

FOOD WASTE

Impacts of Consuming Behaviour Considering Aesthetic Standards of Fruits and Vegetables



Bachelor's thesis

Degree Programme in International Business

Valkeakoski

Autumn 2021

Sofia Kuosa

Tekijä Sofia Kuosa

Vuosi 2021

Aihe Ruokahävikki: Kulutuskäyttäytymisen vaikutus koskien hedelmien ja vihannesten ulkonäköstandardeja.

Ohjaaja Annaleena Kolehmainen

Opinnäytetyössä tutkittiin kuluttajien kulutuskäyttäytymistä ja sen yhteyttä hedelmien ja vihannesten ulkonäköstandardeista aiheutuneeseen ruokahävikkiin. Lisäksi tutkimuksen tavoitteena oli löytää syitä nykyiselle kulutuskäyttäytymiselle sekä ratkaisuja ja kehitysehdotuksia kuluttajien tottumuksista johtuvan ruokahävikin vähentämiseksi.

Tutkimuksessa käsitellään ruokahävikin aiheuttajia ja sen ympäristöllisiä sekä sosiaalisia vaikutuksia. Lisäksi teoriassa syvennyttään hedelmien ja vihannesten ulkonäkö standardeihin ja tutkitaan niiden vaikutusta ruokahävikkiin sekä kuluttajien kulutuskäyttäytymisestä aiheutuvaa hävikkiä. Tutkimus sisältää myös psykologisia syitä ja aiheuttajia, jotka ohjaavat kuluttajan päätöksentekoa.

Tutkimuksessa käytettiin päätutkimustyyppinä määrällistä tutkimusta, joka toteutettiin kyselynä johon, kohderyhmä sai vastata vapaasti. Määrällisen tutkimuksen tueksi tehtiin myös laadullinen tutkimus, joka toteutettiin haastatteluna maanviljelijän kanssa.

Tutkimuksessa ilmenee, että valtaosa vastaajista kokee hedelmien ja vihannesten ulkonäön vaikuttavan ostopäätöksen tekoon sekä mitkä tekijät johtavat tähän ajatusmaailmaan. Laadullinen tutkimus toi tutkimukseen ammattilaisen näkökulman ruokahävikin aiheuttajista koskien ulkonäkö standardeja ja niiden vaikutusta ruoan tuotantoketjuun.

Avainsanat Ruokahävikki, elintarvikkeiden ulkonäköstandardit, kulutuskäyttäytyminen, kestävä kehitys.

Sivut 37 sivua ja liitteet 7 sivua

Author Sofia Kuosa

Year 2021

Subject Food Waste: Impacts of Consuming Behaviour Considering Aesthetic Standards of Fruits and Vegetables

Supervisor Annaleena Kolehmainen

The main aim of the research was to identify the buying behaviour of consumers and how it contributes to the food waste caused by the aesthetic standards for fruits and vegetables. The secondary aim was to find the reasons for the behaviour and find solutions and recommendations to minimise the waste caused by the consumption habits of consumers considering standards.

The theory goes through the stakeholders and the environmental and social impacts of food waste. In addition, the aesthetic standards of fruits and vegetables are familiarised and how the supply chain contributes to food waste explored. Also, the research includes the psychology and sources behind the decision making of consumer consumption and decision making.

As the main research method, the quantitative method was used in a form of a questionnaire which was open for the target population to answer freely through distribution channels. In addition to this, a qualitative research method was utilised to identify issues around the supply chain from a professional aspect. The qualitative research was executed as an interview to a selected farmer.

The research concluded that for majority of respondents the aesthetics of fruits and vegetables affect their buying decision. The interview gave insight of the earlier stages of the supply chain of food production. The interview shows the biggest contributors of food waste considering the aesthetic standards from the point of view of a farmer.

Keywords Food waste, Aesthetic Standards, Consumption Behaviour, Sustainable Development.

Pages 37 pages and appendices 7 pages

Contents

1	Introduction.....	1
2	Theoretical framework.....	2
2.1	Food waste.....	2
2.2	Food loss and waste.....	3
2.3	Food quality standards.....	4
2.4	Laws and regulations.....	4
2.4.1	International quality standards.....	4
2.4.2	Quality standards for apples.....	5
2.5	Waste impacts of quality standards.....	8
2.6	Stakeholders and their impact.....	9
2.7	Positive retailer practices to prevent food waste.....	10
2.8	Consumer decision making.....	11
2.8.1	Rational choice model.....	12
2.8.2	Adjusted expectancy value theories.....	13
2.8.3	Psychological factors affecting buying behaviour.....	13
2.8.4	Cognitive dissonance.....	15
2.9	Marketing as a tool to influence buying habits.....	15
2.9.1	Nudge theory.....	16
2.10	Sustainable consumption.....	17
2.11	Behavioural study of Consumer, Health, Agriculture and Food Executive Agency.....	18
3	Methodology.....	19
3.1	Research methods.....	20
3.2	Results of the questionnaire.....	21
3.2.1	Demographics.....	21
3.2.2	Ecological thinking.....	21
3.2.3	Food aesthetic standards.....	22
3.2.4	Food waste.....	24
4	Analysis of the results.....	26
4.1	Overall analysis of questionnaire.....	26
4.1.1	How aesthetics affects buying decision.....	27
4.2	Difference between genders.....	28
4.3	Difference between age groups.....	30

4.3.1	Conclusion of the results for gender and age groups	31
4.4	Interview	32
4.4.1	Conclusion of the interview	33
5	Recommendations towards more sustainable consumption	34
6	Conclusion	35

References

Appendices

Appendix 1 The questionnaire

Appendix 2 Interview questions

Appendix 3 List of the colour groups for apples

1 Introduction

Food waste is an ongoing issue, and it globally impacts millions of people and in addition, it burdens the environment. Around one third of food produced ends up wasted annually throughout the whole world (FAO, 2021). Food is overproduced and a considerable portion of it ends up wasted, meanwhile tens of millions of people suffer from undernourishment. The amount of food wasted annually would feed double the amount of people suffering from hunger (WFP, 2020). Food waste has been an issue for a longer period of time but decision makers have woken to problems around it and have become more active on reducing food waste in the past few years: one of the main objectives of the United Nations (UN) 17 sustainable development goals is cutting the global food waste into half by the year 2030 (WFP, 2020). Even if reducing food waste has become a main goal for the UN, it mainly includes the issues around food waste created by households and retailers and not the earlier stages of the supply chain of food like farmers.

Food aesthetic standards for fruits and vegetables act as an unnecessary cause for food waste but still rules and regulations of the European Union contribute to the waste and encourage consumers to follow the example of choosing only perfectly looking products. In more specific terms, the aesthetic standards concerning the look of products which sometimes has nothing to do with the quality of the item nor does it affect the shelf life of it. Perfectly edible fruits and vegetables are thrown away due to their appearance because they do not fit the standards which are made for esthetical displays and to appeal the consumer's preference for pleasant looking products. Aesthetic standards do not only cause waste but have also other negative impacts towards nature: by throwing away edible products all the machinery and labour gone into producing the product is gone to waste as well.

Not many studies have been done concerning issues around food aesthetic standards of fruits and vegetables. This research concentrates on the main issues around food wastage and in more depth, about food quality standards of fruits and vegetables and how consumers contribute to the food waste caused by the standards. In addition, it analyses how different stakeholders affect the issues around quality standards. The research question for the thesis is: In what extent do consuming habits contribute to the food waste created by

food aesthetic standards for fruits and vegetables and how to minimise the impact? The research finds out the psychology behind consumer buying behaviour and how it can be affected by external stakeholders by nudging, through changing regulations and marketing strategies.

During the completion of this degree the author has taken part in multiple different types of sustainability and environmentally friendly themed projects which has created interest and passion towards sustainable and ecological lifestyle. Consequently, these factors have led to choosing the topic and driven the research.

2 Theoretical framework

2.1 Food waste

Producing food causes a great number of emissions and when the food gets thrown away it does not just waste the food, but all the inputs used to produce it are wasted as well. Food waste would be the third largest emissions emitter if it was perceived as a country. Food waste impacts multiple sectors globally, for example, environment and social sectors act as major bystanders affected by the negative impacts. The environmental issues caused by food waste are more direct like deforestation, over usage of land and fresh water for agriculture, emissions caused by agriculture and discarded food which end up in landfills. Social issues tend to act more as fringe stakeholders: people in hunger, over growing population and the working conditions for employees on farms. (FAO, 2021).

In the year 2012 in Europe, approximately 88 million tonnes of food was wasted overall, including edible and non-edible parts of food. According to FUSIONS research for the European Commission, in the European Union (EU) area, 20 % of food produced in the area is wasted by the latter stages of the food supply chain (Stenmarck, Jensen, Quested & Moates, 2016, p. 4). Food ends up wasted the most through households, in an estimation of 47 million tonnes in the EU area which adds to 53% of the whole supply chain. The monetary value for the overall wasted food is estimated to be around 143 billion euros and the portion for households is around 98 billion euros. (Stenmarck, Jensen, Quested & Moates, 2016, p. 4-5).

In Finland, food is wasted through its whole supply chain around 10 – 15% which is approximately 360 million kilograms. Through households in Finland, over 100 million kilograms of food is wasted and from retailers 61 million which includes leftovers from the plates of consumers and excess food from restaurants and stores. The majority of this amount, 57 million kilograms, comes through stores. (Saa Syödä!, n.d.)

2.2 Food loss and waste

Overall food waste can be divided in two categories: food loss and food waste. Food loss happens in the early stages of the supply chain meaning that during harvesting and transporting, crops can get damaged due to outdated machinery or incorrect handling and transportation (FAO, 2021). In addition, the conditions in storing can be improper for the products which may lead to premature ripening of fruits and vegetables. Also, if the product has lower market value and the selling price will not cover the costs of labour and transportation, the crop can be left unharvested due to the unprofitability (FoodPrint, n.d.). Furthermore, perfectly edible crops are discarded on-farm because they do not meet the aesthetic standards or other quality standards for fruits and vegetables. Food loss is more common in low-income countries due to the lack of proper machinery and storing systems (FAO, 2021). Consequently, all of earlier mentioned factors create a need for farmers to overplant despite the lower demand for products from consumers. (FoodPrint, n.d.)

Food waste occurs in the latter stages of the supply chain: mainly by retailers and consumers and is more common in high-income countries. Retailers and consumers tend to sort out the products that deviate from the standard and discard them or plainly not buy them. Lack of education for labellings like “best-before dates”, lead to unnecessary food waste created by consumers (FAO, 2021). In addition, consumers have the tendency to overbuy food especially, easily rotting fresh food like fruits. Overbuying culture is more generally seen in high-income countries where there is room to choose from a variety of options while doing groceries, and consumers have gotten accustomed to having alternatives.

