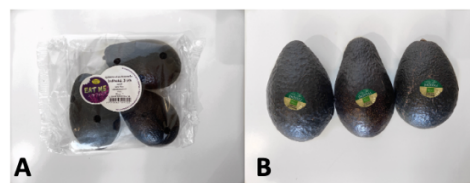
The interview will be performed with the Zoom software, where participants will receive a link to the meeting through email or Facebook messenger. During the interview, the researchers will share their computer screen in order to being able to show the pictures of the products when participants are asked to evaluate the fresh fruit and vegetable.

Sections	Interview Questions
<p><b><i>The warm-up</i></b></p> <p>First there will be performed an exercise with a product that is not related to the research aim, where participants will see a picture of two different popcorn products.</p> <p>This exercise is done with the aim to get the participant to feel comfortable with the think aloud protocol.</p> <p>Thus, the participant will be asked to pick one product and to elaborate on their decision while choosing the product.</p>	<p><b><i>Exercise picture: Popcorn</i></b></p> <div data-bbox="933 1124 1244 1285" data-label="Image"> </div> <p>Question:</p> <ul style="list-style-type: none"> <li>- Imagine that you are buying popcorn, which popcorn product would you choose and why?</li> <li>- Researchers only interrupt the participants if he or she starts hesitating, only by comments such as “why” and “can you elaborate”.</li> </ul>
<p><b><i>Research section 1: The think aloud protocol</i></b></p> <p>In this research the TAP method was chosen as it is a good way to examine how participants react to the products and what affects their buying decision.</p>	<p><b>Picture 1: Avocado</b></p>

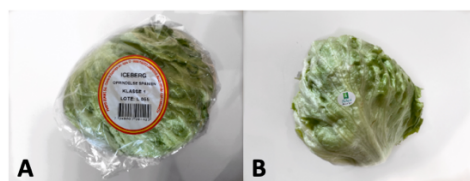
The TAP method is designed in that way that participants will see pictures of products that they wish to buy, one picture at a time in the same order as shown in the next column. The participant will be asked to imagine that he/she is located at a supermarket, planning to buy these products.

While choosing the products the participant will be asked to concurrently think aloud about their product choice and describe what affects his decision. This procedure is done with the aim to catch the participants' thoughts regarding their product choice.

Researchers only interrupt the participants if he/she starts hesitating, only by comments such as "why" and "can you elaborate".



Picture 2: Lettuce



Picture 3: Mango



Picture 4: Sweet Potatoes

### ***Research section 2: Qualitative in-depth interview***

After the TAP method has been performed, the participant will be asked eight follow-up question, which were designed with the aim to get further knowledge about their behavior.

The first question had the aim to discover how and if the participant recycles.

### **In-depth questions:**

1. We know that it takes time and effort to recycle, some people don't want to go through the hassle. How is it with you?"
2. Do you find it difficult to avoid plastic packaging?
3. Does plastic packaging give you any concerns?
4. Do you recognize the organic labels included on the pictures? If so, how do you evaluate them, how do they

<p>The next two questions involved plastic packaging, where the aim was to see if and how plastic packaging affected the participant in his daily life.</p> <p>Then we move to two questions regarding organic product. They were designed in that way that to see whether the participant recognizes the organic certifications, how they evaluate them and if he/she buys organic regularly.</p> <p>Due to the recent circumstances of COVID-19, one question (question 6) was included to see whether participants buying behavior has changed.</p> <p>As the picture containing the avocado and the sweet potatoes, were multipack, one question (question 7) was designed to see whether multipacket products affected their choice.</p> <p>Background information (question 8).</p>	<p>affect you and do they tell you anything about the product?</p> <ol style="list-style-type: none"> <li>5. Some people don't buy organic products at all, why do you think that is the case and how is it with you?</li> <li>6. Before the Covid-19 outbreak, would you have made different decisions regarding your product choice, if so, can you elaborate?</li> <li>7. Does the number of products in the package affect your choice, if so, how and why?</li> <li>8. What is your age?</li> </ol>
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## APPENDIX 2 – PARTICIPANT INFORMATION TABLE

PARTICIPANTS INFORMATION TABLE	
<b>Participant number:</b> <b>Gender:</b> <b>Age:</b> <b>Nationality:</b> <b>Date of the interview:</b> <b>Duration of the interview (minutes):</b> <b>Product choice:</b> <i>stating which product the participant chose</i>	
<b>Participant 1</b>	Gender: Female Age: 26 Nationality: Icelandic Date of the interview: 28.03.2020 Duration of the interview: 26:38 Product choice: A2, K2, M2, S2
<b>Participant 2</b>	Gender: Female Age: 26 Nationality: Icelandic Date of the interview: 28.03.2020 Duration of the interview: 17:42 Product choice: A2, K2, M2, S2
<b>Participant 3</b>	Gender: Female Age: 26 Nationality: Icelandic Date of the interview: 28.03.2020 Duration of the interview: 15:35 Product choice: A2, K2, M2, S2
<b>Participant 4</b>	Gender: Female Age: 28

