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The Environmental Awareness and Attitude towards Meat Consumption in Finland.

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ABSTRACT (font size 14)

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The aim of this study is to identify the environmental awareness based on consumer behavior, the meat consumption level in Finland and the attitude toward meat consumption based on current consumption and willingness to change dietary habits. The problem statement relies on understanding environmental awareness, meat consumption and factors influence consumption choice presented as three hypotheses. In order to comply that with the objective, an empirical study was built, which collected attitudes from 237 participants (n=237) through quantitative methodology.

Environmental awareness in general is measured based on psychological factors and consumption behavior. The concern towards environment is developed by categorized green groups consumers, and pathway escalated from awareness to intentional behavior. The results from the survey show that consumers in Finland has a relatively high concern about the environment and take actions to fight climate change.

Meat consumption, on the other hand, appear to have little connection to high environmental awareness. Finland has managed well in meat production, but the consumption level still exceeds the country's expectation. Efforts have been made to minimize the impacts as well as catching up with consumption challenges. From the empirical point of view, it is still too soon for consumers to give up on meat.

Yet, consumers show willingness to reduce/ avoid a high level of consumption for the benefit of the environment. Based on the factors that influence consumption, especially food choice in this study, the empirical study succeeds in concluding that consumers in Finland have high regards for societal values besides psychological needs.

Keywords environmental awareness, meat consumption, consumer behavior, consumerism, Finland

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1 INTRODUCTION

The growing demand for meat products is unsustainable. According to statistics, from 1961 to 2014, meat production all over the world has increased by 4-5 times during the period (Our World in Data) and yet no sign of a downtrend. Finland as a developed country is a leader of lifestyle and consumption trends. Meat consumption, in its close relation to environmental awareness, is one of the trends and challenges in focus of consumer insight. Consumption choice belongs to one individual and the references change continuously. How to define or identify the environmental concern of one consumer and if the awareness would lead to intentional behavior are the key elements for understanding consumer behavior in food sector. More specifically, the study of environmental awareness and attitude towards meat consumption in Finland will let the industry foresee the consumption trends to adjust the corporation strategy, at the same time know how to influence the consumption motivation in order to achieve the meat reduction objective.

1.1 Background of the research

At the start of 2018, climate change and environmental issues attracted more and more public attention. Media and newspapers found their way to reach out the audience and called it a crisis or emergency situation. In 2019, climate strikes and campaign fired up in big cities, climate activist and environmentalist have ground for their action. As a matter of fact, meat consumption is a part of the debate.

Amidst the confusion coming from both the source and the audience, meat production companies stand in the middle of the battle. Critics and scholars have put consumption habits and food culture to the attention as “lowering meat consumption will be absolutely essential”. This line of future uncertainty turns up the research in terms of consumer attitude-behavioral intention to support the product development and industrial sustainability for meat production and consumption trends. The study and research will be performed in Vaasa, Finland and targeted at the Finnish market (Robert, 2009: 209).

The research design at the beginning stage of the study requires the description of research objective and research questions. The concept of ‘what’ and ‘why’ addresses the objective of what to be achieved (research objective) and what knowledge to be produced (research

questions). The questions of the research generate ideas based on the theory that has not been measured or directly seen (Tobi, H.; Kampen, J. K., 2018).

1.2 Objective and research questions

The objective of this thesis is to study the concern about environmental issues in Finland and the attitude towards meat consumption to relate intentional behavior. Consumer insight of dietary, awareness and willingness to change will benefit the meat industry at large as well as market to adapt a better solution and investment in products and marketing activities.

Companies and consumers alike are in continuous interaction with the environment. Market research and management help the company understand internal and external forces laid on their product at a certain period; moreover, marketers sometimes understand their customers behavior and intentions better than the customers understand themselves based on the data achieved from the research. Nevertheless, as influential factors change, customer behaviors also change. The study of consumer behavior would greatly support to foresee the phenomenon (Evert G., 2008).

The study includes secondary data and primary data. Secondary data is broken down into three parts which are **(1) environmental awareness of consumer in Finland; (2) meat consumption and production in Finland; and (3) factors influence consumption choice.**

Primary data will be collected by design quantitative research. Theories from secondary data is to explain the related concepts and link idea of how environmental awareness may or may not have impact on meat consumer behavior. Research target group will be people living in Vaasa, Finland; categorized into age, gender and dietary. The problem will be presented as statements and answered in attitude scales (Evert G., 2008).

The result will be studied to confirm the primary hypotheses as follow;

Hypothesis 1: Consumers are aware of the environmental impact of meat production/ consumption.

Hypothesis 2: Environmental awareness has a positive relation to meat consumption.

Hypothesis 3: Consumers are willing to reduce/ avoid high level of meat consumption.

Following each hypothesis will be statements as **Null hypothesis (H_0)**. Expected size of research sample is 300 (n=300) personnel, living or working in Finland.

Although the structure of the thesis is based on a scientific method, it contains certain limitations. First, the limitation in analytical skills of the researcher will prevent the fullest exploitation of the data set and mathematic calculation. Secondly, the study is expected to respond to the Finnish market situation; however, as the research would not be able to reach out evenly to the whole country, the results will be more effective in the research region and population area (VAMK, Vaasa). Last but not least, time-constraint and limited resources are also significant.

1.3 Research methodology

Academic research acknowledges two main research methods **quantitative research** and **qualitative research**. Qualitative research uses the descriptive data to approach assumes that considered difficult and subjective. Meanwhile, quantitative research generates a more objective way of study things by collecting numerical data and researcher use mathematical and statistical treatment to evaluate the results. Researchers sometimes choose to combine both qualitative and quantitative method into the study when there is a need for more perspectives (White, B. 2000).

This research is designed by **quantitative method** only. The **reason** for this choice is that the attitude concerning basic consumption as meat should be observed from a large-scale population. Environmental awareness observed from the sub-population will generate an objective result. Meat consumption is of business to consumer, for this reason the more opinions collected the more reliable results yield.

1.4 Limitation of the research

The research faces certain limitations when it comes to reliability. First, the target group of the consumer's behavior is people living in Finland, a sample of 2% of the research population is sufficient, yet unobtainable. For that reason, the research is conducted within a short time frame at an institution, the expected sample would be students and staffs at Vaasa University of Applied Sciences. The structure of the study follows the

instruction of academic materials and the supervisor's recommendation and the uses the theory from the research gates.

1.5 Thesis structure

The objective of this thesis is to identify the influence of environmental awareness on meat consumption behavior of Finnish citizens, the connection between the awareness sphere to the future consumption. **Figure 1** indicates the structure of the research;

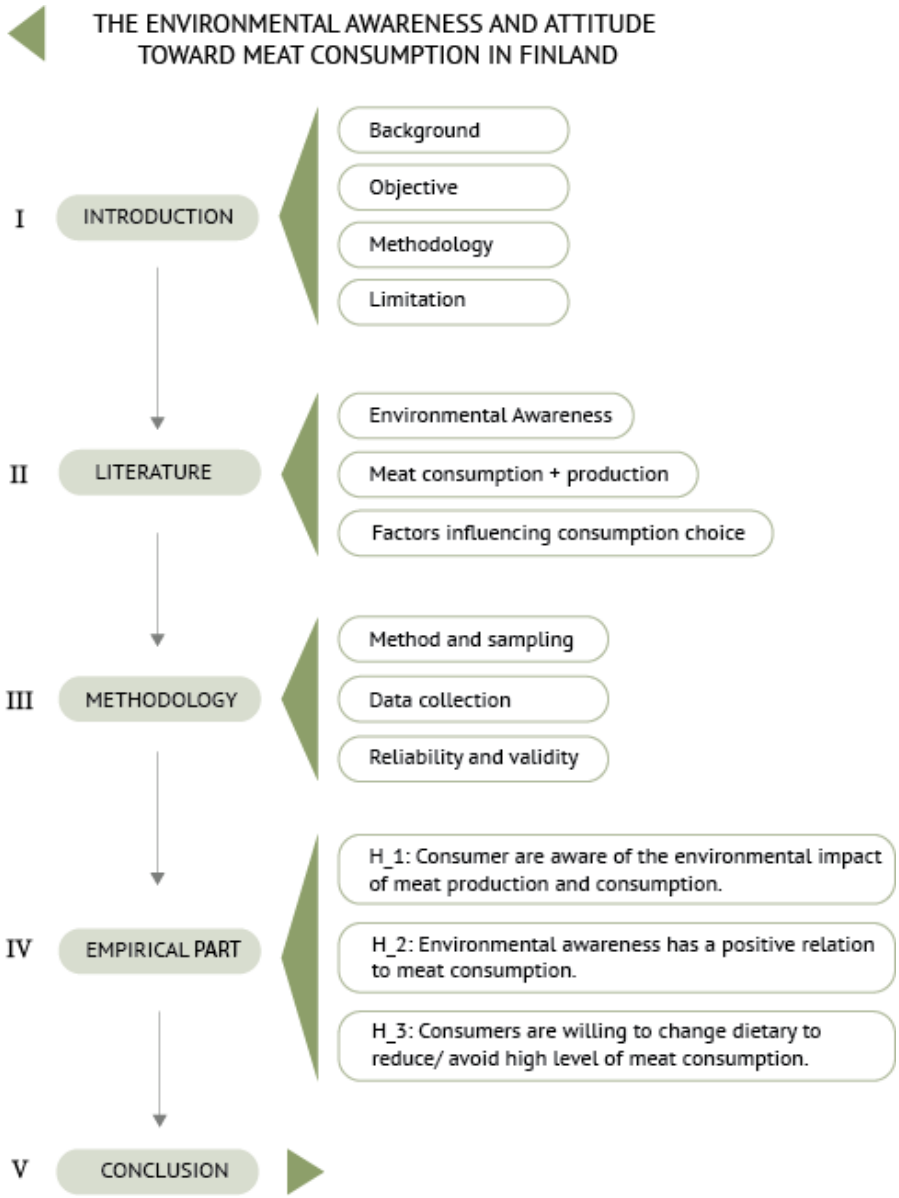


Figure 12: Thesis Structure.

The thesis introduction contains research background and the researcher's interest in the subject, discussed primarily in this section and giving the audience a general objective

and limitation of the thesis. The literature review is the next stage of the thesis uses the research questions as input to determine the main concepts and theories. Environmental awareness; customer behavior in marketing and corporate movements listed as three categories of understanding. Research methodology uses research objective, the study is designed using quantitative research. More specifically, a questionnaire survey will be delivered to the audience living in Finland. Empirical - Research findings consist of data collected from the semi-structured questionnaire, used in this stage for analyzing and answer to the propose hypotheses. The conclusion as the final step is dedicated for a general conclusion, theoretical contribution, managerial implication.

2 LITERATURE REVIEW

Theory or literature used in an academic research paper is called secondary data. Secondary data provides knowledge that is not obtained by the author or "the analysis of data gathered by someone else". Secondary data is collected and used in both qualitative and quantitative method, the researcher saves a great deal of effort and time by applying the understanding from previous literature and related concepts to optimize their findings. Secondary data is not designed to answer the research problems, but to offer a dataset for the primary research (Martins, F. S.; Carneiro de Cunha, J. A.; Serra, R.; Antonio, F.; 2018; Boslaugh, 2007: IX).

In this research, the author explains the concept of environmental awareness and how the term effects consumer behavior. The current state of meat consumption and production in the Finnish market will be studied next and an example of how the meat industry respond to the changes caused by environmental concern. Finally, the researcher examines the possible concept that influence consumption choice in behavioral study.

2.1 Environmental Awareness

Before defining the term 'environmental awareness', it is important to understand that there is no generally accepted definition or clearly defined terminology. The term can be interpreted differently to environmental awareness; environment concern; environmental consciousness etc. Human behavior plays a part of the spectrum and constructs the system of value and belief toward this social awareness section.

2.1.1 Environmental awareness as an attitude

Environmental awareness as an attitude, defined by Gagnon Thompson and Barton, divert in two dimensions of motive: eco-centric individuals and anthropocentric individuals. The first group believes in the nature's intrinsic value and protect it for its own sake. The latter group value the quality of human life and the nature protection will benefit that aspect. Either way, the awareness may develop the pro-environmental behavior of human, which possibly turn them to a green consumer (Thompson, G., Barton, 1994).

In other literatures, environmental awareness is defined as the understanding and recognition of the costs and benefits associated with environmental issues, in the

relationship between human beings and the environment. In corporate management, the terminology contributes to the implementation of management strategy and environmental performance which can be accessed and shared through the digital platforms (Gadenne, Kennedy, & Mckeiver, 2009; Sakr, Sherif, & El-Hagger, 2010; Qu, Liu; Nayak & Li, 2015).

2.1.2 Environmental awareness as groups of consumers

Customers who are classified as environmentally aware groups developed a new pattern of consuming behavior, which is actively or passively concerned about the effect of food choices, eating habits, food consumption and its harmful effect on climate change, biodiversity, the use of oil, water, land, etc. Despite the concern, meat eating remains acceptable to customer perception just as it is natural and necessary. One study has categorized this trait of behavior as;

1) Environmental activists: people who focus on health and sustainability, determine in changing lifestyle and consumption level.
2) Organic eater: people who adopt green lifestyle out of concern for their health, not the planet.
3) Economizers: people who seek to save money from buying eco-friendly products. (Brooks, S., 2009)

Yet another study profiled them as green consumer accordingly;

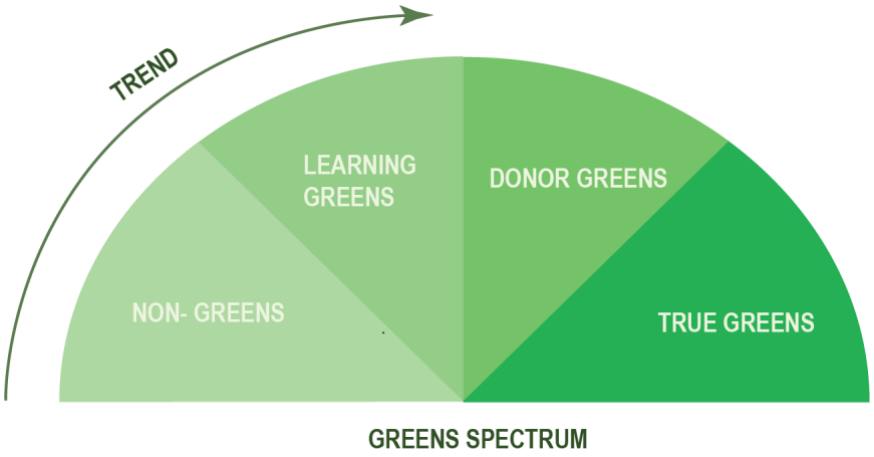


Figure 13 Green spectrum of green customers (Tara M. M., 2011).