2.3 Food quality standards

The food quality standards are placed to allow product differentiation and support trade. It also helps to optimise the packaging and the logistic aspect of the productions.

Approximately, half of the whole number of misshapen fruits and vegetables are discarded from the food chain for humans. This makes around 120 000 tonnes of discarded products that end up for animals, to produce biogas and biofertilizers, for land applications or just unharvested. (Roles & Gijseghem, 2017).

One fifth of the food wasted is caused by the mindset consumers have concerning the appearance of food. Assumption of food needing to be aesthetically pleasing has been imprinted into the minds of consumers which will be discussed in later chapters. As a forerunner, France was one of the first countries to start a movement against the quality standards for fruits and vegetables especially considering the appearance of them. They started to sell oddly shaped products even though the items did not fill the aesthetic requirements. (TEDx Talks, 2019b).

2.4 Laws and regulations

Saleable fruits and vegetables need to meet the requirements of the trade standards where products are divided in three different quality categories: extra class, class I and class II. In the extra class the quality of products must be impeccable. Products in class I can have minor defects and in class II defects can be slightly bigger than in class I. Also labelling of the products have strict rules: package labelling requires information of the origin country and the packer of the product. (Ruokavirasto, 2019).

2.4.1 International quality standards

A major number of products in the fruit and vegetable sector end up wasted due to quality standards, and a great part of them have only aesthetic defects which do not affect the edibility of the product. As an example, approximately 25 – 30% of carrots do not end up for

human consumption due to the aesthetic standards which mainly affect the exterior of the product (FAO, 2018).

Cucumbers are something that consumers are used to seeing shaped as straight as possible and consumers tend to gravitate towards units that fill their personal preferences. The shape of cucumber is determined through the quality standards which affect what consumers will comprehend as a “normal” looking product. Cucumbers need to have a fairly straight shape even in the Class II. Only a slight crookedness is allowed and for the higher classes’ products must be “practically straight” and the inner arc has its own height requirements, for example in Extra class the maximum height measurements for the arc are “10 millimetres per 10 centimetres of length”. As a contrast, in the Class II, the arc can be “20 millimetres per 10 centimetres of length”. There are exceptions for cucumbers with larger inner arcs if their other qualities are filling the requirements of the Class II. (OECD, 2008 p.11). More detailed insight of the requirements for fruits is showcased in the following chapter by using the quality standards of an apple.

2.4.2 Quality standards for apples

Quality requirements for an apple in all three classes are that the products must be intact, meaning that they should not have any “mechanical damage” or “injury of the stalk cavity” (OECD, 2021 p.10). Products must not have any diseases or any other major deterioration that can lead the product to be unappealing or inedible. Any following defects that show in an apple, leads to disposal of the product: “any slight rotting, cork, Jonathan spots or lenticel spots, core slush or brown core, core rot, core mould, low temperature breakdown, superficial scald, serious sunscorch, serious bruising, severe damage due to hail, rough/cracked russeting, severe scab” (OECD, 2021 p. 10-11). Apples must not have any visible residue of soil, dust, chemicals or any other unknown substance and they must be pest free. In addition, they must not have any damage created by pests. Products need to be able to handle the transportation and handling process. Apples need to be in a maturity stage that allows them to ripen during the process from production to retailers which means that products must be harvested in the stage that allows this to happen. (OECD, 2021 p. 13) Products that do not follow the requirements cannot be sold or displayed by the seller and

faulted products need to be discarded or repurposed. There are other requirements that are not mentioned in this research that concentrate more on the edibility, taste of the product and factors affecting the quality of the interior of the fruit.

- **Extra class**

In extra class, apples must be of outstanding quality: they must have the standardised characteristics of the variety including the stalk. As an example colour group A, (OECD, 2021 p. 50-59) must be 75 % red and colour group B (OECD, 2021 p. 50-59) must be 50 % mixed red on the surface, see the appendix 3 for the two first pages of the list of different apple varieties. Products must have impeccable appearance with only the slightest defects on the surface such as mild russeting that stays in the stem cavity and “slight isolated traces of russeting” (OECD, 2021 p. 14).

- **Class I**

Class I requires the apples to be in good quality. Requirements for colour characteristics are for group A 50 % of red and group B 33,3 % mixed red on the surface. Products may have “slight defect in shape”, “slight defect in development”, “slight defect in colouring”, “slight bruising not exceeding 1 cm²”. (OECD, 2021 p. 15-16).

- **Class II**

Class II contains apples that fill the minimum requirements but do not fill the qualifications of the higher classes. In addition to higher classes, apples can have small defects in the flesh, slight bruising maximum of 1,5 cm², slight defects on the skin: 2 cm of length and 1 cm² for other defects except for scab which can be maximum of 0.25 cm². On figure 1 is presented a slightly defected apple with scab under the 0.25 cm² limit. This apple would only be qualified to be in the Class II and not in the other two higher classes. (OECD, 2021 p 17-18) .

Figure 1

Limiting scab condition on an apple, *Venturia inaequalis*.



(OECD, 2021 p. 94)

Fruits usually have size qualifications, for apples that can be determined by the diameter of the product or by its weight. The minimum measurements can be 60 millimetres by diameter or 90 grammes when measuring by weight. There are some exceptions to the rules when Brix level is greater than 10.5° Brix and the product is not under 50 millimetres or 70 grammes. Fruits need to have a similar appearance in size when they are displayed in the stores because uniformity showcases a more appealing aesthetic for consumers. Products in the same package cannot exceed five millimetres difference in the Extra Class and the same rule goes for the other two classes if the apples are packed specifically in rows or layers. Diameter of 10 millimetres applies to the Class I when products are ready packed however, Class II does not have other size requirements for apples that are ready packed. In the figure 2 and 3 can be seen charts for requirements for the weight of the apple. Figure 2 showcases the allowed weight difference allowed for the three classes and Figure 3 shows the allowed weight differences for Class I ready packed apples. (OECD, 2021 p. 19).

Figure 2

Size requirements for “Extra” class and Class I and II apples packed in rows and layers.

Range (g)	Weight difference (g)
70 – 90	15
91 – 135	20
136 – 200	30
201 – 300	40
> 300	50

(OECD, 2021 p. 19)

Figure 3

Size requirements for Class I apples ready packed.

Range (g)	Weight difference (g)
70 – 135	35
136 – 300	70
> 300	100

(OECD, 2021 p. 19)

2.5 Waste impacts of quality standards

According to the Food and Agriculture Organization of the United Nations, one third of the produced fruits and vegetables do not end up for retailers to sell due to sorting happening in earlier stages of the supply chain and one main sorting factor is the aesthetic standards. From the total amount of fruits and vegetables nearly half of them (45%) end up wasted during the supply chain (FAO, 2018) and “two thirds of all farmers are not able to sell part of their products in the intended sales channel, since the required cosmetic quality standards were not met” (Roles & Gijseghem, 2017). Following the food aesthetic standard causes pressure for farmers to produce enough crops that fit the required quality levels. Furthermore, it leads to overplanting which causes environmental issues mentioned before and in addition surplus that leads to more food losses. Many quality standards are there to make the product preserve longer and reduce the risk of defected items causing health issues but when talked about specifically standards considering only the aesthetics, it is another matter to be discussed. Wasting food merely due to small defects in the outer skin or based on the shape of the item causes unnecessary food waste in all stages of the supply chain of food.

The fresh fruits and vegetables that are somehow faulty but still suitable for production of processed foods also cause waste during the processing. As an example, potatoes sent to produce French fries are wasted in the making of the products for not fitting the qualification of a French fry: they can get damaged or have incorrect shape. Again, the aesthetic standards for products cause food waste. Discarding these faulty products is usually cheaper than the choice to repurpose them. (FAO, 2018).

2.6 Stakeholders and their impact

Regulators, retailers, consumers, and farmers act as the stakeholders for food waste and the aesthetic standards. Many stakeholders in the supply chain of fruits and vegetables are able to make a change considering the food aesthetic standards. Retailers have already started to use campaigns and marketing strategies to promote oddly shaped fruits and vegetables (Roles & Gijseghem, 2017), more will be discussed in the next chapter about “positive retailer practices to prevent food waste”. The regulators have woken to the issues on hand and created concrete plans to minimise food waste through the Sustainable development goals. The 2030 Agenda for Sustainable Development has brought up the issues around food wastage and the Sustainable development goal (SDG) 12.3 aims to halve food waste per capita through retail and consumer sectors by the year 2030 (European Commission, n.d.a). The goal also includes issues around the food loss stage: it aims to reduce food loss happening during the production and other levels of the supply chain (FAO, 2021). The issue lies that these SDGs have not included the problems caused by the aesthetic standards for fruits and vegetables. In addition, these issues contradict with the aims of other SDGs like the goal 2 Zero hunger (UN, n.d.a) and 13 Climate action (UN, n.d.b) and importantly it does not follow the aims of the 12th goal: Responsible consumption and production (UN, n.d.c). Edible food is thrown away due aesthetical factors and mean time people suffer from hunger, overplanting, deforestation, and emission caused by producing food that ends up wasted burdens the nature and producing products just to discard them does not fill the criteria for sustainable consumption and production.

The European Commission has put forward strategies to meet the SDG 12.3. The new “farm to Fork Strategy” helps to put into action the transition towards a more sustainable food system in the European Union (EU). These acts are “legally binding targets to reduce food waste across the EU, by end 2023” and “a revision of EU rules on date marking (‘use by’ and ‘best before’ dates), by end 2022” (European Commission, n.d.a). In addition, the Commission will include prevention on the food loss stages and encouraging all stakeholders to exercise “the recommendations for action of the the EU platform on food losses and food waste” (European Commission, n.d.a). The recommendations for action are the guidelines and strategy showcased to reduce unnecessary food waste and loss. Main focus is to aim to minimise surplus in all stages of the supply chain (Jülicher, 2019). This focus should

encourage EU to update the laws and regulations considering the quality standards of fruits and vegetables since it is one of the culprits causing overplanting and creating surplus. The General Assembly of United Nations has set the 29th of September as “the International Day of Awareness of Food Loss and Waste (IDAFLW)” (European Commission, n.d.b) and the two organisations leading the movement are Food and Agriculture Organisation of the United Nations and the United Nations Environment Programme. The website “EU Food Loss and Waste Prevention Hub” was created due to the fact that the Commission wanted to provide a “one-stop-shop” website where information about preventing food waste would be easily accessed by anyone who desired to gain more knowledge on the matter. (European Commission, n.d.b).