<p>Nationality: Icelandic</p> <p>Date of the interview: 28.03.2020</p> <p>Duration of the interview: 17:16</p> <p>Product choice: A2, K2, M2, S2</p>
<p><b>Participant 5</b></p> <p>Gender: Female</p> <p>Age: 27</p> <p>Nationality: Icelandic</p> <p>Date of the interview: 28.03.2020</p> <p>Duration of the interview: 19:03</p> <p>Product choice: A2, K2, M2, S2</p>
<p><b>Participant 6</b></p> <p>Gender: Female</p> <p>Age: 26</p> <p>Nationality: Icelandic</p> <p>Date of the interview: 28.03.2020</p> <p>Duration of the interview: 16:13</p> <p>Product choice: A2, K1, M2, S2</p>
<p><b>Participant 7</b></p> <p>Gender: Male</p> <p>Age: 25</p> <p>Nationality: Icelandic</p> <p>Date of the interview: 28.03.2020</p> <p>Duration of the interview: 17:03</p> <p>Product choice: A2, K2, M1, S1</p>
<p><b>Participant 8</b></p> <p>Gender: Female</p> <p>Age: 26</p> <p>Nationality: Icelandic</p> <p>Date of the interview: 28.03.2020</p> <p>Duration of the interview: 14:08</p> <p>Product choice: A2, K2, M2, S2</p>
<p><b>Participant 9</b></p> <p>Gender: Female</p> <p>Age: 28</p> <p>Nationality: Icelandic</p> <p>Date of the interview: 29.03.2020</p>



<p>Duration of the interview: 21:51</p> <p>Product choice: A2, K2, M2, S2</p>
<p><b>Participant 10</b></p> <p>Gender: Female</p> <p>Age: 27</p> <p>Nationality: Icelandic</p> <p>Date of the interview: 29.03.2020</p> <p>Duration of the interview: 20:36</p> <p>Product choice: A1, K2, M1, S2</p>
<p><b>Participant 11</b></p> <p>Gender: Male</p> <p>Age: 33</p> <p>Nationality: Icelandic</p> <p>Date of the interview: 29.03.2020</p> <p>Duration of the interview: 12:45</p> <p>Product choice: A2, K2, M2, S2</p>
<p><b>Participant 12</b></p> <p>Gender: Male</p> <p>Age: 35</p> <p>Nationality: Icelandic</p> <p>Date of the interview: 29.03.2020</p> <p>Duration of the interview: 16:22</p> <p>Product choice: A1, K2, M2, S2</p>
<p><b>Participant 13</b></p> <p>Gender: Female</p> <p>Age: 27</p> <p>Nationality: Icelandic</p> <p>Date of the interview: 29.03.2020</p> <p>Duration of the interview: 21:38</p> <p>Product choice: A2, K2, M2, S2,</p>
<p><b>Participant 14</b></p> <p>Gender: Male</p> <p>Age: 26</p> <p>Nationality: Icelandic</p> <p>Date of the interview: 29.03.2020</p> <p>Duration of the interview: 29:38</p> <p>Product choice: A2, K1, M2, S2</p>