1) True Greens: customers who are not only adopting the environmentally friendly behavior but are actively creating an impact on the society around them.
2) Donor Greens: customers who contain guilt behavior about their consumption and moderately concern about the environment.
3) Learning Greens: customers who are on the debate of information about environmental issues. They would not exchange behavior but rather contribute on a small convenient form of action.
4) Non-Greens: customers who neither engage in environmental issues nor feel guilty about their consumption pattern. They acknowledge information but refuse to bear any responsibility for the matter (Tara M. M., 2011).

These identification and classification created a spectrum of green customers which on one end is the darkest greens and the other is the lightest greens (**Figure 2**). Darkest greens on the spectrum stand for the group of consumer who are willing to dedicate their money and effort in saving the environment or reduce global warming; on the contrary, lightest greens customers are those more concerned about monetary issues and living issues rather than saving the planet (Schiffman, L. et al., 2015).

2.1.3 Awareness constructed in the tri-component attitude model

Researches about environment awareness and its influential factors on behavior sometimes face the problem of misunderstanding between the respondent and the researcher regarding the concept. The measurement of human awareness was attached into their calculation of behavior base on intrinsic and extrinsic value. In a study of

environmental awareness in 1994, Dembkowski and Hammer-Lloyd proved that it is a multidimensional concept whose components are cognitive, effective and conative. Each component has a role in how humans behave.

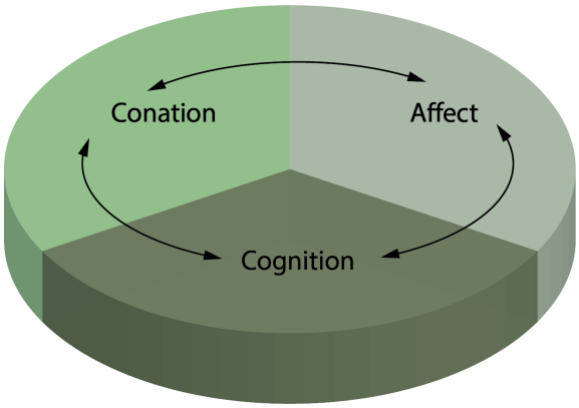


Figure 14 Tri-component attitude model (Dembkowski and Hammer-Lloyd).

The cognitive component contains our primary opinion of someone or something. As such, knowledge and memory processes are dominant, and education is the strongest foundation of this section. In market research, this variable influence customer decision-making process in purchasing and evaluating products or services (Finisterra do Paco and Raposo, 2008; Makower and Pike, 2009).

Feelings or emotions are denoted in the effective component. It is expressed as simply good – bad, positive – negative, to love – not to love etc. (Kesic, 1999). Pro-environmental behavior, which lead the customer to become green consumer, is consistently contributed by effective component; according to studies of Chan and Lau (2000), Fraj and Martinez (2007), Maloney and Ward (1973)

The first two components direct to an intention to act in a certain way – conative component. Behavioral intention or the willingness to act of the customer show the probability of a future's action which many marketer and company invest to foresee it. Although situational and specific variables sometimes jolt the prediction of conative variable, purchasing intention can still be measured by normative value, ascription of responsibility and locus of control (Cottrell, 2003).

2.1.4 From consumer awareness to consumption behaviors

Cognitive learning is the systematic evaluation of information and alternatives needed to solve a recognized but unfilled need or unsolved problem (Schiffman, L., G. and Wisenblit, J., L., 2015, 165). Cognitive learning, considered in this context, explains the important pathway ranging from customer awareness to behavioral. Attitude change in the direction of cognitive content rehearsed during a persuasion situation or environment (Greenwald, A., G.; 1968, 147).

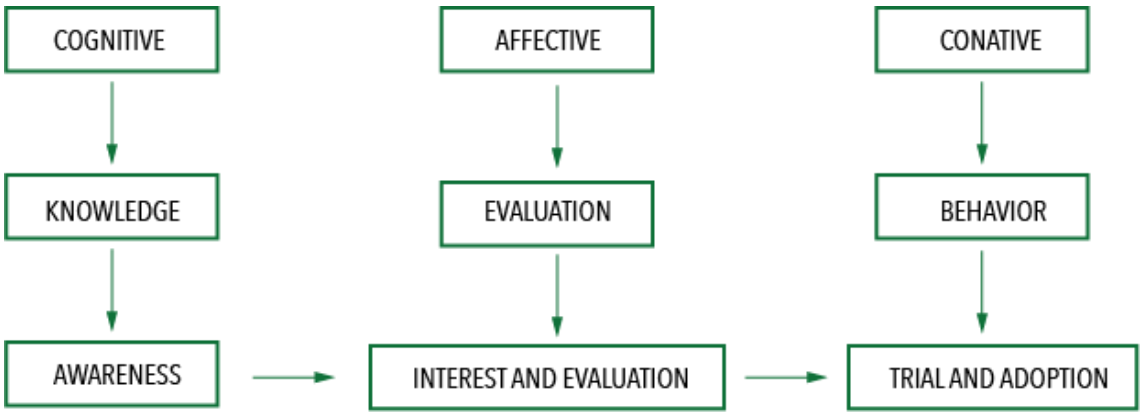


Figure 15 Behaviour develops from awareness (Schiffman, L., G. et al.).

When a consumer has a goal and must research for and process data in order to make a decision or solve a problem, cognitive learning occurs, and the persuasive situation provide a convincing ground for reaction. For example, a consumer looking to purchase meat for dinner. The consumer will first get to know the variables of different meat options, then develop preferences and evaluations regarding the different alternatives, and then decide which to buy and which not to buy. Persuasive information; such as deforestation, bushfires, heatwaves, ice-melting news; could significantly affect cognitive response from learning persuasive information during the process of making decision. Different from behavioral learning which show the immediate response stimuli in a given context, cognitive learning represents deliberate mental processing of information, which focus on the roles of motivation and mental processes. Engaging in cognitive learning, consumer face a problem, look for solution, consulting the impact, and start acting consistently, which result in relief and thus reinforce the persuasive (Schiffman, L., G. and Wisenblit, J., L., 2015).

2.2 Meat Consumption in Finland

The observation of meat consumption in Finland in this study focuses on pigs, poultry, cattle, goats and sheep. Reason for this selection is that raising cows for meat and milk, poultry and pigs for meat and chickens for eggs claim several environmental costs such as irrigation water, greenhouse gas emissions, and fertilizer uses (Skerrett, P. J., 2014).

2.2.1 Production and consumption level

Measured by a number of experts in the meat industry, the average meat consumption in Finland is at 72 kg per year per person (2008). As calculated in the research paper "The future of meat consumption" by experts from Finland in 2008, the preferable amount of meat consumed by the country was 66 kg per person per year and the median 71 kg. Nevertheless, the probable amount foreseen was 75 kg and the median were also 75 kg, which is higher than expected. As a matter of fact, efforts have been made to propose viable strategies to help decrease meat consumption and it is believed the consumption is at a turning point due to the increase of vegetarian and the appearance of new consumer group as flexitarian. Flexitarian is an emerging term of consumption described those who have vegetarian tendencies but also mix in meat or fish on occasion (Jessica, W., 2019, p18; Markus, V., 2008). The strategies proposed by the expert group are as follow:

1. Replace animal originated product by technological development;
2. Spreading knowledge about animal rights and vegetarianism using ads and campaigns;
3. Transfer agricultural production away from meat production and promote the development of alternatives products through political decision;
4. Higher taxes for meat-based products. (Markus, V., 2008)

In another research of Food Preferences in Finland by Lehikoinen, E. and Salonen, A. O. (2017), Finnish citizens appears to have certain characteristics regarding food consumption. The study, after collected data from 2051 respondents (n = 2052), has drawn some general conclusion of Finnish attitude/ behavior about meat consumption, described shortly as follow (Lehikoinen, E., Salonen, A. O., 2017).

Firstly, it is shown that the Finnish citizens does not follow the typical consumer model regarding personal income – rather, consumption habits are shaped by personal references

and interest. Citizens that are found to consume meat more frequently are negative to reduce their consumption, vice versa, those who are more willing to adopt plant-based diet are positive to the reducing pattern. A previous research in 2006 on Finnish food consumption also demonstrated that the citizens have enough access to food-related information and the consumption level of meat in Finland is lower in comparison to other Western European countries (Lehikoinen, Salonen, 2017).

The study of Lehikoinen and Salonen did not show or conclude about the impact environmental awareness have on the intention to change of the citizens. Intention to change and willingness to reduce meat partially depend on external factors such as alternatives option available, size of residence, product's price. The Finnish society is considered wealthy by global standards and because of that the citizens food choices and preferences are not limited by infrastructure. Two well-known influences impact Finnish food choices are health and weigh control (Lehikoinen, Salonen, 2017).

Although reduction is possible in the Finnish market, the study discovers that a family member has significantly affected the consumption choice on another. Finnish women are more willing to take action in reducing meat consumption than men. Nevertheless, if their partners demand otherwise, then the intention for meat reduction is low (Lehikoinen, Salonen, 2017).

Table 1 Number of meat production in Finland 2010 – 2018 (Eurostat).

1000T	2010	2011	2012	2013	2014	2015	2016	2017	2018
Production of Pigs	203,07	201,76	192,82	194,49	186,07	191,93	190,1	179,26	167,36
Production of Poultry	96,33	101,51	107,41	111,09	113,37	117,31	125,41	128,81	135,28
Production of Cattle	82,13	82,65	80,37	80,42	82,32	85,76	86,37	85,39	86,48
Production of Goats and sheep	0,72	0,89	0,88	0,92	1,03	1,2	1,27	1,3	1,43

Beside consumption level, production of meat in Finland has changed over the years. Data of meat production retrieved from Europe Statistics (Eurostat) show in **Table 1**. Every year in Finland, 2.08 million pigs are slaughtered on average. There are only 1,200 pig farms in Finland and the number has declined by 7-10% a year. Pork production, as forecast and data showed, has been fallen every year. Beef production indicators, however, appears fluctuated. The number of farms specialized in beef are approximately 3,000. Its production in 2015 and 2016 increased due to rising of boiler products. Poultry consumption, on the other hand, has been on a steady increase. 92% of the poultry meat

produced in Finland is broiler. The growth is expected and to be continuing. Goats and sheep production also escalated slightly (**Figure 5**) (Finnish agriculture and Food sector 2016/2017).

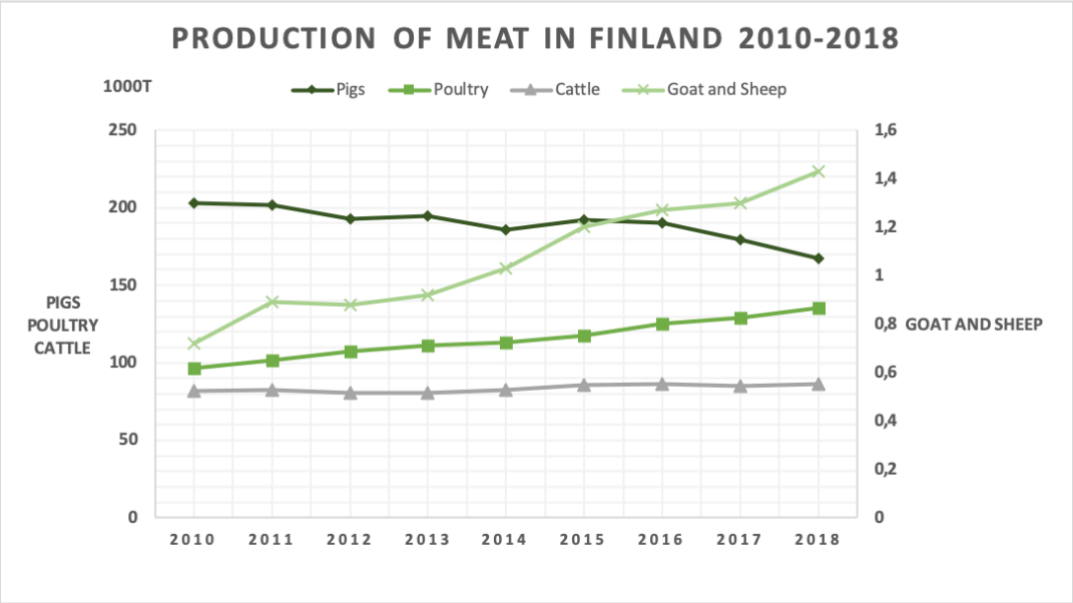


Figure 16 Production of meat in Finland 2010-2018 (Eurostat/ Agriculture).

2.2.2 Environmental impact of meat production

Meat production is one of the major contributors to global environmental degradation. According to a study on environmental impacts of cultured meat production, livestock raised for meat use 30% of global ice-free terrestrial land and 8% of global fresh water. Greenhouse gas emission produced from these productions accounted for up to 18% of total GHG emission, more than transportation sector. The production of 1000 kg cultured meat requires 26-33 GJ energy, 367-521 m3 water, 190-230 m2 land, while emits 1900-2240 kg CO2-eq GHG emissions (Tuomisto, H. L.; M. J. T. de Mattos; 2011, 6117-6123).

Statistically speaking, meat consumption and production accounts for 37% of world emissions of methane (a gas cause global warming beside carbon dioxide) and 18% of global greenhouse emission (Green Consumerism, 2011). The world is facing the great challenge of how to feed the increasing and wealthier population sustainably in the future. Additionally, production of cattle generates five times more greenhouse gases emissions

than pigs, poultry and eggs; needed six times more fertilizer and eleven times more irrigation water, and use 28 times more land (Skerrett, P. J., 2014).

Table 2 Greenhouse Gas emission from agriculture in Finland 2010-2017 (Eurostat).