2.7 Positive retailer practices to prevent food waste

Tesco is a United Kingdom based supermarket chain which has retailers in 11 countries all around Europe and Asia. Tesco aims towards environmentally friendly and ethical procedures which they execute through variety of sustainable goals: tackling against deforestation, programme to “remove, reuse, reduce and recycle” packaging materials, fighting towards better human rights, as an example, better working conditions for employees on farms and, in addition, reducing food waste on different stages of the supply chain of food. One notable action they have is their programme “reduce food waste from farms to fork” (Tesco, n.d.), which aims to reduce wasted food on farms by cooperating with farmers to reduce on-farm losses. They act as a forerunner in considering minimising food waste caused by the aesthetic standards. Tesco aims to help their partner farmers to sell bumper crops and to re-donate excess crops to foundations. They also have “the Perfectly Imperfect Range” where Tesco buys the oddly shaped items from the farmers. Therefore, it gives partner farmers the possibility to not overplant and relieves the stress to produce perfectly looking fruits and vegetables. In summary these procedures help to reduce food waste caused by aesthetics standards in the earlier stages of food production. (Tesco, n.d.).

Other retailers do other prevention strategies to minimise food waste but usually it does not consider the earlier stages of the supply chain but more of the fact that the item is losing its shelf life. As an example, for the latter stage food waste prevention: K Group has a variety of different retailers and stores, and it is a large grocery store chain located in Finland; each

store has its independent entrepreneur. Over 40 stores collaborate with the ResQ app which is a known app for reducing food waste. Through the app K-food stores sell bags of collected products closing their expiration dates by reduced price. (Kesko, 2018). Research also showed that many retailers aim to prevent food waste to the point where “best-before-dates” are closing up and products are sold with discounts, but not many practices early prevention of food waste by tightly cooperating with farmers.

2.8 Consumer decision making

Many matters affect the decision making of consumers and usually the decision is a combination of multiple factors. Consumer habits vary greatly, and they tend to change in waves with the trends or by other influences like the recommendations of celebrities or regulations made by governments etcetera. (Jackson & Michaelis, 2003 p. 7) Many criteria are competing in the minds of consumers when the purchase decision is made, and the first criteria consumers usually have for making a buying decision is the price of the product. The willingness to buy sustainable products for higher prices, requires strong beliefs on pursuing sustainability. Considering food, quality of the product is also highly ranked in the criteria list. (Grunert, 2011, p. 215)

Habits are one main driver for consumer decision making and one main key to sustainable consumption. To be able to change habits, the current behaviour patterns need to be unknotted by the individual themselves or influenced by external sources for the adaptation of new habits. To be able to change an individual’s behaviour can be a complicated process for both the individual and for external influencers. Habits and patterns dig deep and breaking through them can take a long time and many repetitions. To be able to identify in which steps behaviour changes and how to affect it, is an important step towards the change to environmentally friendly habits. (Jackson, 2005, p. xii) Unknotting old habits gives the opportunity to implant new environmentally friendly behaviour models to everyday life and part of the routines of consumers. (Jackson, 2005, p. xi-xii). Moulding consumer’s habits towards accepting and not always choosing the most perfectly looking fruit or vegetable needs to start by educating consumers that a product, that does not look like other standardised items, can be edible and as good as the other items. Especially, educating what

impacts it has when consumers do not buy the oddly shaped or discoloured fruits and vegetables and how it affects what is offered by retailers.

Colours also affect the decision making of consumers. Colours usually impact the way a product is seen, and the stimuli causes a reaction in the brain leading to a specific behaviour. Usually, the behaviour is an outcome of a learned connection between the colour and the object. Colours can represent different types of meanings and they make people react in a certain type of way, as an example, if a food product is distinct coloured than it is used to be seen, human instincts may send warning signals of a spoiled item and recommend not to eat it. (Casas & Chinoperekweyi, 2019, p. 443-444) This basic instinct can cause issues when considering the quality standards of fruits and vegetables: off-coloured products might seem unhealthy or odd because they have been standardised in a specific way, even though it would be perfectly edible. Meaning, anything that deviates from the standards is seen as unpleasant. Leading to that food products are presented in the most appetizing way possible by retailers which can be deceiving for consumers. (Casas & Chinoperekweyi, 2019, p. 444)

2.8.1 Rational choice model

Consumers can make choices through different types of models, one of the familiar ones is the “rational choice model”, which is based on, usually monetary, benefit of the choice. The model consists of individuals aiming for self-benefit; behaviour is the outcome of cognitive thinking. (Jackson, 2005, p. vi-vii). The model has been criticised due to the fact that people have limitations to make cognitive decisions all the time. Individual’s mind takes shape utilising habits, patterns and common sense which consequently reduces the need for cognitive thinking. Familiar patterns change into automated tasks and the behaviour turns on to auto mode in these familiar settings leading to problems in the scenario of changing habits. In addition, people tend to form emotional links towards specific products and their decision is based solely on emotions. In some cases, decision making occurs more likely through emotions than through cognitive thinking. (Jackson, 2005, p. vii)

2.8.2 Adjusted expectancy value theories

Rational choice theory sees that the choices are made through the assumptions of the outcome and the value it gives. “Adjusted social psychological models” suggest that behaviours of an individual are not driven by either mind-set or intention; rather other way around, the mind-set does not need to be changed first to be able to affect the behaviour. As an example, people most likely would reduce taking too much food in buffets if they had to pay extra for leftovers, they would not necessarily have thought that wasting food is bad, but they would automatically want to avoid the extra fee. This can create a connection between food waste and leftovers that it costs extra and also create a thought that it can have other external impacts. After eating in “leftover fee” buffets they are more likely to remember that food waste is an issue or connect the idea of food waste to the fee and start to avoid leaving leftovers in other buffets too. This “greener” thinking can spread to other aspects of their life and have a positive effect towards more environmentally friendly habits. (Jackson, 2005, p.vii-viii)

By utilising these models and theories retailers and governments can conduct strategies to encourage and guide consumers to more environmentally friendly habits and buying behaviours. In addition, consumers themselves can affect their own buying behaviour by identifying the negative habits they have created and actively try to change them towards an eco-friendly mind-set.

2.8.3 Psychological factors affecting buying behaviour

Memory acts as one main contributor of the decision making of consumers (Jansson-Boyd, 2010 p.14). The memory of a human being consists of three parts: sensory memory, short-term memory, and long-term memory. All three store memories differently and have a part in how decisions are made. Sensory memory temporarily stores information through the five senses and this part sends stimuli that can make consumers, for example, act to choose a store based on the smell of fresh fruits or other tempting scent (Jansson-Boyd, 2010 p. 16). Memory can be targeted through different types of marketing gimmicks like through repetition or visual stimuli (Jansson-Boyd, 2010 p. 23). Strong attitudes are based on

personal experience, and they have been repeated multiple times therefore these attitudes are easily retrieved from memory. Individuals with a strong attitude towards sustainability do not need to think about making sustainable decisions, it will come automatically. People with weaker attitudes need more activation because it is not as retrievable from memory, therefore, to be able to pursue sustainable options, they need encouragement. They might have a highly positive attitude towards sustainability, but they lack knowledge and the means to accomplish sustainable buying decisions. (Grunert, 2011, p. 216)

Important factors that influence the buying behaviour of consumers are internal and psychological, specifically motivation and perception. Motivation acts as the need or want of the consumer that makes them choose to seek satisfaction by buying a product. There are two types of needs: biogenic and psychogenic needs. As an example, thirst acts as a biogenic need and seek for esteem acts as a psychogenic need. Affecting already “sustainably thinking” consumers can be easier because they gain more satisfaction by following their own wants. Trying to influence through needs can be way more difficult taking into consideration that choosing as an example ecologically produced items is not a necessity for survival. Perception is the view of how an individual sees the world. It is an individual perception which is a combination of our five senses and in addition, of the sense of direction and balance. All of the senses are providing an overwhelming amount of information to the brain, and it filters extra stimulus out, moulding unperfect view of the world. (Ramya & Ali, 2016 p. 77). These factors make it hard to make an impact on consumer mindset in a small amount of time while they are making a purchase and visiting the store, while many different motivators are steering the shopping experience. Some important information might stay unnoticed due to the mind’s way of moulding the world view of an individual.

In addition to internal factors, external factors are relevant influencers on buying behaviour. As external factors, social factors influence the buying behaviour of an individual through many ways. Family, friends, culture, roles and status and economic factors affect how people act and how their mind-set has been constructed in the way it has (Ramya & Ali, 2016, p. 78). People naturally seek for acceptance of others and in the matter of sustainability some individuals do not want to be perceived as “eco-freaks” or fanatical about sustainable

lifestyle (TEDx Talks, 2019a). Humans seek for social acceptance, and they tend to not go against the beliefs of the people around them.

2.8.4 Cognitive dissonance

Cognitive dissonance occurs when two beliefs contradict with each other. To reduce the feeling of dissonance, the contradicting belief should be removed and only maintain beliefs that are consistent and aligned with each other. Dissonance occurs when logical inconsistency arises, a person has a contradiction between their behaviour and attitude, or their strong opinion or assumption is verified to be incorrect. In addition, it arises post purchase period when the commitment to the product has been made. As an example, a person who keeps sustainability and the health of the environment high on their value list, can feel cognitive dissonance after buying fast-fashion or imported vegetables instead of locally produced ones. (Sharma, 2014, p. 833-843)

Consumers can reduce cognitive dissonance by supporting their values with beliefs that align with them and by minimizing the priority of the contradicting behaviour. Post purchase contradiction can be reduced by either selling the product that causes conflict in their beliefs and proceed to buy products that support them. Second option is to reduce the importance of the beliefs of the environmental mind-set and continue to use the conflicting product. Choosing the second option, dissonance can be reduced by recycling clothes and buying from flea markets, in the case of fast fashion. (Sharma, 2014, p. 835)

2.9 Marketing as a tool to influence buying habits

Marketing can affect the decision making of consumers and their buying habits. (Jansson-Boyd, 2010 p. 4) Information campaigns are a known way to advertise causes towards sustainability and environmentally friendly mind-set, but it is not as effective way to learn as for example, individuals learning through mistakes or observing the behaviour of others. Teaching through a model is one of the most effective ways of teaching; seeing someone they admire, celebrity or friend, encourage towards a specific goal or behaviour, usually has more value than reading a leaflet about the issue. One important part of learning through a

model is that the one showing an example is being authentic and acts as they say, or the results will most likely be opposite from the wanted outcome. To accomplish effective persuasion, marketers must understand their audience and affect them through emotional appeal and be direct. (Jackson, 2005, p. xi-xii). Consumption can be seen as an attempt to benefit the well-being of individuals by providing products that meet the needs and wants of the individuals (Jackson, 2005, p. 9).