**Participant 15**

Gender: Male

Age: 30

Nationality: Icelandic

Date of the interview: 29.03.2020

Duration of the interview: 21:52

Product choice: A2, K2, M2, S2

**Participant 16**

Gender: Male

Age: 27

Nationality: Icelandic

Date of the interview: 29.03.2020

Duration of the interview: 25:40

Product choice: A2, K2, M1, S2

**Participant 17**

Gender: Male

Age: 35

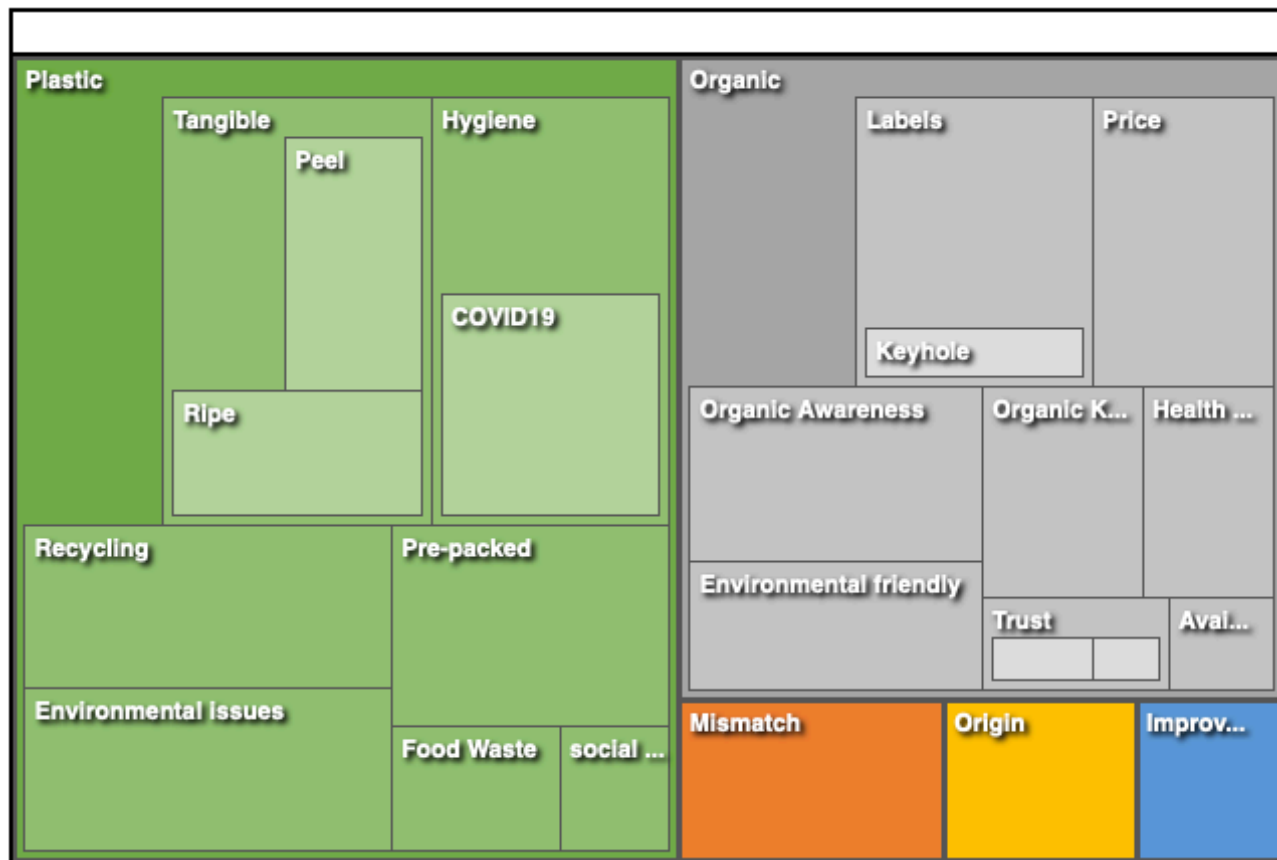
Nationality: Icelandic

Date of the interview: 29.03.2020

Duration of the interview: 23:20

Product choice: A2, K2, M2, S2

## APPENDIX 3 – CODING OVERVIEW



Name	Description
<b>Organic</b>	Whenever a participant mentioned organic during TAPs
Availability	Whenever a participant spoke about products availability
Environmental benefits	Whenever a participant spoke about environmental benefits of organic
Health benefits	Whenever a participant spoke about organic health benefits
Labels	Whenever a participant spoke about labels
Keyhole	Whenever a participant spoke about the Keyhole label
Organic Awareness	Whenever a participant noticed an organic product
Organic Knowledge	Whenever a participant spoke about organic knowledge
Price	Whenever a participant spoke about price
Mistrust	Whenever a participant spoke about distrust towards certifications
Trust	Whenever a participant spoke about trust towards certifications
<b>Plastic</b>	Whenever a participant mentioned plastic
Environmental issues	Whenever a participant mentioned an environmental effect
Food Waste	Whenever a participant spoke about food waste
Hygiene	Whenever a participant spoke about the hygiene factor of a product packaging
COVID19	Whenever a participant spoke about COVID19
Pre-packed	Whenever a participant spoke about pre-packed items
Recycling	Whenever a participant spoke about recycling
social pressure	Whenever a participant mentioned social pressure
Tangible	Whenever a participant spoke about touching any particular product
Peel	Whenever a participant spoke about the product's peel

Ripe	Whenever a participant spoke about the ripe status of a product
<b>Mismatch</b>	Whenever a participant spoke about a mismatch between organic products and plastic packaging
<b>Improvements</b>	Whenever a participant spoke about improvements
<b>Origin</b>	Whenever a participant spoke about product's origin

## APPENDIX 4 – TRANSCRIPTS

All transcripts can be viewed in a separate file.