Year	2010	2011	2012	2013	2014	2015	2016	2017
GHG emission (CO2e.q.)	107	96,6	89	89,8	84	79	83,1	79,5
GHG emission from agriculture (%)	8,6	9,2	10	10,1	10,8	11,4	10,9	11,3

In Finland, the total greenhouse emission has been managed to lower as much as possible, the country in comparison with other European countries listed 15th amongst the least produced GHG emission nations. Greenhouse gas emission per capita in Finland 2017 was 10.4 tonnes of CO2 (**Table 2**) (Eurostat, 2010-2017).

2.2.3 Trend and challenges of meat industry

As production and consumption patterns changes, leaders in the meat production industry strive to take action in order to either expand market demand or protect market share. In order to maintain company's position in the market, product innovation may come along and new market segmentation should be identified (Keller, 2012).

To better understand the trends and challenges of the meat industry, the researcher will look at **Atria**'s operation - a well-known market leader in the Finish food industry – as an example. More specifically, the company's strategy and operation will be studied to see how the firm respond to change and market fluctuation regarding meat consumption.

Atria is a leader in food market not only in Finland but Nordic countries, Russia and Estonia. The company vision is to "create inspiring food for every occasion with strong brands and passion". Atria's annual reports in 2016, 2017 and 2018 are studied in this research to demonstrate actions of the firm toward the rising of environmental impacts. The following paragraphs provide results of the examination.

In 2016, Atria invested in developing Organic growth which comprise new products segment and new market areas. Market research and analyses were allocated in market's strategic focal points, meanwhile, the company enhance its responsibility by increasing farm-labelled products and traceability of the food chain – maintain stakeholder's trust and loyalty (Atria Finland, 2016).

In 2017, Atria's strategy and operation saw the consumption of red meat was decreasing and white meat increasing; the number of alternatives to meat, e.g. vegetable-based food product groups, was growing as new demand raised. Besides, megatrends such as climate change and the insufficient of natural resources; population growth etc. pose an impact to the food-chain firm. In this year, Atria launched antibiotic-free meat products to respond to the environmental challenge, this attempt secured the company a market share as a leader and proved its reactive to trends and challenge. (Atria Finland, 2017).

Atria in 2018 presented a breakthrough in product development. The company penetrated the reducing meat consumption group by launching a new meatless product range for flexitarians (increasing vegetables in diet but not giving up meat) to the market – Vegue (**Figure 6**). According to study of TNS Kantar, 30% of Finns are looking for alternatives to meat eating; 67% eat a vegetarian meal every now and then, but do not intend to give up on meat; 3% of Finns are strictly vegetarian; 93% of Finns eat meat. As those numbers show, while Atria keep maintaining the company position to their meat-eating consumer in improving their experience, the firm as a leader also approach the other frontier of meat-less section and explore new market areas in the future (Atria Finland, 2018).

Figure 17 The new plant-based product brand of Atria. (Atria Annual report 2018)

Consumer behavior changes and adaptation has never been confirmed in any means. Atria as a leader in Finnish meat industry do their best to supply the demands of the citizens. At the same time, the company studies to foresee the trends in the future so that the firm maintains to be the dominant of food sector. Researches about consumption choices and behavioral attitude are henceforth very important. The understanding of factors influence consumption choice will help the market adjust itself or affect consumer decision making according to psychological and environmental responses.

2.3 Factors influencing food choice and intentional behavior.

Consumer behavior is “the study of the processes involved when individuals or groups select, purchase, use, or dispose of products, services, ideas, or experiences to satisfy needs and desires” (Solomon, M., R.,2009).

Consumer, product, and need are ranging in different aspects. It can either be simple or complicated. Consumerism and consumer research emerged, firstly in the United States in 1962 as “Declaration of Consumer Rights”, when consumer began to organize to demand better-quality products. The definition and understanding of consumer behavior in the thesis are viewed from the marketing management. Consumers nowadays often buy products not for what they do but for what they mean. The meaning of consumption has changed drastically with capitalization. The roles a product plays extend its functional task and value-perceived with it (Solomon, M., R.,2009).

The factors that influence consumption in this study view the motivations and determinants that ignite psychological response to one product based on its value and the value to the society at large. Meat consumption, as other basic consumption, travels through a pathway from internal perception to occasionally external influential when forming the decision. The understanding of human motivation, stimulus model, determinants of food consumption, and responsibility behavior will contribute to the answer of consumer willingness to change and future adaptation.

2.3.1 The theory of human motivation

As the thesis study the consumer’s intention and potentially choice of consumption, it makes sense to prevail the human’s nature and understand what really motivates human being. For that reason, Maslow’s hierarchy of needs is an appropriate theory to understand the motives. In the 1940s and 1950s, Maslow’s hierarchy of needs was a revolutionary idea, and until now the theory has been using in different aspect of human’s life from evolutionary to promoting business idea. The hierarchy starts with Immediate Physiological Needs and goes up to Psychological Needs at the top. According to Maslow, the bottoms list must be fulfilled before moving up to the top of the hierarchy and they are the drivers and motivations for people to increase or reduce tension (Maddi, 1997; Maslow 1970).

Figure 18 Maslow's hierarchy of needs (Maslow, 1970).

Physiological needs at the bottom list refer to the very basics need to live such as food, water, and sleep. Once human can secure that level, they will need shelter and protection from danger for safety reason. Moving further, a human will develop the need to be a part of a group, society and also need to love and to be love defined as belongingness. Self-esteem refers to the need to feel good about oneself, one's abilities and characteristics. Above all, self-actualization is the highest state of the hierarchy and is the most difficult state to achieve (Rouse, G.; Kimberly A.; 2004, 27-31).

A study of consumption choice and its connection to human's hierarchy of needs in New Zealand in 2016 found that the closer state to self-actualization, the more sustainable people choose to life their life. People who strive to educate themselves on environmental issues reflect the greater sense of harmony and responsibility to the world around them and by living holistically, people achieve a greater sense of alignment with their higher purpose (Hunting, A.; Conroy, D.; 2018, 255-273).

Meat consumption belongs to the very bottom layer – physiological needs – of the hierarchy. On the other hand, consumption awareness is believed to be at the top of the pyramid – self-actualization. The author believes that to reach the level of having the environmental awareness to change one's consumption behavior, the gap in between must be reached and secured.

2.3.2 Stimulus-Organism-Respond (SOR) model

To understand customer behavior action or the intention of buying, Mehrabian and Russel in 1974 developed the stimulus-organism-respond (SOR) model. The model is used to exploit the effect of environments on customer behavior and comprehend how the environment stimulates consumer's purchasing motives. Customer's perspective and consumer behavior is focused in using the model (Mehrabian and Russel, 1974).

Post literature indicated that the environment created (S - stimulus) can influence the customer mood (O – Organism) that provoke behavior response (R – response) (Teh, G. M., Kalidas, V., Zeeshan, M.; 2014, 67-76).

Figure 19 Stimulus-Organism-Response (SOR) model (Mehrabian and Russell 1974).

According to the model (**Figure 8**), the situational involvement describes the context relating to the object or issue toward which consumer behavior is directed or generated concern called environmental stimuli (S). One other stimulus happens in this stage is the social-psychological environment, which indicates the appearance of influence made by another person. Concern for behavior of consumption is, therefore, heightened by the presence of other opinions. The organism stage in the model (O), also recognized as enduring involvement, has two major elements; the individual's experience and the individual's value system. Simply put, high or low involvement to the situation depend on the intensiveness of the encounter where consumer is in contact with the product/ service. In addition, the value system of an individual is accountable for how customer perceive the situation. Finally, response involvement (R) arises from the complex cognitive and behavior processes. Consumer is likely to move from pre-search, information search and acquisition to decision making and post-decision making, known as consumer decision making process. Approach or avoidance decision is based on the results of high or low involvement of situational and enduring stage (Arora, R., 1982, 505).

Meat consumption, like other forms of consumption, is believed to be involved in this process. The empirical study will inform by analyzed data if SOR model can explain the consumer intention in Finland and if situational enduring could lead to organism – reponses.

2.3.3 Taxonomy of determinants of food consumption

Pilgrim, in his study in the 1950s, succeeded in developing a model of determinants of food consumption, which was one of the earliest foundations for later discovery. Following Pilgrim's development was Shepherd's overview of factors influencing food choice in 1990 (Pilgrim, 1957, 171-175).

The models used in their researches are not identical yet exposing common approaches: (1) properties of the food; (2) factors related to the person engaged in the food consumption; and (3) environmental factors. The model developed in 1985 showed more leading effect of determinants on each other while the latter in 1990 (**Figure 9**) display a heuristic approach (Jan-Benedict, 1993, 401-409).

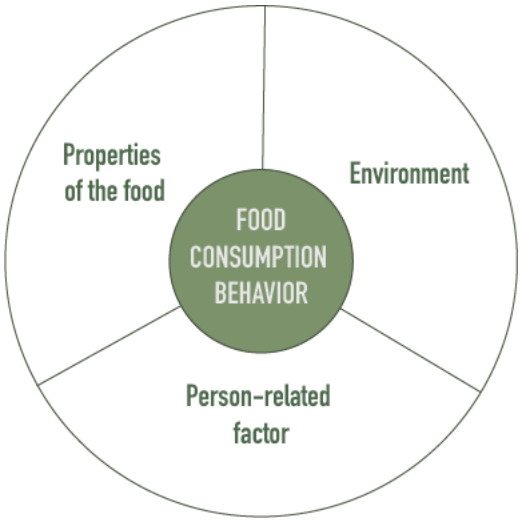


Figure 20 Taxonomy of determinants of food consumption behaviour (Jan-Benedict, 1993).

As shown above, the behaviour is categorized into three determinants. Properties of the food is the nutrient and protein intake needed for each individual. This factor is notably considered having a high impact on consumption behaviour on general and food choice specifically.

In Person-related section, biological factors are age and body weight. It is believed that food preferences are based on the early childhood intake and change due to aging process. Body weight and food consumption, therefore, have a positive relation as food explains the insulin response of human body. Personality variables offer the consumer freedom of choice and measure the varieties for their food intake. A consumer offered a wide selection of food tends to take several of them than just one single item. Quality consciousness observed in personality, likewise, affected food perceived quality in consumer behaviour. Countries are rated differently on the scale of quality-consciousness indicating citizen willingness to pay for quality difference. Last factor of person-related is psychological, which shows motives of food acceptance or rejection of an individual (Jan-Benedict, 1993, 401-409).

Considering environment factors, there are social-cultural, economic and marketing aspect. Social-cultural might be the most familiar factor seen in consumer behaviour study and marketing management. Taking into account that it is the strongest influencer constructed human beliefs and forming behavioural traits in their early stage of developing, this determinant shows the preferences, attitude, and values of consumed food as a group. For instance, horse meat is consumed by some European countries like Italy, France, Belgium but considered as pet in U.S. and Britain; consumption of pigs is forbidden in Islam, Judaism; most Hindus worship the cow and abstain from eating it. Following social-cultural factor is economic, food consumption is influenced by prices and incomes. Most likely, price elasticity of demand is negative, which means consumption decreases with price increases. However, purchasing power also depends on the economic condition of the country and therefore consumption tendency per individual passively due to fluctuated of the GDP per capita (Jan-Benedict, 1993, 401-409; Rozin, Pelchat & Fallon, 1986, 85-106; Deaton and Muellbauer, 1980).

The income elasticity of demand for raw products at the farm level is much lower than the income elasticity for “marketing activities”. To win over customer decision and purchase intention, the marketer and company have strived to deliver perceived-value and brand equity in their product. As in European countries, the increasing in environmental consciousness has led to a great demand for environmentally friendly packaging as public policy focuses their critics on waste disposal and pollution problems intensively. The

change within the region, more or less, proves an upcoming trend of consumption and production towards a more sustainability dimension (Tangermann, 1986, 61-83).

2.3.4 Responsibility behavior

The study of consumer behavior, since 1950s, has significantly contributed to the market production and helped marketers develope the path to satisfy customer's need as well as boost the progress of selling more product. Social behavior as a group or individual requires understanding from many dimensions. Corporate responsibility can be traced from the level of transparency and CSR application in management, meanwhile, on individual level the spectrum varies from the person conception toward their own behavior and their connection with the society. Schiffman L. G., et al. and the study of consumer behavior from 1999 to 2015 has showed a new influencer in the purchasing nature. In its latest edition, the segment "ecologically responsible consumption" was added as a result of increasing in environmental awareness. The behavior is identified as an attitude toward the environment and attempt to reduce product's negative footprints to the ecology – green customer (Schiffman, L. G., 1999, 2015).

Another driver motivation responsible for customer behavior is known as guilt. Guilt has been studied to answer certain consumption intentions in citizens in order to support marketing activities. A study of how guilt affects consumption intention in 2014 showed that people feeling guilty about their behavior seek emotional support and that marketer could possibly influence on this path by advertising or packaging, helping consumer to overcome the guilt-inducing aspect of the food. It is common to see people change their behavior due to the causal relation of their action to the other party, especially when they acknowledge the situation. Guilt condition were found involving the consumption of fat-rich food, alcohol, tobacco, drugs or purchase of indulgent, expensive and unnecessary products (Camille, et al., 2014).

2.4 The study of environmental awareness and attitude toward meat consumption

The potential of the awareness turns the behavior to green consumer has attracted the study of factors influencing consumption choice. Finland is not an exception because the expectation for changes is higher for developed and wealthy countries. Environmentally and health conscious customer segments or individual are focused on a mega level, which is believed to be the foundation of the green marketing concept. To satisfy sustainable

needs, suppliers play as a connection by using environmental and health controlling authorities; media; and environmental and health movement as the tool (Schiffman, L. G., Wisenblit, J. L., 2015).

In one market research developed by Lam, Lau and Cheung (2016), the concept of green marketing was brought up in the aspects of company competitive advantage. The green concept and its perceived value, to a certain extent, increase customer purchase intention and satisfaction on green product, and the green value of a product need to be developed to earn customer's green trust. Nevertheless, attitude of the consumption group does not always result in pro-environmental behavior – also known as green customer (Storm, S., 2012; Lam et al., 2016).

The author of this research believes that the attitude towards meat consumption in Finland should be tested by using different behavioral – attitude models of literature to conclude if these components would lead to consumption choices as well as the impact of environmental awareness to the consumption decision. Accordingly, the empirical framework consists of questionnaires drafted based on the theories of consumer behavior and selected model literature.