Important part of marketing sustainable products is communicating sustainability to consumers. It is something that consumers cannot see just by looking at a product itself or taste from the product therefore it needs to be stated in the food labels through certificates for example. Consumers might already have a positive view of the eco certificate without even knowing what it means, and the positive view most likely affects the buying decision of the consumer. Only having a certificate does not help without accomplishing either a positive perspective or knowledge of what it stands for. (Grunert, 2011, p. 208, 212). Although, a positive attitude towards a certain topic does not automatically lead to actions to support it. People might have a mind-set that supports environmental friendliness, but they might feel incapable to implement the positive mind-set concretely. Direct communication of sustainable products helps to guide these types of individuals to implement their sustainable behaviour: clear labelling, certificates. (Grunert, 2011, p. 215) Campaigns to elevate sustainable products can help increase consumption of sustainable choices but it most likely does not have permanent impact on the major audience. Instead, it might change attitudes slightly but not in a significant way or it can have a positive effect on individuals which guides them towards a positive mind-set towards ecological and sustainable products. (Grunert, 2011, p. 217).

2.9.1 Nudge theory

Nudging is good-natured manipulation to influence towards certain type of behaviour by decision makers like governments, retailers, etcetera. In this case, the influence would be on consumers to change their buying behaviour towards more environmentally friendly options but still maintaining their freedom of choice. This can be executed by showcasing the wanted products in a more desirable way or placing seasonal items somewhere where they are more accessible to make it easier for customers to make their buying decision towards

these products. Nudging is implemented without any restrictive rule or regulations and more through encouragement and positivity. It can be debated if nudging really is an efficient way to influence buying behaviour and seen as an ethical way to manipulate decision making. (Arno & Thomas, 2016). This can be speculated on a case-by-case level, in short it depends on the matter which the benign manipulation is used for: if it is used for mutual benefit like helping the environment or is it used for making better profit. In addition, see chapter 2.11 for earlier behavioural study made by Consumer, Health, Agriculture and Food Executive Agency of influencing consumers through nudging.

2.10 Sustainable consumption

Consumers have power to affect the assortment retailers offer and they are able to influence the food chain to be more sustainable by choosing sustainable options instead of unsustainable ones. They can influence in which direction the markets will take and what will be offered in the future. Retailers are in a dilemma because they always aim to offer multiple options for customers due to demand, and they might not be able to exclusively offer sustainably produced products even if they would prefer it. In addition, pricing can rise as an issue. Producers and retailers have to be able to justify the possible higher price of environmentally friendly products to consumers who might be new to the world of sustainable products. Not all customers are able to purchase sustainably produced products due to the higher price which will automatically be a difficulty for the seller side. (Grunert, 2011, p. 207).

Consumer behaviour is one of the most important elements which affects the environment. The choices people make have direct and indirect effects on nature and this is one of the reasons why SDG 12, responsible consumption, is an important part of the goals towards a more environmentally friendly and sustainable society. (Jackson, 2005, p. v) All stages of the supply chain of food affect the whole sustainability of the chain: production, transportation, processing etcetera. The supply chain also includes post purchase of the product; what happens to the food product after it has been bought by consumers. This final stage also affects the sustainability of the chain: how the food item is transported, stored, prepared, or disposed. In addition, the sustainable option needs to be more attractive to consumers compared to the unsustainable version (Grunert, 2011, p. 207). This aspect can create issues

when implied to oddly shaped fruits and vegetables because they are seen as unattractive and possibly less usable than the standardised products. One possible solution for the issue could be offering the defected products for lower price or marketing them as a more sustainable choice and influence consumers through their desire to make a good deed. In addition, retailers can contribute by displaying products in more sustainable way and present the more sustainable products in a more preferable way and make them more accessible compared to the standardised option.

2.11 Behavioural study of Consumer, Health, Agriculture and Food Executive Agency

The following findings are part of a larger behavioural study by Consumer, Health, Agriculture and Food Executive Agency (CHAFEA) to measure consumer decision making in relation of sustainability of food and causers of food waste. The study was conducted on behalf of the European Commission. (OECD, 2017 p.114).

The behavioural experiment took place at the so-called “Supermarket of the Future” in July 2015. In summary, in the shop there were placed interactive information screens where customers could find more detailed information on the food products like price, nutritional values, allergenics, how environmentally friendly the product is and what its carbon footprint is. Aim of the experiment was to see to what extent would consumers utilise the information given to them and would it convey to their decision making. In addition, would the interactivity encourage and inspire consumers to act in a more sustainable way. Secondly to see if exposure to sustainable consumption in other fields than food would correlate towards sustainable choices in the field of food. This was conducted by exposing the test group to an activity that would stimulate sustainable thinking before entering the store. Three different types of test groups with 100 persons in each group had different set up: first group only visited the store; second group were exposed to the sustainable activity prior to entering the store and third group did not visit the store but were only asked to answer the mutual questionnaire for all groups. (OECD, 2017 p.114-115).

The experiment concluded that sustainability is not one of the most important criteria for consumers to make their buying decisions on. Test groups ended up checking the price,

nutritional values, and the origin of the raw materials from the information screens rather than concentrating on the sustainability angles of the product. Usually, these criteria are one of the easiest and clearest things for a consumer to base their decision making on because these facts are familiar and easy to comprehend. Also, these facts usually have the most direct benefit for an average consumer. On the other hand the visitors of the supermarket had more open-mindedness towards sustainable products after visiting the store which can create a positive imprint towards changing habits to environmentally friendlier ways. The experiment did not provide any proof that exposing customers to a sustainability themed activity beforehand would correlate towards choosing sustainable options in the store. The three different groups were asked to donate to charities after the experiment, store visitors were more likely to donate to charities working in the field of sustainability than the group who only answered the questionnaire. (OECD, 2017 p.114-115).

From this earlier experiment can be concluded that even though providing information about sustainable food options to consumers might not give instant results it can create a movement towards changing habits. Like discussed in the research earlier, formed habits will not break easily into new ones but instead it takes time and repetition. In addition, influencing consumers to make sustainable choices might need to be more direct and clearer for consumers to make it easier and faster to comprehend. When consumers need to make the effort themselves it usually tends to lean on the side of familiar and effortless options. Still, subconscious influencing can be an important part of starting to make a change in consumers' mind towards breaking old habits.

3 Methodology

For the research a mixed method of quantitative and qualitative methods was used. Quantitative research includes analysing numerical data mainly through statistics and the method was chosen as the main research method to gain specific data which would provide relevant information for the agenda of the research straight from consumers. In addition, a qualitative method was used to bring other aspects of the supply chain of food, from the earlier stage in specific. The quantitative research was executed utilising a questionnaire and the qualitative research was executed through a semi structured interview which included a

few questions to frame the structure of the interview but also to give room for a more conversational atmosphere. (Davies & Hughes, 2014. p. 9–10, 183.)

In the following chapters execution of research methods are showcased and results of the quantitative questionnaire are deconstructed. The analysis of the qualitative research, the interview, can be found in chapter 4.4.

3.1 Research methods

The chosen research method for the study was a quantitative method to collect data from a sample group to identify consuming habits regarding food waste and aesthetics of fruits and vegetables. Quantitative research was implied through a questionnaire which was distributed through the authors social media channels, Facebook, Instagram, and WhatsApp. The questionnaire consisted of a maximum of 15 questions in total depending on the answers of the respondents. The topic of the questionnaire is the buying behaviour of consumers considering fruits and vegetables, and food waste. The questionnaire was open for answers during the period of 27.8.2021 two pm to 5.9.2021 six pm, see the questionnaire in the appendix 1. The questionnaire was provided both in Finnish and in English to make it possible for anyone of the population in the social media channels to answer. Respondents were made aware that the questionnaire was part of a thesis, and the responses were conducted anonymously.

A qualitative research method, interview, was chosen to provide insight from a professional point of view. The interviewee was made aware that the interview is part of a bachelor thesis, and the interview is executed confidentially. A farmer who wanted to remain fully anonymous was chosen as interviewee and they will be referred as farmer x from now on. The farmer x has several years of experience in the profession but has been in the field for nearly 10 years. The interview was conducted as a face-to-face meeting 10.10.2021 11am in Finnish and notes were made from the conversation. The interview consisted of five open ended questions and free discussion. The reasoning for the interview was to consist of different aspects of the issues surrounding food waste and aesthetic standards from another stakeholder apart from consumers. Interviewing a farmer was seen to bring more angles to

the issue especially from the point of view of a stakeholder who might have less power on the matter but who is affected by it the most as the producer.

3.2 Results of the questionnaire

The questionnaire was distributed online through social media channels, and 80 respondents acted as the sample from the population of over 18-years-old consumers that do their own grocery shopping. The aim of the questionnaire was to gather responses as even amount as possible from different age groups and gender all over Finland. Considering the channels where the questionnaire was distributed it has been taken into account that the responses might not distribute evenly between different groups, for more even distribution different channels should have been used to make it possible for more age groups to answer. The distribution channels of the questionnaire manipulate the sample and lower the validity of the comparison of different variables to some extent, for example, the following of the authors' social media channels consist more of 18-29 years old females which becomes apparent in the results. The authors' followers on social media were the only ones able to access the questionnaire through the profile and this fact has an influence on who can act as a respondent.

3.2.1 Demographics

Most of the responses are represented by the Z- and Millennial generation: 65 % of respondents are 18-29 years old, 25 % 30 – 39 years old and the rest 10 % are over 40 years old. Majority of the participants are females, 75 % and the rest 25 % are males.

Questionnaire was not restricted to Finland therefore 6,25 % of the answers were from abroad.