Highlight concepts will be the consumers' environmental awareness in Finland; attitude of people in Finland toward meat consumption in relation with environmental awareness; and questions related to factors influence consumption choices using Maslow's Hierarchy of needs, SOR model, determinants of food choice consumption, responsibility behavior. After the explanation of the theories, the thesis continues with applied methodology and empirical framework of the research. The empirical study will be conducted on a sub-population using scientific methodology to answer the thesis problems.

3 RESEARCH METHODOLOGY

After developing objectives and collecting secondary data, the research moves to designing research methodology. As the author discusses above, there are two primary consumer research; **qualitative and quantitative**. Qualitative research uses focus groups and depth interviews and project method; while quantitative research includes observational research, experimentation and survey research (Schiffman, L. G. et al., 2015).

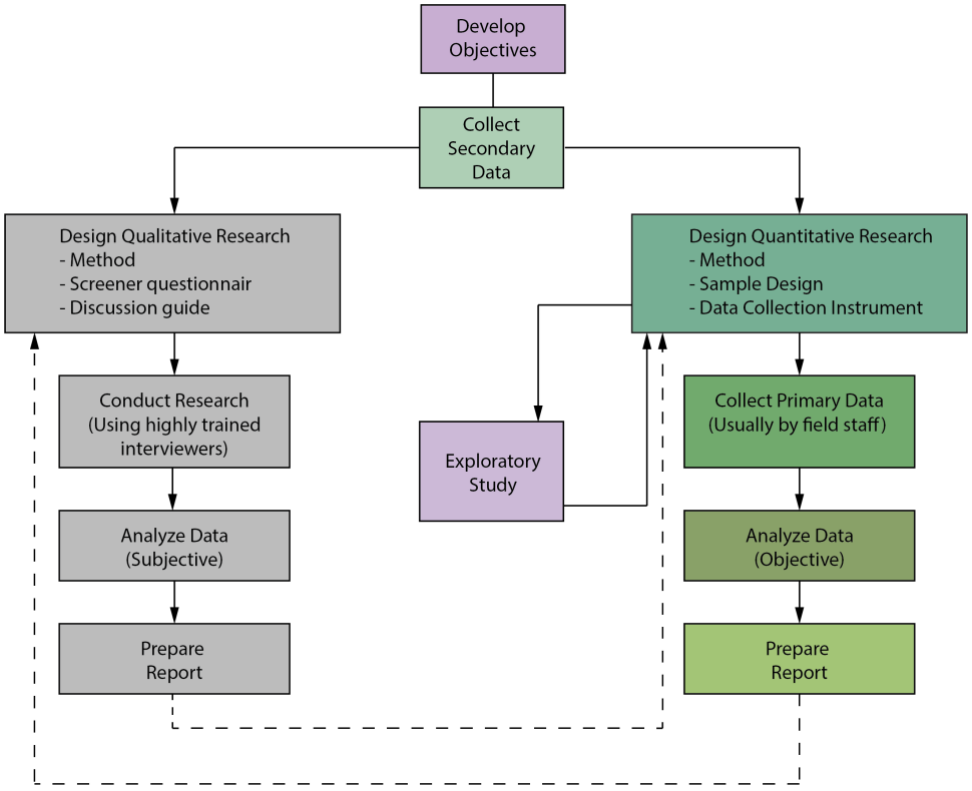


Figure 21 The Consumer Research Process (Schiffman, L. G.)

3.1 Method and sampling

Method

The author chooses to use **quantitative method** and collect data through online survey questionnaires. The **reason** for this selection is that the attitude concerning basic consumption as meat should be observed from a large-scale population. Environmental awareness observed from a sub-population will generate an objective result. The more opinions collected the more reliable results yield.

Quantitative research collects data from consumers through experimentation, survey techniques, and observation in order to assist marketers in pinpointing consumer's satisfaction, attitude and behavior. Data will be calculated statistically, and findings will be presented descriptive and empirical (Schiffman, 2015).

More specifically, the study attempts to identify the awareness and attitude of the consumer to better "predict" future needs or behavior. As can be seen from **Figure 7**, the qualitative and quantitative both begin with develop objective and collect secondary data. Secondary data in academic research can be retrieved internally or externally within the firm or organization. The author conducts this work within an institution (Vaasa University of Applied Sciences) under a professor's supervisor, as a matter of fact data sources come firstly from the school databases and contractual databases. Other materials such as online articles, books are from the library and the internet. Annual reports and web pages of companies (Atria) are accessed from publication.

Under the scope of quantitative research listed as observational research, experimentation, and survey research. The author adopts survey research and forms an online survey questionnaire which consists of 25 statements. The statements are sent widely to consumer living or studying in Finland. Collected primary data then used for analyzing and confirm hypotheses. Finally, report for findings and conclusion is drawn.

Sampling

As it is impossible to collect information of the whole population, the research uses a sub-set of the population, called sample. The sample will be used as representative of the study. There are two basic ways of choosing samples: random and non-random. Due to nature of the research's limitation, the author chooses **the random method** (Schiffman, L. G. et al., 2015).

In order to have a creditable sample, the research design sampling plan as follow;

i. Whom to survey (the sampling unit): student that are studying at VAMK.
ii. How many to survey (the sampling size): size of the survey is 237 respondents.
iii. How to select them (the sampling procedure): online survey questionnaire. (White, B., 2000)

Accordingly, the research target group is categorized based on sex, age and dietary habit. Completed questionnaires will be viewed and analyzed by the researcher of the study to generate confirmations for the proposed hypotheses. There are fifteen statements answered in **Likert** attitude and intention behavior scale ranging from one to five **(1-5),** of which one is strongly agree and five is strongly disagree. Hypotheses are;

Hypothesis 1: Consumers are aware of the environmental impact of meat production/ consumption.

Hypothesis 2: Environmental awareness has a positive relation to meat consumption.

Hypothesis 3: Consumers are willing to change dietary to reduce/ avoid high level of meat consumption.

The reason why the author chooses to target the younger group of citizens, specifically university students, is because university students and young adults usually have an active response to the surrounding environment and are highly educated. This group of citizens possess most sources of information and more possibilities to change behavior. Regarding consumption perspective, the university student may have the independence in food consumption choice and living lifestyle. Respondents identify themselves as vegan, vegetarian, flexitarian or meat-eater at the beginning of the survey. Flexitarian, standing out from the others familiar dietary, is a new term assigned to people who choose to eat vegetarian food occasionally, yet remain consuming meat-based products (Hedenus, F.; Wirsenius, S.; Johansson, D. J.; A.;2014, 79-91).

3.2 Data collection

Researchers collect data through surveys techniques. There are two primary way to carry out a survey, **interviews** or **questionnaires**, or both. Using both interviews and questionnaires is a rarely used option since it involves cost, time and size, etc. to consults everyone in the population. Interviews surveys are mainly in qualitative research methodology; however, it could be used in quantitative research under the coding method of the researchers (White, B., 2000).

Questionnaires, on the other hand, are a commonly used in quantitative research and it is approached in this study. The series of questions provided with answer ranging from 1 to

5 (Likert scale) which respectively represent strongly agree to strongly disagree. There are two main types of questionnaire, one is **email questionnaires** and the other is **self-administered questionnaires.** Postal questionnaires use mail or email to collect data individually. Self-administered questionnaires are the series of questions researcher asks the respondent and answers are filled in by the researcher. It can be done face to face or through telephone.

In this research, the author applies **email questionnaires** for the survey due to the convenience and time efficiency. Students at the institution have an individual study email and the student office helps sending the postal questionnaires to all the students at Vaasa University of Applied Sciences. The questionnaires are made by an online platform E-lomake. There are totally 25 questions divided into demographic and three sections based on three provided hypotheses, respondents of the survey are guaranteed of the confidentiality. Data collected from the survey will be analyzed and used only by the author in this research (n=237).

There are advantages and disadvantages using postal questionnaires for the research. Postal questionnaires require less money and travel expenses, they are suitable for large sample. The anonymous elements provide unbiased attitude in interview. Responses are more objective. Nevertheless, when respondents are anonymous, the identity of participants are not authentic and reliable. Questions display on the questionnaires must be simple and easy to answer, as a result, the richness of information is rather low. External forces could also influence how the respondents answer the questions since all questions display at the same page or when respondents seek for recommendation (White, B., 2000).

3.3 Reliability and validity

Reliability concerns the extent to which a measurement of a phenomenon provides stable and consist results. Testing for reliability is important in researching process as it concerns the consistency. According to Huck and Robinson, high internal consistency reliability is said if the items hang together and measure the same construct. The most commonly used to measure internal consistency is Cronbach Alpha coefficient, especially when the approach is Likert Scales (Whitley, 2002, Robinson 2009; Carmines and Zeller, 1979; Huck, 2007, Robinson, 2009).

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.750	.763	19

Case Processing Summary

		N	%
Cases	Valid	237	100.0
	Excluded[a]	0	.0
	Total	237	100.0

a. Listwise deletion based on all variables in the procedure.

Figure 11 Cronbach's Alpha reliability statistic and case processing summary.

There are no certain rules for measuring internal consistencies, however, Hinton et al. (2004) proposed four cut-off points for reliability: excellent reliability (0.90 and above); high reliability (0.70 – 0.90); moderate reliability (0.50 – 0.70); and low reliability (0.50 and below) (Hinton et al., 2004).

Figure 11 prevail the case summary and reliability figure of this study using SPSS, 19 questions answer in Likert scales are used to calculate. It is shown that the study has a **high reliability** scale with **0.750** Cronbach's Alpha.

Validity explains how well the collect data covers the actual area of investigation. There are many types of validity measurement, however, the primary and most common names are criterion validity, face validity, content validity and construct validity. The subtypes of these forms are also listed in **Figure 12** (Ghauri and Gronhaug, 2005).

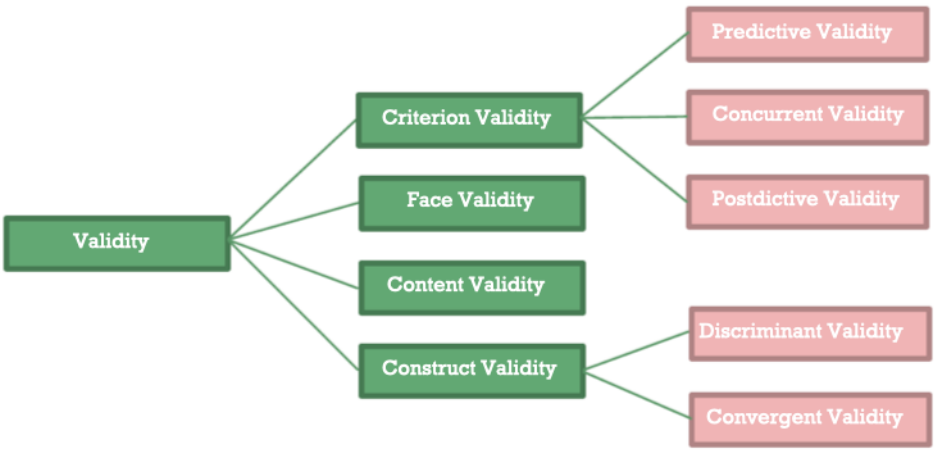


Figure 23 Subtypes of various forms of validity tests.

In this study, the researcher uses **Content Validity** as an instrument to reflect the content universe to which the instrument will be generalized. Content validity uses literatures

reviews and follows up with the evaluation by expert judges or panels. In this case, the study is examined by supervisor and structed under literature reviews in chapter 2. However, the study is under only supervision so that it is not calculated with Lawshe's CVR ratio method (Straub, Boudreau et al. 2004).

4 EMPIRICAL FRAMEWORK

After explaining secondary data and methodology approached for the research, the study moves to the experimental part. Empirical study is the collection and analysis of primary data based on direct observation. Data collected from the postal survey questionnaires are used to confirm the hypotheses from the research objective and questions. The survey is created by E-lomake e-platform and data retrieved in Excel format. The researcher uses Microsoft Excel and SPSS Statistics to analyze the data.

There are totally 238 submissions for the 25 questions in the survey questionnaires. The publication period for the survey is during February 2020, participants remain anonymous. One submission is not legible since the respondents left blank part of the survey, leaving a number of **237 (n= 237)** for the analysis. The survey was sent through Vaasa local office to the students of Vaasa University of Applied Science.

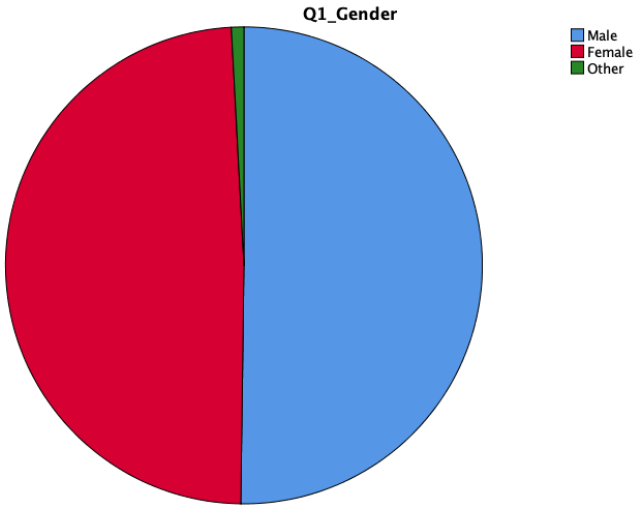
4.1 Demographic data

As can be seen from **Table 3**, the survey questionnaires start with the demographic questions for general data including gender, age and dietary of the respondents. From the total number of 237 participants, there are 116 females, 119 males and 2 identify as other, which account for 48.9%, 50.2% and 0.8% respectively (**Graph 1**). The difference between male and female participants are small, and only two participants from the third gender section. Gender specific questions is needed in this survey for it helps observing if gender difference would level the environmental awareness and also affect consumption choice in the population.

Table 21 Gender frequency (SPSS).

Q1_Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	119	50.2	50.2	50.2
	Female	116	48.9	48.9	99.2
	Other	2	.8	.8	100.0
	Total	237	100.0	100.0	



Graph 13 SPSS Gender display.

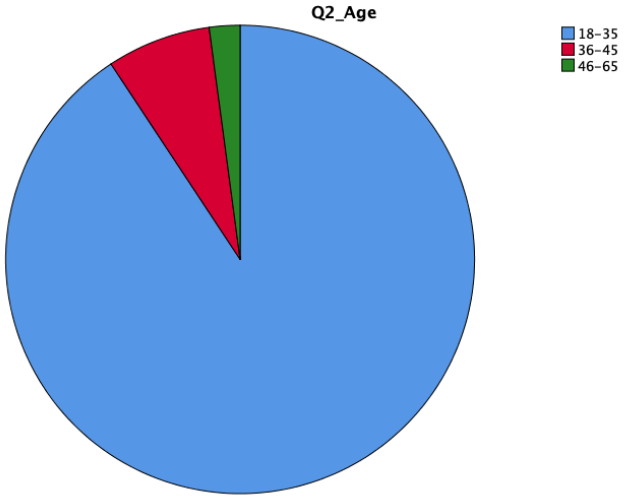
The second question is regarding the resident's age. There are four options as 18 to 35 years old, 36 to 45 years old, 46 to 65 years old and lastly above 65 years old. The reason for this division is the student group regardless degrees and nationality belongs mostly within 18 to 35 years old, the group of 36 to 45 years old mainly contains lecturers and researchers, meanwhile, the institution professors and officers fall into the group of 46 to 65 years old. The oldest group is listed as above 65 years old and there is no participant that belongs to this group.

There is no submission for the group of above 65 years old so that it does not appear under **Table 4** frequency. The pie graph is created based on percentage values of the frequency numbers.

Table 22 Age frequency (SPSS).

Q2_Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-35	215	90.7	90.7	90.7
	36-45	17	7.2	7.2	97.9
	46-65	5	2.1	2.1	100.0
	Total	237	100.0	100.0	



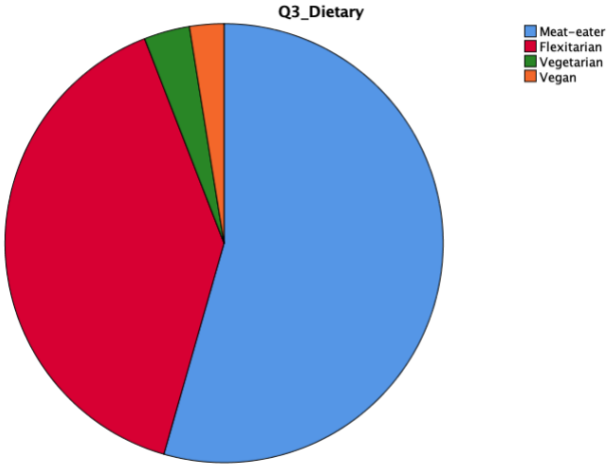
Graph 14 Age displays in percentages (SPSS).

The survey succeeds in attracting the right target of participation which is the young adults' group from 18 to 35 years old, this group takes up 90.6% of the total 224 submissions (**Graph 2**). The researcher believes the spending power in the future will lay on this age so that it makes sense to emphasize their behaviors and awareness.

Table 23 Dietary frequency (SPSS).

Q3_Dietary

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Meat-eater	129	54.4	54.4	54.4
	Flexitarian	94	39.7	39.7	94.1
	Vegetarian	8	3.4	3.4	97.5
	Vegan	6	2.5	2.5	100.0
	Total	237	100.0	100.0	



Graph 15 Dietary displays in percentages (SPSS).

The objective of the research is to study the attitude towards meat consumption of Finnish people and their environmental awareness level, for that reason, the author includes a dietary question to the sample group. There are four types of eaters: meat-eater, flexitarian, vegetarian and vegan. Meat-eaters are customers who consume meat-based product on a daily basis, the sources of meat in this study includes pigs, poultry, cattle, goats and sheep. Flexitarian is a rather unfamiliar term, and it is used to describe the mixing between meat consumption and vegetarian occasionally to reduce the meat intake level. Vegetarian is a person who does not eat meat and fish, and against animal slaughter for moral, religious, or healthy reasons. Vegan or veganism is a dietary habit commitment in using plant-based product not just for food consumption but also product-wise.

In line with numbers from **Table 5** and **Graph 3**, survey respondents identify as meat-eater are 129, which is also the highest number and accounts for 54.4% of the total. Flexitarian diet follows the second with 94 people and as 39.7% of the total. There are 8 vegetarian and 6 vegan submissions, 3.4% and 2.5% respectively.

4.2 SPSS hypotheses analysis

The author chooses to analyze the data survey by using SPSS statistical analysis. Answers are decoded by Likert scales from 1 to 5 (1: Strongly Disagree; 2: Somewhat Disagree; 3: Neither Agree nor Disagree; 4: Somewhat Agree; 5: Strongly Agree).

There are three hypotheses to study, in order to confirm each hypothesis, the researcher propose the **null hypothesis (H_0)** as a statement that need to be rejected to confirm the **alternatives (H_1, H_2, H_3)**.

The list of analysis forms is Descriptive frequency; Comparing means and standard deviation; Correlations; Comparing Variables; Cross-table analysis. The values are presented in Tables and Graphs.

The results are explained to reject null hypothesis or accept it based on the analytical view of the researcher, if null hypothesis is rejected the alternative will be confirmed.

4.3 Environmental awareness of consumers in Finland

H_0: Consumers express no concern to the impact of meat production and consumption.

H_1: Consumer are aware of the environmental impact of meat production and consumption.

The researcher provides 5 statements in the survey questionnaires answer in Likert 5 scales from 1 (Strongly Disagree) to 5 (Strongly Agree). The answers are used for analysis can be observed individually or combined for correlation.

Question 4: You are worried about global warming.

Question 5: You are worried about action to fight climate change.

Question 6: You are actively paying attention to environmental news, policies, movements, activists.

The results show that Finnish citizens have a moderately high level of environmental concerns and climate change as the mean values of question 4, 5 and 6 are ranging between 3 to 4, according to **Table 6**. Notably, the average of data set from question 4 indicate the high level of worry about global warming in Finland and that actions to fight climate change are of significant consideration. In the total 237 respondents, however, the standard deviations of the data set are 1,034; 1,010 and 1,180 which is rather high.

The standard deviation number indicate the dispersion of the set of values (Standard Deviation – SPSS Tutorial).

Table 24 SPSS Mean analysis of question 4-5-6.

Report

	Question 4: You are worried about global warming.: Answer	Question 5: You are worried about action to fight climate change.: Answer	Question 6: You are actively paying attention to environmental news, policies, movements, activist.: Answer
Mean	4.05	3.90	3.45
N	237	237	237
Std. Deviation	1.034	1.010	1.180

From gender perspectives, females and other genders are more worried about global warming and take action to fight climate change than males. There are 103 females (out of 116) respondents agree to statement 4 and only 8 were uncertain. Meanwhile, the number of uncertainties in male's answers was higher and only 86 out of 119 males answer agree with the statement. The difference in number is not significantly big but it is safe to conclude that females are slightly more concerned about the environment than males. The number of other genders is not sufficient in order to draw any conclusion (**Table 7**).

Table 25 SPSS Cross-table Gender* Question 4.

Question 4: You are worried about global warming.: Answer * Q1_Gender Crosstabulation

Count

		Q1_Gender			
		Male	Female	Other	Total
Question 4: You are worried about global warming.: Answer	Strongly Disagree	10	2	0	12
	Somewhat Disagree	4	3	0	7
	Neither Agree nor Disagree	19	8	0	27
	Somewhat Agree	49	52	0	101
	Strongly Agree	37	51	2	90
Total		119	116	2	237

Question 7: You think production of meat (pigs, poultry, cattle, goats and sheep) are harmful to environment.

Question 8: You believe reducing meat consumption level would benefit the environment significantly.

Evaluating based on the Tri-component attitude model of Dembkowski and Hammer-Lloyd (**Figure 3 page 17**), Finnish citizens have developed the cognitive (knowledge) for environment issues. Nonetheless, effective component (feelings and emotional) is not strong enough to result in trial and adoption to reduce meat consumption, because the consumers are still in favor of meat-based products.

Consumers are somewhat aware of the environmental impact of pigs, poultry, cattle, goats and sheep production when the mean value is slightly exceeding 3 (3.20) as shown in **Table 8**. Reaction toward whether it is believed that reducing meat consumption level would benefit the environment remains neutral. Standard deviations of question 7 and 8 are quite high (1,322 and 1,338 respectively), which also demonstrate the big gap between answers from the data set. It means that the answers from respondents are scattered evenly ranging from the answer scale.

Table 26 SPSS Mean analysis of question 7-8.

Report

	Question 7: You think production and consumption of meat (pigs, poultry, cattle, goat and sheep) are harmful to the environment.: Answer	Question 8: You believe reducing meat consumption level would benefit the environment significantly.: Answer
Mean	3.20	3.08
N	237	237
Std. Deviation	1.322	1.338

However, the future of reducing meat consumption among Finnish citizens and the correlation between the awareness and the action perception is positive as indicated under Pearson Correlation in **Table 9**. The correlation number of 0.793 indicates a positive linear related relationship, which mean that higher scores from Question 7 are associated with higher scores from Question 8.

Table 27 SPSS Pearson Correlation of question 7-8.

Correlations

		Question 7: You think production and consumption of meat (pigs, poultry, cattle, goat and sheep) are harmful to the environment.: Answer	Question 8: You believe reducing meat consumption level would benefit the environment significantly.: Answer
Question 7: You think production and consumption of meat (pigs, poultry, cattle, goat and sheep) are harmful to the environment.: Answer	Pearson Correlation	1	.793**
	Sig. (2-tailed)		.000
	N	237	237
Question 8: You believe reducing meat consumption level would benefit the environment significantly.: Answer	Pearson Correlation	.793**	1
	Sig. (2-tailed)	.000	
	N	237	237

**. Correlation is significant at the 0.01 level (2-tailed).

Theoretically speaking, Finnish consumers have the knowledge and strong education regarding environmental awareness which account for the cognitive in Dembknowski and Hammer-Lloyd Tri-component attitude model (**Figure 3 page 17**). On the other hand, feelings and emotions (effective) to construct pro-environmental behavior are relatively uncertain. Finnish citizens mostly identify as learning green and some as donor green who primarily cares for the environment, yet not willing to give up their behavior for it.

Result:

Analysis of the data show that people living in Finland, especially young adults 18 to 35 years old, have a moderately high level of environmental awareness. Null hypothesis ought to be rejected in this case. Alternative hypothesis is confirmed.

H_1: Consumer are aware of the environmental impact of meat production and consumption.

4.4 Attitude toward meat consumption in relation with environmental awareness

H_0: Environmental awareness does not affect attitude toward meat consumption.

H_2: Environmental awareness has a positive relation to meat consumption.

There are 7 statements/ questions given to respondents under the second hypothesis which seek to understand the attitude of Finnish consumers toward meat. The answer to each statement will be analyzed in the following.

Question 9: You independently decide your dietary.

Question 10: You eat meat (pigs/ poultry/ cattle/ goats and sheep) every day.

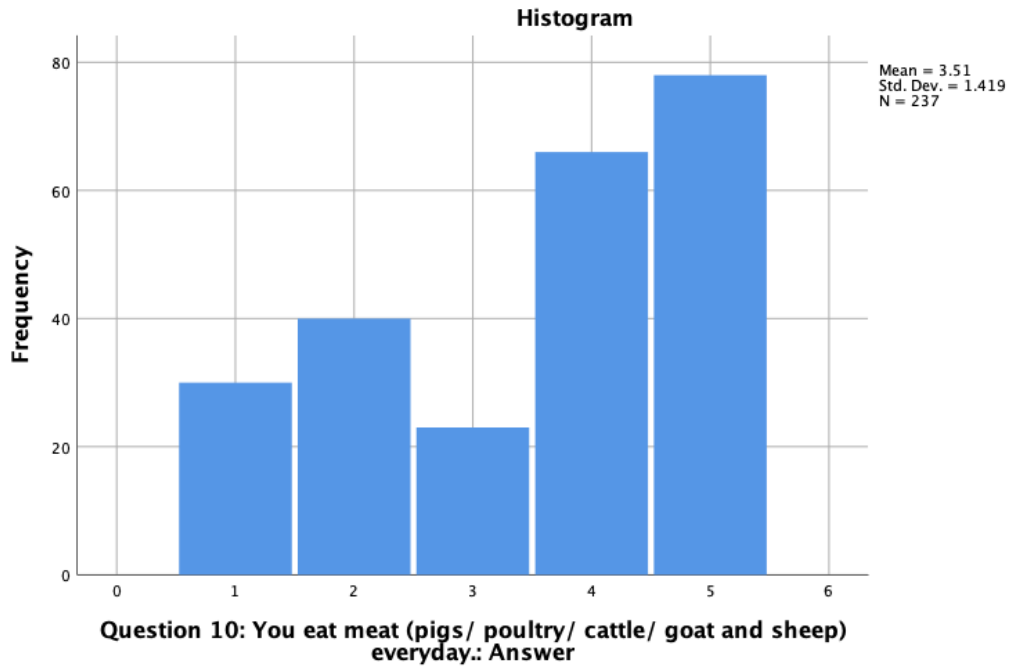
The first two statements from question 9 and 10 were asked to evaluate the independence of Finnish citizens regarding making food choice and the consumption frequency. There are 237 answers for the two questions, no missing value. The researcher chooses to observe the mean value. As can be seen from **Table 10**, the mean value of question 9 is 4.5 and standard deviation is 0.827. This numbers indicate the very strong independence of the respondents when it comes to food choice. This assumption helps the researcher to observe the attitude and decision making on a more individual level because the decision made from the student point of view might be different from the household and family group. The study can exclude the factor influence by spouse or children as previously study by Lehikoinen, E. and Salonen, A. O. (2017).

Table 28 SPSS mean analysis of question 9 and 10.

Report

	Question 9: You independently decide your dietary.: Answer	Question 10: You eat meat (pigs/ poultry/ cattle/ goat and sheep) everyday.: Answer
Mean	4.50	3.51
N	237	237
Std. Deviation	.827	1.419

Following, answers for whether the respondents eat meat everyday varies between 3 and 4 which is Neither Agree nor Disagree and Somewhat Agree. Looking at the percentages of dietary frequency, there are 94 submissions that identify themselves as flexitarian rather than meat-eater. Flexitarian is rather a new terms and definition for meat-eater but occasionally adopt plant-based diet. Motives for adopting plant-based diet were not specified, however, these figures show that Finnish citizens are aware of their diet and consumption of meat outnumbers plant-based. Standard deviation of question 10 is 1.419, which means the answers are scatter through 1 to 5 evenly. The frequency of answers is observed better through the histogram in **Graph 4**.