3.2.2 Ecological thinking

Major part of the respondents are ecologically conscious, 30 % of the participants take into consideration how ecological the product is while making a purchase, 64 % of them consider

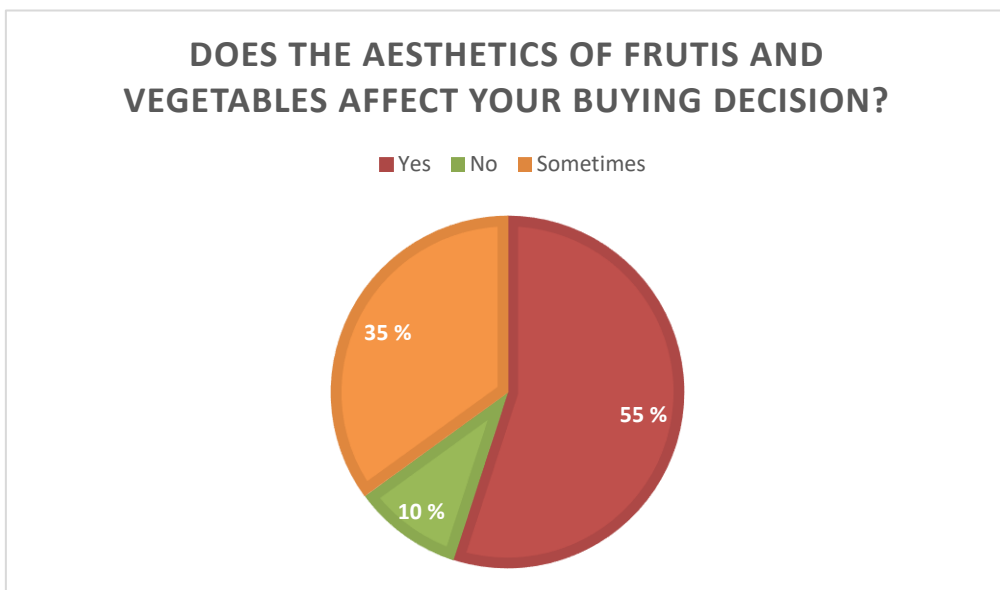
it sometimes and 6 % do not consider how ecological the product is while they are making a purchase. In addition, respondents try to support local food production: 41 % aim to buy locally produced fruits and vegetables if possible and 48% aim to do it sometimes and 11 % do not aim to buy locally produced fruits and vegetables at all.

3.2.3 Food aesthetic standards

The majority of the respondents are aware of the strict aesthetic standards for fruits and vegetables, 83 % know that the standards exist and the rest 18 % are not aware of the existence of the standards. For over half of the respondents, appearance is an important aspect for fruits and vegetables, see Figure 4. For 55 % of respondents, the buying decision is based on the aesthetics of the product, for 35 % it sometimes has an effect and for the minority, 10 %, the appearance does not matter at all. If respondents chose that the appearance of fruits and vegetables does not affect their buying behaviour, they were automatically navigated to the 9th question because 8th question had more in-depth question for respondents who are affected by the aesthetics.

Figure 4

Results of question 7 of the questionnaire: Does the aesthetics of fruits and vegetables affect your buying decision?



The participants who answered yes and sometimes to the 7th question were asked additional questions why the appearance affects their buying decision. They were given readymade options and provided a slot to write their own answers. Question had the possibility to choose multiple options. 72 out of 80 participants answered yes or sometimes to the 7th question. The question 8th gained 95 answers in total due to the possibility of choosing multiple answers. Most responses, 28%, got the option “Aesthetics affect the quality of the product”, in addition, both options “aesthetics affect the shelf life of the product” and “It is a habit” got 24% of the responses each. Least responses, 14%, got “I want to have equivalent value for my money”. Other responses given by the respondents were: “aesthetics does not affect buying decision unless the product seems clearly spoiled”, “preference”, “visible mould or other issues that lead to the product spoiling quicker” and other that similar answers about product having mould or appear to be rotting already in the store.

In the 9th question, an example of an aesthetically divergent product was used to help participants to image a specific item that does not fit the standardised aesthetics. Extremely crooked cucumber was chosen as an example because the shape of cucumber is distinct and easy to comprehend and are mainly used to be seen in the standardised straight form. Out of the respondents 62,5 % would buy an extremely crooked cucumber, 30 % would maybe buy it and 7,5 % would make a purchase. The respondents who replied “yes” to this question were navigated to the 13th question because the questions 10-12 had in-depth questions about the reasons why respondents would not buy a crooked cucumber and suggestions of situations where they would perhaps choose differently.

The respondents who chose the options “sometimes” and “no” to the 9th question (“would you buy an extremely crooked cucumber instead of a standardized straight one?”) were navigated to question 10: “why would you not buy the crooked cucumber?”. The question offered three ready-made options to choose from and a free-to-write space to provide own answers. In addition, respondents were able to choose multiple choices. The question got 32 chosen responses from 30 respondents. Main reason for not purchasing the crooked cucumber was that the odd shape was seen impractical to use. Majority, 59 % of the replies from the respondents got the option “product is inconvenient to use”, “product is lower quality” got 16 % of replies and “product can have worse taste” got 6 %. Other option got 19 % of the replies: “If I need a straight one for specific food like sushi or for dipping”, “If there

is a straight one to choose”, “If the cucumber is considered straight enough by the EU directives, it does not affect the quality or taste of the product”, “preference”, “if there was a straight cucumber I would choose that but if it was lower quality than the crooked one, I would choose the crooked one” and “I might not buy it because it is next to a normalised cucumber on the shelf”. Basically, some respondents questioned why they would choose something that does not fit standards if there is an option to choose a standardised one.

Question 11 contained a suggestive question of a narrative where the respondent might choose the crooked cucumber. Same 30 respondents who answered “sometimes” or “no” to the 9th question were asked to answer this question “Would you buy a crooked cucumber for a cheaper price?”. Willingness to buy a crooked cucumber was shown if the price would be lower. Of the respondents 57 % replied that they would buy it for cheaper a price, 23 % said maybe and 20 % would not buy even for cheaper price. Respondents who replied “no”, were navigated to question 13.

The 24 respondents who chose the answer “yes” or “maybe” in the 11th question were asked to specify why they would buy the crooked cucumber for cheaper a price. Again, the respondents were given three ready written options and provided with a blank space to write their own answers. The question gained 25 replies by the 24 respondents. Most popular reason for choosing the crooked cucumber for cheaper price was the appeal of the discount: Notable majority, 84 %, of the replies got the option “for the offer”. The option “the product is lower quality” got 12 % of the replies and the option “the taste might be worse” did not gain any replies. One person provided their own answer “if there is a straight one to choose from”, meaning why would they choose the crooked one over the straight one.

3.2.4 Food waste

All respondents were automatically navigated to the 13th question regardless of how they answered any earlier questions, and all were asked to answer the remaining three questions. The question 13 asked “How often do you end up throwing food away?”, answers showcased respondents trying to throw less food away than expected. Majority of

respondents would throw food away one to two times per week or less often: 39 % would throw food one to two times per week and 40 % would do it less often than that, 11 % of the respondents would throw food away almost daily and 10 % three to four times per week.

14th question was an open-ended question where respondents were provided with a blank space to answer freely. In this question respondents were asked to name the product which end up wasted the most in their household. Some respondents provided multiple products in their answers. Overall, the question gained 90 different replies of different food products that end up wasted the most and three respondents did not know what to specify in the answer. Most commonly wasted products ended up being fresh fruits and vegetables: Fruits and vegetables got 38 answers, bread 12, leftovers 18, milk and other dairy products 10, other products 10 and non-edible parts of food products 2 answers. In summary 42 % of the products were specified as fruits or vegetables which is notable amount of one specific food group mentioned by respondents which ends up wasted. Taking into account that the questionnaire was fruit and vegetable themed which can create bias through influencing respondents to actively think about them.

The aim of the last question was to find out the willingness of respondents to change their consuming habits specifically if an outer stakeholder would act as an educational source towards ecological and sustainable thinking. The 15th question asked "Would you be interested to change your buying habit towards more environmentally friendly if stores provided more info on food waste?", see Figure 5. Majority, 51%, would be willing to change their habits if an outer source, a store in this case, would provide more information on food waste. 46% of the respondents stated that they already aim to minimize food waste and only 3% said that they would not be willing to change their habits even if more information of food waste would be provided by stores.

Figure 5

Results of question 15 of the questionnaire: Would you be interested to change your buying habits towards more environmentally friendly, if stores provided more info on food waste?



4 Analysis of the results

4.1 Overall analysis of questionnaire

The results of the thesis do not correlate the whole target population based on the fact that responses were overemphasised by specific demographics. These facts have been taken into consideration while analysing the results.

Overall overview of the results indicates that the respondents have an eco-conscious mind-set. As a positive result, the majority of the respondents consider their choices and how ecological the product is while making a buying decision. In addition, they either already aim to minimize food waste or are willing to change their consuming habits towards better practices. Furthermore, this indicates the willingness to make changes on personal practices and receive education from external sources towards more sustainable and eco-friendly actions.

Respondents are more aware of wasting food which is in contradiction with the results of earlier research of households being the biggest causers of food waste. 79 % from the sample group waste food once to twice per week or less often which also hints consumers might be getting more mindful of food waste. To reckon the fact that the questionnaire did not include specifying question of the amount of food thrown away can create a false assumption of respondents wasting less food than expected. Some might throw away as much food or more not so often than those who waste food almost every day but smaller amounts. The most common food item that ends up wasted in respondents' households tend to be fruits or vegetables that seem to have dried up or spoiled. Secondly most wasted specified item is bread and as an undefined category excess food that has gone bad and leftovers from meals also cause large amounts of food waste.

4.1.1 How aesthetics affects buying decision

Majority of the respondents feel like the aesthetics of fruits and vegetables always or sometimes affect their buying decision while shopping. Only 10% of the respondents do not see aesthetics as major a factor that affects their buying habits.

Most common reason for the aesthetics to affect the buying decision is that respondents see the aesthetics as a factor that impacts the quality of the product. Secondary reasons were that the aesthetics have an impact on the shelf life of the product and that choosing a "perfect" looking product is just an imprinted habit maybe learned from parents or by the standards itself. By showcasing a specific range of products that look pleasing to the eye and have the same shape and form, consumers tend to absorb that as a norm and anything differing from that is seen as unpleasant or even possibly dangerous. Against the assumption of the author, respondents did not see the option "I want to have equivalent value for my money" as a major factor as could have been expected. What can be stated for these respondents is that learned habits have more of an impact on consumer behaviour than getting value for money.

Even if the aesthetics of the product affect the buying decision of 90 % of the respondents, 63 % of them would buy an extremely crooked cucumber instead of a standardised straight

one in addition, 30 % would maybe be willing to choose the non-pleasing option. It can be speculated that maybe impacts of the aesthetics depend on the fruit or vegetable in question: other types of products might have different aspects to it when talked about the appearance of them like colour defects or other abnormalities considering the shape. As an example, if an apple has an unidentified skin irregularity, it can be more aversive than just the shape of a cucumber. The main reason for not purchasing the crooked cucumber instead of the standardised one is that the crooked cucumber would be more inconvenient to use. Only a few respondents feel that the crookedness of the cucumber affects the quality or taste. 20 % of the 30 respondents who answered question 11 would still not choose the crooked cucumber even for a cheaper price. Majority of the respondents who would be willing to buy or would consider it for the cheaper price stated that the reason for the decision was the appealing offer and not the fact that the product is of lesser quality than the standardised one and because of that it would deserve a lower price to match the lower quality. The findings were against the assumption of the author, the hypothesis for reasons why respondents would buy was that they would want to have equivalent value for their money, and they would see the product as lesser quality and deserving to have the lower price for this reason.