Graph 16 SPSS Histogram frequency of question 10.

Question 11: You personally believe meat-based products are essential to your dietary.

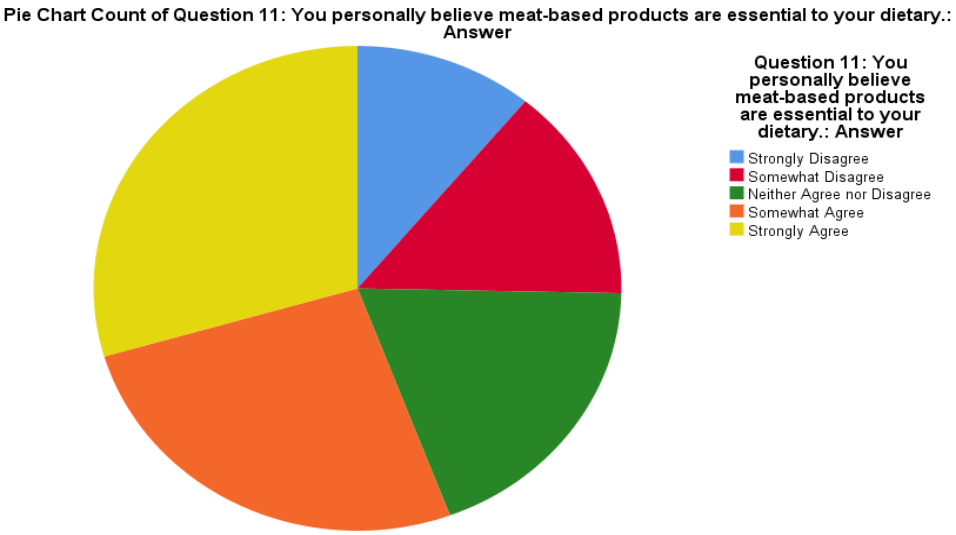
The number of consumers that believe that meat-based products are essential to their dietary habit is high, according to **Table 11**. There are 29.5% of strongly agree and 26% of somewhat agree submissions. The figures show there is still a moderately strong favor to meat-products since the nutrient values and sources of protein coming from animal has been known and accepted as a nature. However, the number of disagreements are notable with 11% strongly disagree and 14.3% somewhat disagree.

Table 29 SPSS frequency analysis of question 11.

Question 11: You personally believe meat-based products are essential to your dietary.: Answer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	26	11.0	11.0	11.0
	Somewhat Disagree	34	14.3	14.3	25.3
	Neither Agree nor Disagree	45	19.0	19.0	44.3
	Somewhat Agree	62	26.2	26.2	70.5
	Strongly Agree	70	29.5	29.5	100.0
	Total	237	100.0	100.0	

The numbers display can be viewed also in **Graph 5**;



Graph 17 Pie chart Count of Question 11.

Question 12: You believe your meat consumption level are acceptable.

Question 13: You have attempted to reduce your meat consumption level.

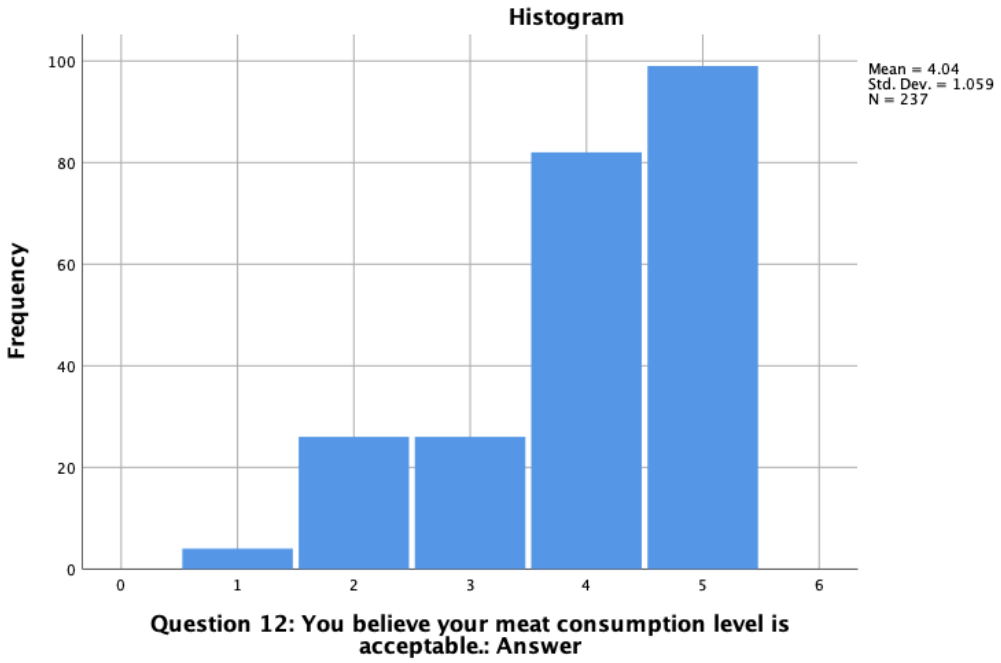
Most of the survey respondents believe their meat consumption level at the moment is acceptable according to histogram run on the frequency of answers in **Graph 6**. 99 respondents answered strongly agree which accounted for 41.8% of the total 237 submissions for question 12 and 82 answer as somewhat agree which is 34.6% of the total. The analysis also shows there is a correlation between question 12 and 13 which indicate a linear descending relation, shown in **Table 12**. The Pearson Correlation of -0.258 is significant but further to a perfect relation. As a result, the higher indicators the citizen believe in their acceptable meat consumption, the lower attempt in reducing their consumption level in the future.

Table 30 SPSS Correlations of question 12 and 13.

Correlations

		Question 12: You believe your meat consumption level is acceptable.: Answer	Question 13: You have attempted to reduce your level of meat consumption.: Answer
Question 12: You believe your meat consumption level is acceptable.: Answer	Pearson Correlation	1	-.258**
	Sig. (2-tailed)		.000
	N	237	237
Question 13: You have attempted to reduce your level of meat consumption.: Answer	Pearson Correlation	-.258**	1
	Sig. (2-tailed)	.000	
	N	237	237

**. Correlation is significant at the 0.01 level (2-tailed).



Graph 18 SPSS Histogram frequency of question 12.

Question 14: You do not intend to give up on meat.

Question 15: You personally encourage the introduction of more plant-based products in the market.

As people are more likely to agree with their individual level of meat consumption and less likely to attempt reducing it, it also results in strongly agree of "do not intend to give up on meat" asked in question 14. There are 155 out of 237 respondents that agree with the statement "You do not intend to give up on meat" while only 51 disagree answers, the remains are neither agree nor disagree (**Graph 7**).

The answers to these questions 14 have shown that even though Finnish citizens are pretty much aware and concern for the environment and the environment issues, affection for meat consumption remain relatively high and it is less likely that the Finnish market will observe any change soon regarding meat reduction. However, the new group of consumers who are trying to reduce the consumption by mixing vegetarian diet occasionally has appeared significantly.

Graph 19 SPSS Histogram frequency of question 14.

The final statement in this section is whether the consumer encourages the introduction of more plant-based products in the market. Attitudes toward this statement vary unevenly from strongly disagree to strongly agree; researcher decides to run a cross-table analysis on this data to compare the answer of four dietary groups. According to **Table 13**, the main answers of meat-eater group are at neither agree nor disagree (3) and somewhat agree (4). The figures show a high level of uncertainty to their demand for more plant-based products in the market. Meanwhile, flexitarian group responses more determined with 44 somewhat agree and 30 strongly agree answers. As of vegetarian and vegan, the demand is feasibly strong. Observing from the total population, Finnish demand for alternative sources of meat is moderately high, yet motives for the demand is not mentioned.

Table 31 SPSS Cross-table analysis of question 15 * Dietary.

Question 15: You personally encourage the introduction of more plant-based products in the market.: Answer * Q3_Dietary Crosstabulation

Count

		Q3_Dietary				
		Meat-eater	Flexitarian	Vegetarian	Vegan	Total
Question 15: You personally encourage the introduction of more plant-based products in the market.: Answer	Strongly Disagree	19	0	0	0	19
	Somewhat Disagree	12	3	0	0	15
	Neither Agree nor Disagree	41	17	1	0	59
	Somewhat Agree	41	44	0	0	85
	Strongly Agree	16	30	7	6	59
Total		129	94	8	6	237

From the observation and analysis of question 9 to 15, the author believes that Finnish citizens especially the young adults' group of customers (since the majority of population is from 18 to 35 years old) belong to the group of Learning Greens and Donor Greens from the green spectrum **Figure 2 page 16**.

As stated before, learning green customers are those who are on the debate information about environment issues and they would not exchange their behavior but rather contribute on a small convenient form of action. From the analysis, it can be seen that Finnish people possess a rather high concern for the environmental issues and are aware of the danger impact from meat production and consumption. However, a very small group act in accordance with their awareness since most people are not ready or certain about giving up meat consumption, instead some are already trying to reduce their consumption level.

Result:

The analysis of the answers from the statements under hypothesis 2 indicate the concern toward environment does little effect on meat consumption. People seek to maintain their favor for meat-based product even though there are some encouragement for plant-based introduction. For that reason, the researcher believes null hypothesis cannot be rejected.

H_0: Environmental awareness does not affect attitude toward meat consumption.

4.5 Consumers' willingness to reduce/ avoid high level of meat consumption

H_0: Consumers will not change dietary for environmental reasons.

H_3: Consumers are willing to change dietary to reduce/ avoid high level of meat consumption.

In order to confirm the last hypothesis which is consumers are willing to change their diet to reduce/ avoid high level of meat consumption, the researcher studies factors influencing consumption choice under theoretical framework, and uses the framework to set up a list of statement/ questions for respondents in the survey questionnaires. Specifically, questions from 16 to 25 in the survey are analyzed.

Question 16: You are willing to reduce/ avoid meat consumption for the environment.

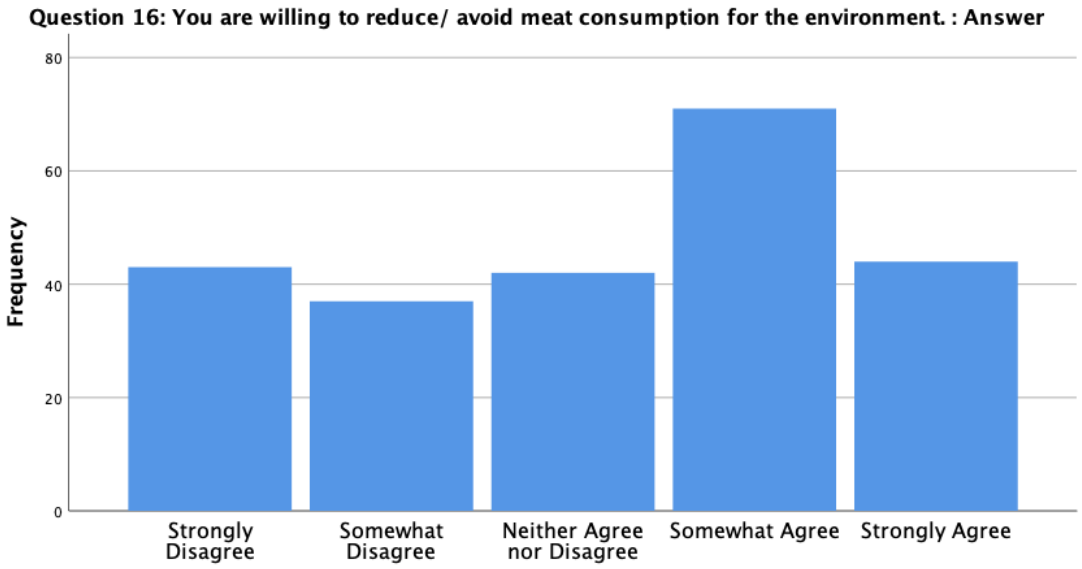
The first question under hypothesis 3 ask to the central point of the confirmation. The researcher run a descriptive analysis to observe the answers frequency. Results show there are totally 237 answers to the statement, of which 44 are strongly agree, 71 somewhat agree, 42 neither agree nor disagree, 37 somewhat disagree, and 43 strongly disagree (**Table 14**). Consider percentages aspect, responses to scale 1, 2, 3 and 5 are relatively at the same level except scale 4 (somewhat agree). The difference in answer can also be seen clearly in **Graph 8**.

The graph indicates that a group of citizens are willing to reduce/ avoid meat consumption, but a majority is uncertain with the decision. 18.1% of the sub-population are not willing to reduce/ avoid their consumption for the environment.

Table 32 SPSS Frequency analysis of question 16

Question 16: You are willing to reduce/ avoid meat consumption for the environment. : Answer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	43	18.1	18.1	18.1
	Somewhat Disagree	37	15.6	15.6	33.8
	Neither Agree nor Disagree	42	17.7	17.7	51.5
	Somewhat Agree	71	30.0	30.0	81.4
	Strongly Agree	44	18.6	18.6	100.0
	Total	237	100.0	100.0	



Graph 20 SPSS Histogram frequency of question 16.

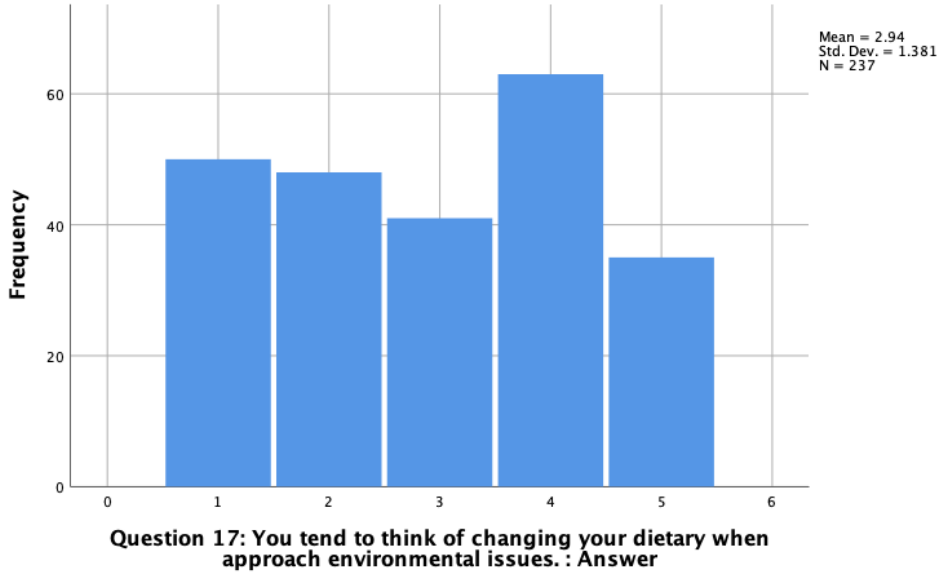
Question 17: You tend to think of changing your dietary when approaching environmental issues.

This question is seen as the situational involvement in the Stimulus-Organism-Response (SOR) model. It is analyzed on the frequency analysis in **Table 15** and histogram in **Graph 9**. The medium answer is 2.94, and standard deviation is 1.381, high standard deviation follows a less realistic medium number. As can be seen from the graph, the responses are scatter from 1 to 5. The distribution is not perfectly even yet the answers are not group in one specific scale.

Table 33 SPSS frequency analysis of question 17.

Question 17: You tend to think of changing your dietary when approach environmental issues. : Answer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	50	21.1	21.1	21.1
	Somewhat Disagree	48	20.3	20.3	41.4
	Neither Agree nor Disagree	41	17.3	17.3	58.6
	Somewhat Agree	63	26.6	26.6	85.2
	Strongly Agree	35	14.8	14.8	100.0
	Total	237	100.0	100.0	



Graph 21 SPSS frequency histogram of question 17.

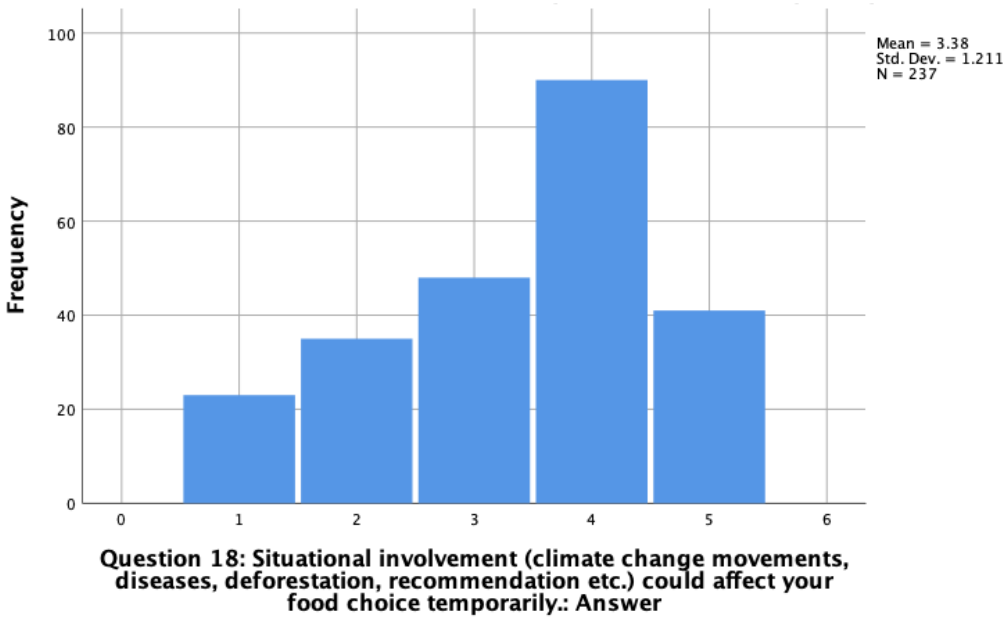
Question 18: Situational involvement (climate change movements, diseases, deforestation, recommendation etc.) could affect your food choice temporarily.

Nevertheless, consumers in Finland would rather change their consumption choice temporarily. Evidence showing in **Table 16**, that there are 90 submissions for Likert scale 4 (somewhat agree) and 41 for scale 5 (strongly agree), which accounted for a combined 55.3% of the total 237 participants. Comparing answers of question 17 and 18 (**Graph 10**), the nature of two questions are not different except for one mention about temporary approach. Consumers are more confident in changing their diet for a short-term rather than making a long-term commitment, as the involvement is low there is no certainty for action response.

Table 34 SPSS frequency analysis of question 18.

Question 18: Situational involvement (climate change movements, diseases, deforestation, recommendation etc.) could affect your food choice temporarily.: Answer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	23	9.7	9.7	9.7
	Somewhat Disagree	35	14.8	14.8	24.5
	Neither Agree nor Disagree	48	20.3	20.3	44.7
	Somewhat Agree	90	38.0	38.0	82.7
	Strongly Agree	41	17.3	17.3	100.0
	Total	237	100.0	100.0	



Graph 22 SPSS frequency histogram of question 18.

Question 19: Choose the strongest determinant of your food choice.

Due to Jan-Benedict theory in 1993 studying the determinants of food choice, there are three primary approaches (**Figure 9 page 27**): properties of the food; person-related factor, and environment. Each determinant components and definitions are described under theoretical framework. As a matter of fact, the survey include question 19 to ask respondents to choose which determinant is the strongest in food-related decision.

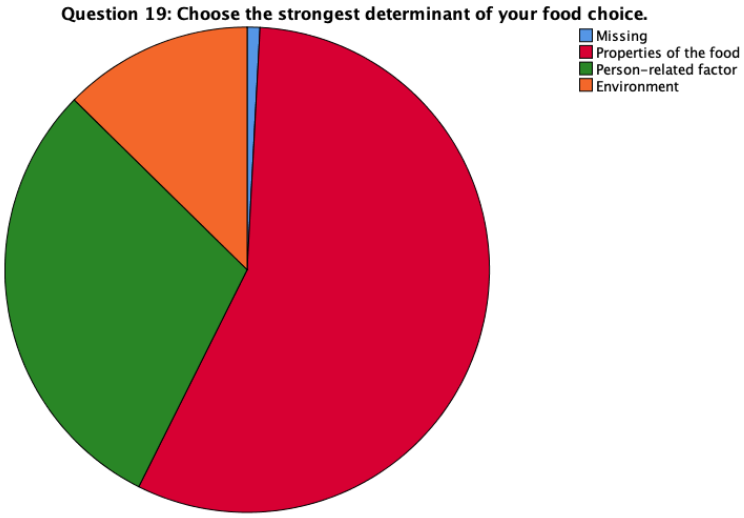
There are 2 missing values in the submission for this question which left the researcher totally 235 responses (**Table 17**). The question also explains the components that form the determinants following (Properties of the food: physical, chemical, nutrient content; Person-related factors: biological psychological, personality; Environment: social-cultural, economic, marketing).

The majority of the answers belong to Properties of the food, which is 56,5% of the total. Following is Person-related factors with 30%. The environmental factor is the least percentage (**Graph 12**). The results show that the society of Finland has less economical struggle within households and high individual choices. Nutrients of the food as well as physical and chemical are seen to be the most concerning factors in food consumption. Personality, psychological and biological factors are fairly noted when consider the food option.

Table 35 SPSS descriptive analysis of question 19.

Question 19: Choose the strongest determinant of your food choice.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Missing	2	.8	.8	.8
	Properties of the food	134	56.5	56.5	57.4
	Person-related factor	71	30.0	30.0	87.3
	Environment	30	12.7	12.7	100.0
	Total	237	100.0	100.0	



Graph 23 SPSS pie chart of question 19.

Question 20: You have considered the impact of your consumption choices to the society and environment.

Question 20 and 21 are asked in an attempt to observe the reaction of responsibility behavior and ecological responsible consumption of people living in Finland. The researcher decides to observe answers from question 20 regarding gender-wise, as can be seen from **Table 18**. Of 119 males and 116 females and 2 of other gender, the answers from female group are leaning more toward agreement and males. Other genders are only 2 submissions, so it is impossible to draw conclusion.

Generally, consumers in Finland have a moderately high responsibility for their consumption choices and its effect on the society and environment. Even though the question does not mention particularly meat consumption, it helps the researcher to

understand that avoiding/ reducing meat intakes might not be their ways of helping the environment. The courses of action could be of other means.

Table 36 SPSS cross-table analysis of question 20* Gender.

Question 20: You have considered the impact of your consumption choices to the society and environment.: Answer * Q1_Gender Crosstabulation

Count

		Q1_Gender			
		Male	Female	Other	Total
Question 20: You have considered the impact of your consumption choices to the society and environment.: Answer	Strongly Disagree	11	5	0	16
	Somewhat Disagree	19	10	0	29
	Neither Agree nor Disagree	30	22	0	52
	Somewhat Agree	35	52	1	88
	Strongly Agree	24	27	1	52
Total		119	116	2	237

Question 21: You personally believe it is your responsible to protect the environment.

At the same time, a large number of meat-eater and flexitarian dietary groups believe that it is their responsibility to protect the environment. According to **Table 19** of the analysis, 79 of 129 meat-eaters are somewhat agree and strongly agree with the statement. Only 27 meat-eaters are disagreed with the statement and 23 remain neither agree nor disagree. Vegetarian and vegan are strongly believed in their ecological responsibility. Data of flexitarian group is of the same pattern as meat-eater.

Table 37 SPSS cross-table analysis of question 21* Dietary.

Question 21: You personally believe it is your responsible to protect the environment.: Answer * Q3_Dietary Crosstabulation

Count

		Q3_Dietary				
		Meat-eater	Flexitarian	Vegetarian	Vegan	Total
Question 21: You personally believe it is your responsible to protect the environment.: Answer	Strongly Disagree	12	3	0	0	15
	Somewhat Disagree	15	8	0	0	23
	Neither Agree nor Disagree	23	16	0	0	39
	Somewhat Agree	50	41	2	1	94
	Strongly Agree	29	26	6	5	66
Total		129	94	8	6	237

Question 22: You tend to choose the product/ company that has green value/ green marketing for the product.

According to the SOR model display in **Figure 8 page 26**, response involvements are supposed to happen as a result of enough stimulus and organism state of a consumer. Simply put, the customer will choose to lay their decision for consumption based on the situation and emotion commitment. Question 22 is asked to foresee how the consumer responds or justify the actions made toward the environmental issues, and if the green value of a product would make the decision easier. The results from the answer demonstrate a diversity in opinions. Of the total 237 participants in the question, there are 58 responses to neither agree nor disagree. A majority choose to agree to the statement (124 accounts), but two-third of the portion is at scale 4 (somewhat agree).

Observing from the gender perspective, there are only 2 disagree accounts and 13 at somewhat disagree while the number is greater for males (**Table 20**). The answers patterns yet again show females are more determined in their action toward the environment than men.

Table 38 SPSS cross-table analysis of question 22* Gender.

Question 22: You tend to choose the product/ company that has green value/ green marketing for the product.: Answer * Q1_Gender Crosstabulation

Count

		Q1_Gender			
		Male	Female	Other	Total
Question 22: You tend to choose the product/ company that has green value/ green marketing for the product.: Answer	Strongly Disagree	15	2	0	17
	Somewhat Disagree	25	13	0	38
	Neither Agree nor Disagree	26	32	0	58
	Somewhat Agree	37	46	1	84
	Strongly Agree	16	23	1	40
Total		119	116	2	237

Question 23: You are likely to approach other protein source on the market for curiosity.

Question 23 states another form of action and observe the responses as a part of the SOR model. Consumer with some level of environmental awareness and keep updated themselves with the information, even if they are meat-eater and are not likely to change their behavior, whether would approach other protein source on the market for curiosity. Vegetarian and vegan, just as their wishes and expected from the society, are agree to the statement. Flexitarian group shows no strong agreement and only a small number of somewhat disagree, figures from **Table 21**. There is a slight balance in the agree and

disagree accounts from meat-eater, which indicate a not so strong action from this group regarding adopting alternative sources of protein.

Table 39 SPSS cross-table analysis of question 23* Dietary.

Question 23: You are likely to approach other protein source on the market for curiosity.: Answer * Q3_Dietary Crosstabulation

Count

		Q3_Dietary				
		Meat-eater	Flexitarian	Vegetarian	Vegan	Total
Question 23: You are likely to approach other protein source on the market for curiosity.: Answer	Strongly Disagree	23	0	0	0	23
	Somewhat Disagree	22	6	0	0	28
	Neither Agree nor Disagree	30	21	0	1	52
	Somewhat Agree	45	51	3	1	100
	Strongly Agree	9	16	5	4	34
Total		129	94	8	6	237

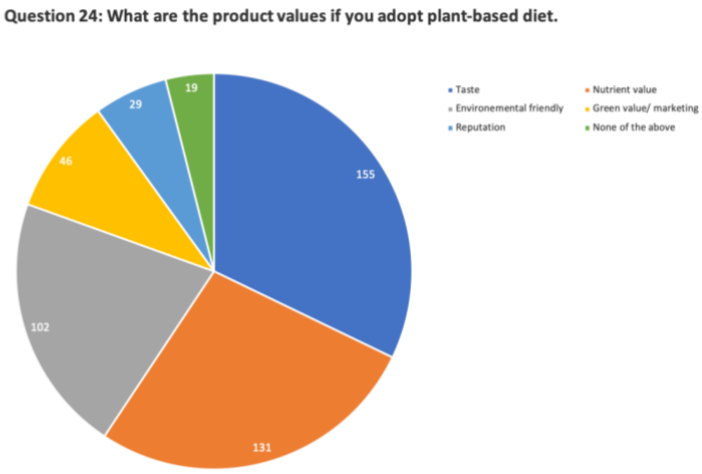
Question 24: What are the product values if you adopt plant-based diet.

Question 25: Your personal needs if adopting plant-based product.

The last two questions asked seeking to identify the consideration for people to adopt plant-based product in terms of personal needs and product values. Each question is listed with multiple options and are not limited in number of options. There are 19 (8%) of the population to choose none of the listed options. Other than that, the most chosen are taste and nutrient values (65% and 55%), as can be seen from **Table 22**. Comparing these data to the analysis of question 19, when respondents are asked to choose the strongest determinant of their food choice. The most chosen determinant is properties of the food, which is relevant with taste and nutrient value in this question. It means that either meat-based or plant-based product must be able to satisfy customer basics demand in deliciousness and body's nutrients before taking care of the society. There is 43% of the people believe the environmentally friendly aspect would be as important, and green value/ marketing campaign are next to considered with 19% (**Graph 13**). Reputation of the products is the least chosen with only 29 accounts (12%).