4.2 Difference between genders

The questionnaire gathered 60 responses from females and 20 responses from males. Comparing the result of females and males is between the “yes” and “no” answers mainly excluding the middle options “sometimes”/“maybe” for showcasing the extreme ends of the results. Mostly there were not that many significant differences especially when considering the inequality on the number of responses received from both genders. Few significances were found, and they will be discussed in the following paragraphs.

There was no significant difference in the buying behaviour towards ecological products, 32 % of females and 30 % of the male respondents take into consideration how ecological the product is when making a buying decision. The assumption was that females would be more considerate about the Eco-friendliness of the product. In contrast, 70 % of the male respondents answered “yes” when asked if the aesthetics of fruits and vegetables affect their buying decision when only 49 % of the females do not recognise the aesthetics of fruits

and vegetables as a factor which affects their decision making. In addition, females are slightly more aware of the existence of the aesthetic standards compared to males.

Only 45 % of males would purchase an extremely crooked cucumber compared to females, 68 % of them would purchase it. This result goes in line with the fact that the aesthetics of fruits and vegetables has a bigger effect on the buying decision of the male respondents. Results considering the effects of the aesthetics are in contradiction with the stereotype of females being seen as the gender to be more gravitated towards aesthetically pleasing items. Also, an influencing aspect can be the stereotype that females might do more of the cooking at home and are not as picky due to the knowledge how to utilise the item even if it is not aesthetically pleasing. Males are less willing to purchase a crooked cucumber even for a cheaper price: only 36 % of the male respondents would buy it and in contrast over half, 58 % of female respondents would make the purchase for a cheaper price. Also, 36 % of males would definitely not buy the crooked cucumber even for the cheaper price when only 5% of the female respondents would decline the offer.

Male respondents tend to waste food a little bit less than the female respondents. From male respondents 85 % would throw away food once to twice per week or less often and from females 77 %. This might be from different reasons; females might get rid of food more often in their households compared to males or females might be more particular about what they eat compared to males. The research does not provide any specific reasonings for the results.

The willingness to change their buying habits if for example, stores would present more information about food waste, divided evenly between genders. Approximately half of the respondents from both groups responded positively to the question. 10 % of male respondents would not be willing to change their habits when none of the female respondents answered “no” to the question when asked if they would be willing to change their buying habits.

4.3 Difference between age groups

The questionnaire collected 52 responses from the age group 18-29, 20 responses from the age group 30-39 and the rest age groups gained 8 answers in total. The respondents over 40 years old were combined due to the lower response rate for higher age groups. Further for the comparison 18–29-year-olds will be referred as Group A, 30–39-year-olds as Group B and over 40-year-olds as Group C. Also, in this comparison the borderline answers were compared to each other, excluding the middle options “sometimes”/”maybe”.

Comparing the tendency to consider the eco friendliness of the product while making a purchase, Group C has less awareness towards it, only 13 % of respondents consider it continuously when shopping. From Group A 33 % and Group B 30 % have the ecological factor on their priority during shopping. All of the three groups are fairly aware of the strict aesthetic standards for fruits and vegetables, 75 % - 90 % of respondents from each group answered “yes” when asked if they knew about the standards.

The older age group tends to be the most supportive towards locally produced products: 63 % of Group C aim to purchase locally produced fruits and vegetables when only 37 % of Group A and 45 % of Group B aim to do the same. This result is in contradiction with the results considering the ecological aspect of products; Group C has the lowest rate on the positive scope while on the question about locally produced products Group C has the highest rate on the positive scope. Locally produced products are in most parts more environmentally friendly than imported fruits and vegetables.

For Group C the aesthetics of the fruits and vegetables has a major effect on the buying decision, 88 % of the respondents see it as an influential factor. Compared to Group A and B where 50 % and 55 % consider aesthetics being a factor that affects their choices. In addition, only 38 % of Group C would buy an extremely crooked cucumber when 75 % from Group B and 62 % from Group A would make the purchase. These results go hand in hand with the result that Group C is more likely to base their buying decision on the aesthetics of the fruits and vegetables. In contrast, 0 % from Group C answered “no” when asked if they would make the purchase for a cheaper price for the crooked cucumber and in Group A, 28 % would still not purchase it even for a lower price.

All age groups waste food fairly evenly, 75-80 % of respondents from each group would waste food once to twice per week or less often. Interest towards changing their consuming habits if more info about food waste would be provided by stores, distributed evenly between Groups A and B: Slightly over half of the respondents were willing to change their habits. From Group C only 37 % would be willing to change their habits but the group also had the highest rate, 63 %, on option “I already aim to minimize food waste”. To summarise, respondents in Group C have people who already aim towards minimising waste but those who do not aim are not open-minded to adapt new habits and change their consuming behaviour.

4.3.1 Conclusion of the results for gender and age groups

Overall, the main difference between females and males was the fact that males put more importance on the aesthetics of fruits and vegetables. Males also were more unwilling to be affected by nudges like providing a crooked cucumber with lower price and were more drastic on their answers in the negative scope. The research does not showcase where these differences might conclude from and why male respondents rank aesthetics high on their decision making when purchasing fruits and vegetables. For future research more evenly distributed responses from both genders would bring more validity to the results and more in-depth questions could be provided to find out reasoning for the differences.

Through the results can be concluded that younger age Groups A and B have a fairly similar mind-set considering ecological consumption and are overall more open-minded to change and adapt to new conditions when provided more information. Even though Group C aims to support locally produced products which can be an outcome of cultural differences between age groups. Although the Group C has the lowest percentage on the willingness to change consuming habits when provided more information about food waste, they were the group with the highest results on already being mindful of food waste.

4.4 Interview

The interview consisted of 5 questions to provide a framework for the interview to flow but also included informal conversation. As the first question farmer x was asked “ What is your own opinion of the overall aesthetic standards for farm products?”. The interviewee feels that sometimes the criteria’s feel unnecessary especially when the needed operations to maintain the standards only affect the exterior of the product and does not have any significant influence on the edibility of it. In some cases, for example the pesticides affect both: the unwanted diseases and the other issues causing the crop to look unpleasant. Meaning, sometimes the measurements needed are not only a question of appearance, but they also contribute to maintain the quality of the product. In addition, in some skin conditions for vegetables, the condition itself does not affect the edibility but it enables other diseases to penetrate the skin more easily and ruin the crop. But on the other hand, for the criteria considering the size and shape of the product, it seems unnecessarily strict especially when the item is still edible. These criteria have been made to basically please the eye of the end customer and make it more appealing for them. As an additional question to the question, one was asked: “would you change something if you could consider the aesthetic standards?”. Farmer x feels that the standards should be re-considered on the parts where they only include the appearance of the crop and maybe it could reduce on-farm losses and stress to overplant in the fear of an externally unappealing crop.

Farmer x was asked about his views on consumers’ willingness to purchase oddly shaped or otherwise unappealing fruits or vegetables. Farmer x replied that he feels that consumers will not purchase products they might see as odd or even hazardous. Most likely the majority of consumers will not be self-imposed and educate themselves so, external sources like farmers and retailers and initially the government should be the one providing the information to consumers. Otherwise, they feel that consumers will continue to follow their habits if no need for change is brought forth. Farmer x verified the authors recommendation for educating consumers more and make them aware that aesthetically unappealing does not mean that the product is inedible and help consumers to understand the impacts these issues cause on different stages of the supply chain.

Lastly farmer x was asked which stakeholder they see as main power holder in the fight against unnecessary food waste and especially considering fruits and vegetables, and reasoning for their answer. Four stakeholders (farmers, consumers, retailers, and regulators) were given to rank from least powerful to most powerful. Farmer x placed farmers at the lowest because they felt that food producers do not have anything to say on the matter, they have to produce what gives them money and fits the expectations and food quality criteria. Farmer x debated between retailers and consumers which one they would rank as third and second: retailers have tools to market and educate consumers but on the other hand consumers have the last say if they will buy the product or not regardless of what information is provided for them. They concluded that consumers are the last ones to make the decision and for that reason would be ranked higher than retailers. First place was clearly regulators and decision makers due to the fact that without changing any rules and regulations it does not matter if the other three stakeholders did start fighting against the standards. Decision makers should also be the ones carrying the responsibility of educating and encouraging consumers to make more sustainably friendly choices.

Interviewee themselves pointed out a fact that the climate is changing and affecting the quality of the crop, in the future there might not be possibilities to produce crops that fit the current standards. It would be better to start familiarising consumers towards not so identical and standardised products when talked about fruits and vegetables. Also, already weather has a huge effect on the quality and appearance of the crop and sometimes extra measures need to be taken during extremely hot summer to prevent aesthetical conditions of crop. This leads to unnecessary use of machinery which could be reduced if there was no need for perfect looking products.

4.4.1 Conclusion of the interview

The interview concluded that from the point of view of the early stages of the supply chain of food farmers and producers have the least power to make any changes and agreeing with earlier research consumers have a lot of power to make a change. In summary, the last stage of the supply chain has almost the most say and they should also take more responsibility to educate themselves. Also, regulators are the ones who should be pressured to make concrete changes and guide consumers towards the right direction. Aesthetic standards

cause unnecessary use of machinery which causes more emissions and extra working hours for farmers.

5 Recommendations towards more sustainable consumption

Firstly, the fight against food waste caused by aesthetic standards should be started by the regulators but in the meantime retailers and especially consumers can lead the way by making changes to the ongoing consuming culture. Clearly every individual can start to educate themselves about sustainable decisions but in the case of the aesthetic standards not that much information can be found on the impacts of them. In addition, some consumers are oblivious to environmental issues which then makes it hard to know where to start educating themselves. This situation is where retailers can come into the picture by using different methods to guide already knowledgeable consumers towards sustainable choices and subconsciously push and educate consumers who are not as aware of sustainable consumption. Nudges can be utilised to encourage wanted behaviour: through positive empowerment like offering the more sustainable product as a cheaper option, in this case the unesthetic and oddly shaped fruits and vegetables could be sold with lesser price per kilogram. Or as another method, sustainable products could be placed in more accessible place; oddly shaped vegetables or fruits could be displayed in the front and standardised products on the back. This enables consumers to support the cause even by accident because the product is easier to pick, and this can start the process of changing habits and expectations. In addition, utilising celebrities, and influencers to advertise and educate their followers considering the issues around the quality standards and how people can change their own buying habits. (TEDx Talks 2019a).

Retailers, stores in particular, could encourage consumers to change their habits to more sustainable ways by utilising the following two steps in their strategies:

1. Selecting which behaviour should be changed: in this case changing the buying behaviour and attitudes of consumers considering oddly shaped fruits and vegetables and educating them on the matter. Consumer expectations of standardised aesthetics could be changed through education of the harms and impacts the

aesthetic standards have. Or consumers could be encouraged to make sustainable choices through mentioned nudges.

2. Identifying barriers and benefits: benefits of the change could be less food waste overall and less deficit products for stores. In addition, the burden on farmers to overplant could reduce and also could the negative impacts on the environment. Direct benefits for consumers could be cheaper products which lead to saving money and a positive feeling of doing a good deed. As a barrier, people could feel that their input will most likely not have an impact in the bigger picture or the mindset of “someone else will make the effort to fix the issue”. Or plainly people do not recognise the existence of the issue and are oblivious to it. (TEDx Talks, 2016).

Through repetitions and subconscious influence consumer's buying habits can be impacted on some levels. Earlier studies show that in some cases influencing might not have a direct impact but based on this research that after repetition of influencing consumers over and over again to a certain situation, it can mould habits. Most respondents of the questionnaire were open-minded to change their own buying habits if stores provided more information on food waste and would be even more transparent about it. In summary, exposing consumers to aesthetically unpleasing fruits and vegetables and supplying additional information about them, can make it more “normal”, and aesthetic expectations of consumers might change.

With these steps retailers could influence their customers' buying habits and help changing their attitudes away from the standardised and aesthetic view that they are most likely stuck on.

6 Conclusion

The aim of this thesis was to find out how vastly consumers contribute to the food waste caused by aesthetic standards of fruits and vegetables and to find recommendations to ongoing issues around the standards. In addition to these, the research presented the contribution to food waste of different stakeholders and their practices towards preventing

it. The matters surrounding food waste will be relevant in the future until the impacts have been minimized through the whole supply chain of food, especially impacts caused by consumers. Decision makers have started movements towards a more sustainable world by placing the 12 sustainable development goals and concrete plans to reach them but more needs to be done.

Overall food is wasted unnecessary amounts due overproducing and -buying which has been caused by different factors like laws and regulations from governments and retailers, consumer expectations and consuming culture, fear of variety factors affecting the quality of crops. It is clear that all stakeholders: governments, farmers, manufacturers, retailers, and the end customer, have their input on the amount of food waste produced, in brief they all have the possibility and responsibility to prevent it. Many aesthetic standards cause unnecessary food waste through the whole supply chain but not all quality standards are there for aesthetical reasons only. Some standards prevent unnecessary waste by preventing diseases ruining the harvest throughout the supply chain. When viewed the effects of consumers, the reasons leading to the impacts are clear: their preferences towards aesthetical items and following learned habits and behaviour. In addition, the power consumers have on influencing the assortments provided by retailers is major, in summary, retailers will not offer products that do not fit the expectations of consumers.

The thesis included the theoretical research of overall issues around food waste and the aesthetic standards and additionally, psychological factors affecting the decision making of consumers. The research answered the research question: In what extent do consuming habits contribute to the food waste created by food aesthetic standards for fruits and vegetables and how to minimise the impact? Theory, questionnaire, and the interview showcased the fact that consumers have a major impact on the food waste caused by aesthetic standards. The questionnaire showed that the majority of the respondents have similar views of sustainability and supporting ecological products. On the other hand, the majority also stated that considering fruits and vegetables, their consuming habits tend to align with the aesthetic standards. Main reason for preferring the standardised fruits or vegetables over divergent ones was due to the impression of the aesthetics affecting the quality of the product. This case might be true in a situation where the fruit or vegetable shows signs of rotting or moulding which lead to the questionnaire to include an example

product with unusual shape: extremely crooked cucumber. Only a minority of respondents would not be willing to purchase an extremely crooked cucumber over a standardised straight one. Respondents also are driven by habits and learned behaviour to navigate towards aesthetically pleasing items even if the appearance did not have any impact on the quality or edibility of the product. In addition, the questionnaire showed that fruits and vegetables tend to be the most wasted food items of households. Based on the questionnaire it can be stated that most of the respondents are already open minded towards supporting environmentally friendly options and are willing to receive information from external sources like stores. Respondents are aware of the aesthetic standards for fruits and vegetables but might not realise the negative effects standards cause. In this situation the assistance from external stakeholders could be effective.

The recommendations the author would suggest based on the research would be, for the external stakeholders like retailers, to use different types of nudges to subconsciously influence consuming habits. Providing information about food waste and aesthetic standards plus guiding consumers towards sustainable choices through nudges could be effective and it does not create a negative atmosphere around the matter. In contrary, creating rules and restrictions to push consumers forcefully towards sustainability can create resistance and lead to the opposite outcome. Nevertheless, regulators should revise regulations and laws that drive consumers towards wasteful consumption like the expectations created by the aesthetic standards for fruits and vegetables. Decision makers have already created goals towards a less wasteful future so why not consider the issues caused by the aesthetic standards, why not tackle every unnecessary causer of food waste. Most importantly, consumers themselves should realise the power they hold in their buying decisions. By choosing the crooked cucumber, the less red apple, the deformed sweet potato, can make a statement to retailers that the looks are not the most important factor of fruits and vegetables, and the expectations are growing out of the need for everything to be aesthetically pleasing.

References

Arno A. & Thomas S. (2016). The efficacy of nudge theory strategies in influencing adult dietary behaviour: a systematic review and meta-analysis. *BMC Public health* 16, 676.

Retrieved 9th of October 2021 from <https://doi.org/10.1186/s12889-016-3272-x>

Casas M. & Chinoperekweyi J. (2019). Color Psychology and Its Influence on Consumer Buying behaviour: A Case of Apparel Products. *Saudi Journal of Business and Management Studies*, 4(5), 441-456. Retrieved 1st of May 2021 from

https://www.researchgate.net/publication/333804804_Color_Psychology_and_Its_Influence_on_Consumer_Buying_Behavior_A_Case_of_Apparel_Products

Davies M. & Hughes N. (2014) *Doing a successful research project: Using qualitative or quantitative methods*. Red Globe Press. Retrieved 21st October 2021 from

https://books.google.fi/books?hl=fi&lr=&id=0T4dBQAAQBAJ&oi=fnd&pg=PR9&dq=qualitative+and+quantitative+methods&ots=M0PTbQXcog&sig=1ujl75Y5fYx2KvnxcgEShSqdupk&redir_esc=y#v=onepage&q=qualitative%20and%20quantitative%20methods&f=false

European Commission (n.d.a). EU actions against food waste. Retrieved 3rd April 2021 from

<http://www.fao.org/food-loss-and-food-waste/flw-data>)

European Commission (n.d.b). International Day of Awareness of Food Loss and Waste,

Retrieved 1st of October 2021 from https://ec.europa.eu/food/safety/food-waste/international-day-awareness-food-loss-and-waste_en

Food and Agriculture Organization of the United Nations (FAO) (2021). Food Loss and Food

Waste. Retrieved 3rd April 2021 from <http://www.fao.org/food-loss-and-food-waste/flw-data>)

Food and Agriculture Organization of the United Nations (FAO) (2018). Beauty (and taste!) are on the inside. Retrieved 3rd April 2021 from

<http://www.fao.org/food-loss-and-food-waste/flw-data>)

FoodPrint (n.d.) The Problem of Food Waste. Retrieved 10th of October 2021 from <https://foodprint.org/issues/the-problem-of-food-waste/>

Grunert K. (2011). Sustainability in Food Sector: A Consumer Behaviour Perspective. *International Journal on Food System Dynamics*, 2(3), 207-218. Retrieved 1st of May 2021 from [\(PDF\) Sustainability in the Food Sector: A Consumer Behaviour Perspective \(researchgate.net\)](#)

Jackson T. (2005). Motivating Sustainable Consumption. Retrieved 1st of May 2021 from [\(PDF\) Motivating Sustainable Consumption \(researchgate.net\)](#)

Jackson T. & Michaelis L. (2003). Policies for Sustainable Consumption. Retrieved 10th of April 2021 from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.322.6476&rep=rep1&type=pdf>

Jansson-Boyd C. (2010) *Consumer Psychology*, Berkshire: McGraw-Hill Education. Retrieved 7th April 2021 from <https://ebookcentral-proquest-com.ezproxy.hamk.fi/lib/hamk-ebooks/reader.action?docID=771418>

Jülicher S. (2019). Recommendations for Action in Food Waste Prevention. Retrieved 3rd April 2021 from https://ec.europa.eu/food/sites/food/files/safety/docs/fs_eu-actions_action_platform_key-recs_en.pdf

Kesko (2018) OVER 40 K-FOOD STORES ALREADY USE THE RESQ CLUB APP TO REDUCE FOOD WASTE. Retrieved 1st of October 2021 from <https://www.kesko.fi/en/media/news-and-releases/news/2018/over-40-k-food-stores-already-use-the-resq-club-app-to-reduce-food-waste>

OECD (2008). *Cucumbers*, International Standards for Fruits and Vegetables, Paris: OECD Publishing. Retrieved 6th April 2021 from <https://doi.org/10.1787/9789264045262-en-fr>

OECD (2017), Tackling Environmental Problems with the Help of Behavioural Insights, OECD Publishing, Paris, <https://doi.org/10.1787/9789264273887-en>.