Table 40 Percentages and number of chosen values of question 24.

Total	Taste	Nutrient value	Environemental friendly	Green value/ marketing	Reputation	None of the above
237	155	131	102	46	29	19
100 %	65 %	55 %	43 %	19 %	12 %	8 %

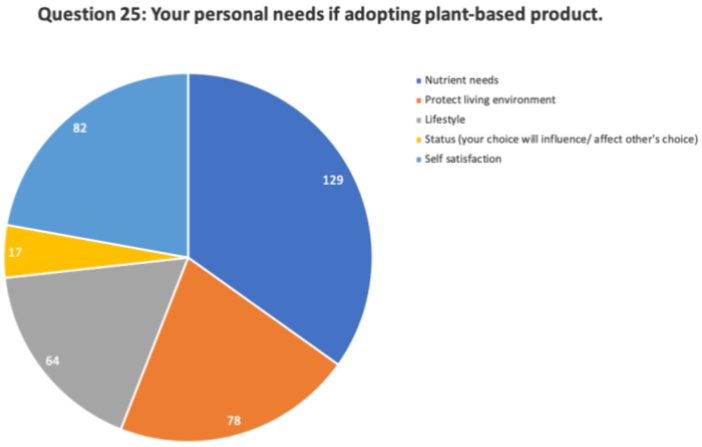


Graph 24 Data set in pie chart (Question 24).

Under the circumstances if the customer chooses to adopt plant-based products, the researcher wants to know what would or could be the needs for it. Using Maslow's hierarchy of needs model **Figure 7 page 25**, the listed options are nutrient needs (stand for physiological needs); protect living environment (stand for safety and security needs); lifestyle (social needs); status (ego needs); and lastly self-satisfaction (self-actualization). The number of chosen options and its percentages are shown in **Table 23** and pie chart of **Graph 14**. The question form is multiple-choice and there is no limit in option. As can be seen from the graph, the most chosen option is nutrient needs with 129 answers and 54% of the total 237. It shows that half of the population identify their physiological needs if adopting plant-based product. Notably, self-satisfaction (self-actualization) follows second in rank with 82 chosen (35%). The needs for protecting living environment is the third in rank, and very close to self-actualization with 33%. Lifestyle of the consumers (affection, friendship, and belonging) take 27% of the total and the least number is ego-needs with only 7%.

Table 41 Percentages and number of chosen values of question 25.

Total	Nutrient needs	Protect living environment	Lifestyle	Status (your choice will influence/ affect other's choice)	Self satisfaction
237	129	78	64	17	82
100 %	54 %	33 %	27 %	7 %	35 %



Graph 25 Data set in pie chart (Question 25).

Result:

Meat-based consumers, although not likely to change their consumption behavior perfectly, show some willingness to reduce/ avoid high level of meat consumption. As evidence shows, there are a great number of flexitarians in Finland, the possibility for more plant-based adoption also rely on the innovation and development of the product itself.

H_3: Consumers are willing to change dietary to reduce/ avoid high level of meat consumption ($\mu > 0$).

4.6 Research results

Empirical evidence has deliberately shown the incongruence of attitude toward environmental awareness and meat consumption of the sub-population. Consumers in Finland express significant concern toward the environmental issues and climate change in general, nevertheless, meat-based consumers are mostly consent with their consumption.

The theories of environmental awareness have given guideline to identify that consumers in the Finnish market belong to learning greens and donor green groups, also confirm the use of tri-component model in developing pathway from awareness to intention behavior of meat consumption. The evaluation combining previous researches and statistics have shown the current consumption level (75kg per person per year) exceed the preferable amount advised by experts (66kg per person per year).

Effect of environmental awareness on meat consumption is rather low to confirm its positivity. From the empirical study, it can be seen that the favor for meat-based product is high, and consumers have weak attitude toward changing dietary. Leaders in the meat industry such as Atria have recognized the trends and challenges and propose probable actions, yet it is still too soon to announce success. Participants of the study would choose products that has green-value or approach plant-based product for curiosity but are not certain about giving up on meat.

Factors that are most likely to influence consumer choice in Finland, observed from the data collected, are properties of the food and some of person-related factors. Tastes and nutrient are at the top of the concern for dietary. The empirical study confirmed the use of Pilgrim model and Jan-Benedict development of the theory on food consumption behavior in Finland. By presenting the Maslow's hierarchy of needs, the researcher found that physiological needs and self-actualization are the most identified stage for one person to consider adopting plant-based diet.

On the contrary, SOR model of Mehrabian and Russell happen to be excluded from the confirmation. Answers from the survey prove that situational involvement does lead to the forming of opinions and emotions but not result in approach or avoidance in meat consumption. Responsibility perception or guilt behavior help the consumer to forward minor change or reduction to avoid high level of consumption.

4.7 Recommendation for future research

There has been many researches and studies about environmental awareness and meat consumption in an attempt to encourage reducing the consumption level in the future. In this research, a wide range of materials and articles have been used to back up the research.

However, despite the efforts, individual consumption cannot be changed within a short timeframe as well as be controlled over the government; behavioral intention must come from the consumers themselves by provoking social responsibility and awareness.

Future researches regarding this topic should develop and implement the important to of the environment to the process of buying behavior. Protecting the environment over the course of one's lifestyle will become as much important as secure basics need. Each nation has a different measurement of how much meat should be consumed per individual per year. To achieve the expectation, viable and applicable strategies need to be written. Researchers in the country bear the responsibility to observe customer expectation as well as demands to develop alternative products and approaches. The next research about environmental awareness and meat consumption should provide a guideline to achieve the reduction objective in the Finnish market.

5 CONCLUSION

This paper has tried to show the environmental awareness and attitude toward meat consumption of the customers in Finland. The research is set to identify the concern toward environmental issues as well as the willingness to change dietary to reduce the impacts of meat consumption/ production through a designed quantitative methodology. The results of the study are presented in the next paragraphs.

Environmental awareness as an attitude is difficult to measure between individuals, but with the guideline of buying behavior and attitude model in Schiffman's Consumer Behavior literature, the author is able to confirm that consumers in Finland are aware of the environmental impact of meat production and consumption. It is seen from the empirical study under hypothesis 1, that participants of the survey are highly agreeable to their concern, action to fight climate change, and agree to acknowledge that meat consumption is a threat to the earth.

Meat consumption and production in Finland is at a moderate level, comparing to the European neighbors. The country is well aware of the production level and keeps a good control over meat industry. However, experts have measured and warned that meat consumption per individual per year is much higher than the preferable amount, which mean consumption level is high. The survey results of hypothesis 2 also have the positive attitude toward meat. The majority of the respondents consume meat almost every day and believe that meat-based products are essential. Uncertainty of changing dietary is high, and it is less likely that meat-based consumers are willing to give up on meat. Consequently, the researcher fails to confirm that environmental awareness has a positive relation to meat consumption.

Despite the low level of cutting meat, consumers have shown willingness to reduce the consumption level to mitigate harmful impacts. Consumers decide food choices base on many factors and determinants. The understanding of these factors allows the researcher to foresee parts of intentional behavioral in response to the environment issues. The confirmation of consumer willingness to meat reduction also provide the grounds for future product development.

In the future, it is believed that meat consumption in relation to the environment will appear more on the debate, changes and challenges are at the beginning of the new consumption trends. Critics should push the pressure on actions to fight climate change from government and corporations so that consumers can rely on mutual efforts and take actions as well. This research does not aim at criticizing meat-eaters for their food choice but rather bring up the consideration and awareness of one's consumption. Diets have developed to be more abundant in a way that can secure individual needs and favors, consumers will not only have more options but also be able to secure the sustainability value over the consumption choice. Perhaps consumers can start asking themselves what will I choose to eat today, and what would my choice contribute to the impacts of future environment?

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Thesis passport (to be given to the supervisor for filing after the thesis is finished).

Name of student _____

Group _____

Contact information_____

Topic of thesis _____

Client _____

	At latest	Date	Signature
1. Introduction to thesis and related assignments completed	_____	_____	_____
2. Approval of topic	_____	_____	_____
3. Thesis plan approved	_____	_____	_____
4. Interim seminar presentation held	_____	_____	_____
5. Contents of thesis approved	_____	_____	_____
6. Layout and language approved	_____	_____	_____
7. Abstract in foreign language accepted	_____	_____	_____
8. Thesis submitted to the opponent	_____	_____	_____
9. Participation in presentation seminars			
- excluding acting as an opponent and own presentation			
1. _____		_____	_____
2. _____		_____	_____
3. _____		_____	_____
4. _____		_____	_____
5. _____		_____	_____
6. _____		_____	_____
10. Presentation of own thesis held		_____	_____
11. Acting as an opponent (title/student)			
_____		_____	_____
12. Maturity test accepted		_____	_____
13. Written version of the thesis submitted to the supervisor		_____	_____

14. I hereby assure that I saved my thesis in electronic form into the Theseus at the address

_____

Address Signature of the student

APPENDIX 2

“Hi,

I am an IB student working on my thesis study the environmental awareness and attitude toward meat consumption in Finland. In order to collect the data needed for the thesis, I create a survey questionnaire and I would appreciate it if you can take 5-7 mins to help me answer it.

The response will be processed anonymously and are part of the research.

Thank you.”

Question 1:	Gender				
	Female	Male	Other		
Question 2:	Age				
	18 - 35	36 – 45	46 – 65	>65	
Question 3:	Dietary				
	Meat-eater	Flexitarian	Vegetarian	Vegan	
Part 1 (Hypothesis 1)					

Question 4:	You are worried about global warming.				
	1. Strongly Disagree	2. Somewhat Disagree	3. Neither Agree nor Disagree	4. Somewhat Agree	5. Strongly Agree
Question 5:	You are worried about action to fight climate change.				
	1. Strongly Disagree	2. Somewhat Disagree	3. Neither Agree nor Disagree	4. Somewhat Agree	5. Strongly Agree
Question 6:	You are actively paying attention to environmental news, policies, movements, activists.				
	1. Strongly Disagree	2. Somewhat Disagree	3. Neither Agree nor Disagree	4. Somewhat Agree	5. Strongly Agree
Question 7:	You think production of meat (pigs, poultry, cattle, goats and sheep) are harmful to environment.				
	1. Strongly Disagree	2. Somewhat Disagree	3. Neither Agree nor Disagree	4. Somewhat Agree	5. Strongly Agree
Question 8:	You believe reducing meat consumption level would benefit the environment significantly.				

	1. Strongly Disagree	2. Somewhat Disagree	3. Neither Agree nor Disagree	4. Somewhat Agree	5. Strongly Agree
Part 2 (Hypothesis 2)					
Question 9:	You independently decide your dietary.				
	1. Strongly Disagree	2. Somewhat Disagree	3. Neither Agree nor Disagree	4. Somewhat Agree	5. Strongly Agree
Question 10:	*You eat meat (pigs/ poultry/ cattle/ goats and sheep) every day.*				
	1. Strongly Disagree	2. Somewhat Disagree	3. Neither Agree nor Disagree	4. Somewhat Agree	5. Strongly Agree
Question 11:	*You personally believe meat-based products are essential to your dietary.*				
	1. Strongly Disagree	2. Somewhat Disagree	3. Neither Agree nor Disagree	4. Somewhat Agree	5. Strongly Agree
Question 12:	*You believe your meat consumption level are acceptable.*				

	1. Strongly Disagree	2. Somewhat Disagree	3. Neither Agree nor Disagree	4. Somewhat Agree	5. Strongly Agree
Question 13:	*You have attempted to reduce your meat consumption level.*				
	1. Strongly Disagree	2. Somewhat Disagree	3. Neither Agree nor Disagree	4. Somewhat Agree	5. Strongly Agree
Question 14:	*You do not intend to give up on meat.*				
	1. Strongly Disagree	2. Somewhat Disagree	3. Neither Agree nor Disagree	4. Somewhat Agree	5. Strongly Agree
Question 15:	*You personally encourage the introduction of more plant-based products in the market.*				
	1. Strongly Disagree	2. Somewhat Disagree	3. Neither Agree nor Disagree	4. Somewhat Agree	5. Strongly Agree
Part 3 (Hypothesis 3):					
Question 16:	You are willing to reduce/ avoid meat consumption for the environment.				

	1. Strongly Disagree	2. Somewhat Disagree	3. Neither Agree nor Disagree	4. Somewhat Agree	5. Strongly Agree
Question 17:	You tend to think of changing your dietary when approaching environmental issues.				
	1. Strongly Disagree	2. Somewhat Disagree	3. Neither Agree nor Disagree	4. Somewhat Agree	5. Strongly Agree
Question 18:	Situational involvement (climate change movements, diseases, deforestation, recommendation etc.) could affect your food choice temporarily.				
	1. Strongly Disagree	2. Somewhat Disagree	3. Neither Agree nor Disagree	4. Somewhat Agree	5. Strongly Agree
Question 19:	Choose the strongest determinant of your food choice.				
	1. Properties of the food (physical, chemical, nutrient content) 2. Person-related factors (biological, psychological, personality) 3. Environment (social-cultural, economic, marketing)				
Question 20:	You have considered the impact of your consumption choices to the society and environment.				

	1. Strongly Disagree	2. Somewhat Disagree	3. Neither Agree nor Disagree	4. Somewhat Agree	5. Strongly Agree
Question 21:	You personally believe it is your responsible to protect the environment.				
	1. Strongly Disagree	2. Somewhat Disagree	3. Neither Agree nor Disagree	4. Somewhat Agree	5. Strongly Agree
Question 22:	You tend to choose the product/ company that has green value/ green marketing for the product.				
	1. Strongly Disagree	2. Somewhat Disagree	3. Neither Agree nor Disagree	4. Somewhat Agree	5. Strongly Agree
Question 23:	You are likely to approach other protein source on the market for curiosity.				
	1. Strongly Disagree	2. Somewhat Disagree	3. Neither Agree nor Disagree	4. Somewhat Agree	5. Strongly Agree
Question 24:	What are the product values if you adopt plant-based diet?				
	1. Taste 2. Nutrient value				

	3. Environmentally friendly 4. Green value/ marketing 5. Reputation 6. None of the above
Question 25:	Your personal needs if adopting plant-based product.
	1. Nutrient needs 2. Protect living environment 3. Lifestyle 4. Status (your choice will influence/ affect other's) 5. Self-satisfaction