OECD (2021). *Apples*, International Standards for Fruits and Vegetables, Paris: OECD Publishing. Retrieved 6th April 2021 from https://www.oecd-ilibrary.org/agriculture-and-food/apples_12ebba9f-en-fr

Ramya N. & Ali M. (2016). Factors affecting consumer buying behavior. *International Journal of Applied Research*, 2(10), 76-80: ResearchGate. Retrieved 1st May 2021 from [\(PDF\) Factors affecting consumer buying behavior \(researchgate.net\)](#)

Roels K. & Van Gijsegem D. (2017). *The impact of cosmetic quality standards on food losses in the Flemish fruit and vegetable sector*; summary report, Department of Agriculture and Fisheries, Brussels. Retrieved 3rd March 2021 from <https://www.voedselverlies.be/sites/default/files/atoms/files/Impact%20of%20cosmetic%20standards%20on%20food%20losses.pdf>

Ruokavirasto (2019). Kasvisten merkintävaatimukset. Retrieved 4th April 2021 from <https://www.ruokavirasto.fi/yriykykset/elintarvikeala/valmistus/elintarvikeryhmat/kasvikset/tuoreet-hedelmat-ja-vihannekset/kasvisten-merkintavaatimukset/>

Saa Syödä! (n.d.). Ruokahävikki Suomessa. Retrieved 2nd of October 2021 from <https://www.saasyoda.fi/ruokah%C3%A4vikki-suomessa>

Sharma M. (2014). The Impact on Consumer Buying Behaviour: Cognitive Dissonance. *Global Journal of Finance and Management*, 6(9), 833-840. Retrieved 1st of May 2021 from [gjfmv6n9_05.pdf \(ripublication.com\)](#)

Stenmarck Å., Jensen C., Quested T., Moates G. (2016). FUSIONS: Estimates of European food waste levels. Retrieved 3rd April 2021 from <http://www.eu-fusions.org/phocadownload/Publications/Estimates%20of%20European%20food%20waste%20levels.pdf>

TEDx Talks (2016). How to Change Behavior to Ensure A Sustainable Future | Donna Walden | TEDxCarsonCity [video: YouTube]. Retrieved 10th of April 2021 from <https://www.youtube.com/watch?v=PFCzLOts85Y>

TEDx Talks (2019a). Empowering sustainable behaviour | Madeleine Genzsch | TEDxMannheim [video: YouTube]. Retrieved 10th of April 2021 from <https://www.youtube.com/watch?v=aoEh1Dg2vJA>

TEDx Talks (2019b). Future of Food – Feeding the World in a Sustainable Way | Chiara Cecchini | TEDxKlagenfurt [video: YouTube]. Retrieved 10th of April 2021 from <https://www.youtube.com/watch?v=OraJ7pAYwew>

Tesco (n.d.) Working with suppliers. Retrieved 1st of October 2021 from <https://www.tescopl.com/sustainability/product/food-waste/suppliers/>

United Nations (UN) (n.d.a). 2 Zero Hunger: Targets and Indicators. Retrieved 3rd April 2021 from <https://sdgs.un.org/goals/goal2>

United Nations (UN) (n.d.b). 13 Climate Action: Targets and Indicators. Retrieved 3rd April 2021 from <https://sdgs.un.org/goals/goal13>

United Nations (UN) (n.d.c). 12 Responsible Consumption and Production: Targets and Indicators. Retrieved 3rd April 2021 from <https://sdgs.un.org/goals/goal13>

World Food Programme (WFP) (2020). 5 facts about food waste and hunger. Retrieved 27th of August 2021 from <https://www.wfp.org/stories/5-facts-about-food-waste-and-hunger>

Figure 1: OECD (2021) 47: Slight skin defects due to scab (*Venturia inaequalis*) not exceeding 0.25 cm² , p. 94. OECD Publishing, Paris. https://www.oecd-ilibrary.org/agriculture-and-food/apples_12ebba9f-en-fr

Figure 2: OECD (2021) Size requirements for “Extra” class and Class I and II apples packed in rows and layers, p. 19. OECD Publishing, Paris. https://www.oecd-ilibrary.org/agriculture-and-food/apples_12ebba9f-en-fr

Figure 3: OECD (2021) Size requirements for Class I apples ready packed, p. 19. OECD Publishing, Paris. https://www.oecd-ilibrary.org/agriculture-and-food/apples_12ebba9f-en-fr

Figure 4: Chart of results from the questionnaire, question 7

Figure 5: Chart of the results from the questionnaire, question 15

Appendix 1: The questionnaire

Kulutuskäyttäytyminen ja ruokahävikki / Consuming behaviour and food waste

Kyselyyn vastaaminen on anonyymiä.

Tämä kysely toimii osana opinnäytetyötä. Kyselyn tarkoituksena on kartoittaa kulutuskäyttäytymistä koskien ruokahävikkiä ja tarkemmin hävikkiä, joka on aiheutunut ”epämuodostuneista” vihanneksista/hedelmistä.

Kiitos vastauksestasi!

Answers are anonymous.

This questionnaire is part of a thesis. The aim of the questionnaire is to map out consuming behaviour regarding food waste and more specifically waste caused by oddly shaped fruits and vegetables.

Thank you for answering!

1. Ikä / Age

- 18–29
- 30–39
- 40–49
- 50–59
- 60–69
- 70+

2. Sukupuoli / Gender

- Nainen / Female
- Mies / Male
- Muu / Other
- En halua vastata / Don't want to answer

3. Paikkakunta / City

- (Open)

4. Otatko huomioon tuotteiden ympäristöystävällisyyden ostoksia tehdessä? / Do you take into consideration how ecological the product is while making a purchase?

- Kyllä / Yes
- En / No

- Joskus / Sometimes
5. Pyritkö ostamaan paikallisesti tuotettuja vihanneksia/hedelmiä? / Do you aim to buy locally produced fruits and vegetables?
- Kyllä / Yes
 - En / No
 - Joskus / Sometimes
6. Tiesitkö että hedelmien ja vihannesten tulee täyttää tarkat ulkonäkökriteerit ennen kuin ne päätyvät kauppaan? / Did you know that fruits and vegetables need to pass through strict aesthetic standards before ending in stores?
- Kyllä / Yes
 - En / No
7. Vaikuttaako hedelmien/vihannesten ulkonäkö ostopäätökseesi? / Does the aesthetics of fruits and vegetables affect your buying decision?
- Kyllä / Yes
 - En / No
 - Joskus / Sometimes
8. Miksi tuotteen ulkonäkö vaikuttaa ostopäätökseesi? / Why does the aesthetics affect your buying decision?
- Haluan rahalleni täyden vastineen / I want to have equivalent value for my money
 - Ulkonäkö vaikuttaa tuotteen laatuun / Aesthetics affect the quality of the product
 - Ulkonäöllä on vaikutusta tuotteen säilyvyyteen / Aesthetics affect the shelf life of the product
 - Haluan saada täyden vastineen rahalleni / I want to have equivalent value for my money
 - (Open option)
9. Ostaisitko esimerkiksi todella käyrän kurkun standardoitun suoran kurkun sijaan? / As an example, would you buy an extremely crooked cucumber instead of a standardized straight one?
- Kyllä / Yes
 - Ei / No

- Ehkä / Maybe

10. Miksi et ostaisi käyrää kurkkua? / Why would you not buy the crooked cucumber?

- Tuote on huonompi laatuinen / Product is lower quality
- Tuote on epäkäytännöllinen käyttää / Product is impractical to use
- Tuotteen maku voi olla huonompi / Product can have worse taste
- (Open option)

11. Ostaisitko käyrän kurkun edullisemmalla kilohinnalla? / Would you buy a crooked cucumber for cheaper price?

- Kyllä / Yes
- En / No
- Ehkä / Maybe

12. Miksi edullisempaan kilohintaan? / Why for cheaper price?

- Tuote on huonompi laatuinen / Product is lower quality
- Tuotteen maku voi olla huonompi / Product might taste worse
- Tarjouksen takia / For the offer
- (Open option)

13. Kuinka usein joudut heittämään ruokaa roskeen? / How often do you end up throwing food away?

- Lähes päivittäin / Almost daily
- 3-4 kertaa viikossa / 3-4 times per week
- 1-2 kertaa viikossa / 1-2 times per week
- Harvemmin / Not so often

14. Mitä ruokatuotetta päätyy eniten roskeen taloudessasi? / Which food product ends up wasted the most in your household?

- (Open)

15. Olisitko kiinnostunut muuttamaan ostokäyttämistäsi ympäristöystävällisemmäksi, jos kaupat tarjoaisivat enemmän informaatiota ruokahävikistä? / Would you be interested to change your buying habits towards more environmentally friendly if stores provided more info on food waste?

- Kyllä / Yes
- En / No
- Pysin jo vähentämään ruokahävikkiä / I already aim to minimize food waste

Appendix 2: Interview questions

1. What is your opinion on the current aesthetical standards for crop?
2. How would you change the standards if you could?
3. What is your view on the willingness of consumers to purchase oddly shaped fruits and vegetables?
4. How would you rank the following stakeholders from least power to most power when thought about the fight against food waste caused by the aesthetic standards? (Farmers, consumers, governments, retailers).
5. Are there any other aspects that could cause issues when following the aesthetic criteria?

Appendix 3: List of the colour groups for apples



Normes internationales pour les fruits et légumes : Pommes

Variety	Mutant	Synonyms	Trademarks	Colour group	Additional specifications
Variété	Mutant	Synonymes	Marques commerciales	Groupe de coloration	Autres caractéristiques
African Red			African Carmine™	B	
Akane		Tohoku 3, Primerouge		B	
Alkmene		Early Windsor		C	
Alwa				B	
Amasya				B	
Ambrosia			Ambrosia®	B	
Annurca				B	
Ariane			Les Naturianes®	B	
Arllet		Swiss Gourmet		B	R
AW 106			Sapora®	C	
Belgica				B	
Belle de Boskoop		Schone van Boskoop, Goudreinette		D	R
	Boskoop rouge	Red Boskoop, Roter Boskoop, Rode Boskoop		B	R
	Boskoop Valastrid			B	R
Berlepsch		Freiherr von Berlepsch		C	
	Berlepsch rouge	Red Berlepsch, Roter Berlepsch		B	
Bonita				A	
Braeburn				B	



International Standards for Fruit and Vegetables: Apples



Variety	Mutant	Synonyms	Trademarks	Colour group	Additional specifications
Variété	Mutant	Synonymes	Marques commerciales	Groupe de coloration	Autres caractéristiques
	Hidala		Hillwell®	A	
	Joburn		Aurora™, Red Braeburn™, Southern Rose™	A	
	Lochbuie Red Braeburn			A	
	Mahana Red Braeburn		Redfield®	A	
	Mariri Red		Eve™, Aporo®	A	
	Royal Braeburn			A	
Bramley's Seedling		Bramley, Triomphe de Kiel		D	
Cardinal				B	
Caudle			Cameo®, Camela®	B	
	Cauflight		Cameo®, Camela®	A	
CIV323			Isaaq®	B	
CIVG198			Modi®	A	
Civni			Rubens®	B	
Collina				C	
Coop 38			Goldrush®, Delisdor®	D	R
Coop 39			Crimson Crisp®	A	
Coop 43			Juliet®	B	
Coromandel Red		Corodel		A	
Cortland				B	
Cox's Orange Pippin		Cox orange, Cox's O. P.		C	R
Cripps Pink			Pink Lady®, Flavor Rose®	C	
	Lady in Red		Pink Lady®	B	

